

IMF Paper on Policy Analysis and Assessment

© 1998 International Monetary Fund

This is a *Paper on Policy Analysis and Assessment* and the author(s) would welcome any comments on the present text. Citations should refer to a *Paper on Policy Analysis and Assessment of the International Monetary Fund*. The views expressed are those of the author(s) and do not necessarily represent those of the Fund.

PPAA/98/1

INTERNATIONAL MONETARY FUND

Policy Development and Review Department

Aid Effectiveness: A Survey of the Recent Empirical Literature

Prepared by Tsidi M. Tsikata ¹

March 1998

Abstract

The preponderance of evidence from the empirical literature on aid effectiveness suggests that development aid has not had a significant impact on growth in recipient countries. However, there is some evidence that aid has had positive effects when the policy environment has been conducive to growth. Regarding the relationship between aid and the main channels through which its impact on growth could flow—investment and domestic saving—the evidence is mixed, with some indication that aid has had a positive impact where adjustment efforts have been sustained.

JEL Classification Numbers: F35, O19

Keywords: Foreign Aid, Growth

Author's E-Mail Address: TTsikata@imf.org

¹ The author wishes to thank Hugh Bredenkamp, Sharmini Coorey, Rex Ghosh, Javier Hamann, Steve Phillips, Doris Ross, Susan Schadler and Joel Toujas-Bernaté for valuable comments and suggestions. He is also grateful to colleagues who provided Departmental comments, to Claire Adams for help with aid data, and to Kadima Kalonji and Olivia Carolin for research and secretarial assistance, respectively.

I. INTRODUCTION

Notwithstanding substantial amounts of aid that many low income countries have received over the last 20–30 years, it appears that the expectations of the early champions of development aid—that it would boost investment and growth in low-income countries by supplementing domestic saving or relaxing foreign exchange constraints—have not been met. Critics charge that, far from taking advantage of aid to achieve high and sustained growth, thereby reducing the need for further assistance, many countries have become more dependent on aid. Some commentators have even suggested that aid flows have allowed governments to postpone needed reforms.² Partly on account of tighter aid budgets in donor countries, and also because of concerns that many aid recipients appear to be trapped in poverty, donors themselves have been searching for ways to make aid more effective.³ This note surveys the main findings of the empirical literature over the last ten years, regarding aid's impact on economic growth and on poverty alleviation.

Aid takes many forms, but can be classified into two broad categories: development aid (comprising project aid, program aid, and technical assistance) and emergency assistance. Emergency assistance is intended to provide temporary relief from the effects of natural disasters and other destructive events such as war, rather than to stimulate growth and

² For example, in a recent proposal to the U.S. government on “a new partnership for growth in Africa” (HIID, 1997), the authors assert that by being open-ended, foreign aid has failed to put pressure on governments to make the policy choices needed to mobilize domestic resources for development.

³ For a summary of recent trends in donor aid policies see Chapter IV in IMF (1995). The annual reports of the Development Assistance Committee (DAC) of the OECD are an excellent source for information on donor policies.

development. The discussion of the impact of aid on growth is concerned mainly with the extent to which development aid increases investment in physical and human capital in recipient countries.⁴

Early empirical studies of the macroeconomic impact of foreign aid focused on associations between aid, domestic saving and growth; with Harrod-Domar type models (e.g. the two-gap model) providing the theoretical basis for regressions. In the last few years, the aid effectiveness literature has drawn on a flourishing empirical growth literature to employ more sophisticated models, and to address some of the econometric weaknesses of earlier studies. It has also given more careful consideration to incentives in the donor-recipient relationship and how these might encourage recipient governments to pursue policies that perpetuate aid dependence and undermine growth.⁵

Apart from studies grounded in growth theory, there are strands in the aid effectiveness literature that focus more narrowly on specific channels through which the impact of aid on growth might flow. Two such strands of particular interest to IMF operations are the impact of aid on government budgets (i.e., the “fiscal response” to aid), and the impact of aid on the real exchange rate (i.e., aid as a source of “Dutch disease”). Issues in the fiscal response literature include the fungibility of aid resources, and the impact on the private sector

⁴ For highly indebted countries, program aid may take the form of debt relief to reduce a debt “overhang” and contribute towards creating a qualitatively different environment in which a virtuous cycle of capital inflows and growth has a chance of getting started.

⁵ White (1992a) and White and Luttik (1994) contain comprehensive surveys of the aid effectiveness literature through the early 1990s. For a less detailed treatment but which still covers the main issues, see White (1992b). Influential papers in the early literature include Griffin (1970), Papanek (1972 and 1973) and Weisskoff (1972).

of aid-financed government spending (crowding in vs crowding out). The principal question regarding “Dutch disease” effects of aid is how government policy can mitigate erosion in export competitiveness.

The rest of the paper is organized as follows. Part II presents some stylized facts on aid flows, including indicators of aggregate trends and the relative importance of these flows to recipient countries. Part III provides a flavor of the range of findings in the literature regarding the impact of aid on growth. Part IV focuses on aid’s impact on domestic saving and investment. Interactions between aid and the government budget are also covered in this section. Part V highlights how incentives in the donor-recipient relationship, as well as the nature of the political regime in recipient countries, might influence the effectiveness of aid. Possible “Dutch disease” effects of aid are discussed in Part VI. Part VII concludes.

II. AID FLOWS: SOME STYLIZED FACTS

The most common definition of aid in the empirical literature is the OECD measure, “official development assistance” (ODA), which comprises grants, concessional loans, and debt forgiveness. In order to qualify as ODA, assistance must have as its main objective the promotion of economic development and welfare, and if it is in the form of a loan, must have a grant element of at least 25 percent.⁶ On this definition, annual net disbursements of aid to non-transition economies rose from US\$18 billion in 1975 to a peak of nearly US\$56 billion in

⁶The grant element is calculated using a discount rate of 10 percent.

1990, and then declined to US\$51 billion in 1995.⁷ In real terms, total net disbursements to these countries fell sharply after 1990 (Figure 1).

Aid from bilateral sources by far outweighs multilateral aid, accounting for 70-80 percent of the total. Within bilateral aid, project aid dominates, with its share of total bilateral aid commitments rising from an annual average of 60 percent during 1976-80 to 75 percent during 1991-95.⁸ Over the same period, the share of debt relief in bilateral aid also rose (from 6 percent to 9 percent), while the shares of food aid and other program aid declined (Figure 1). Program aid may have become more important for multilateral agencies but overall, project aid is the predominant form of aid.^{9 10}

⁷ The coverage of the ODA data expanded in the 1990s to include assistance to the so-called transition economies—countries in Central and Eastern Europe as well as the successor states of the former Soviet Union. The share of total ODA that went to these countries increased from 4 percent in 1990 to 11 percent in 1991 and to 16 percent in 1995.

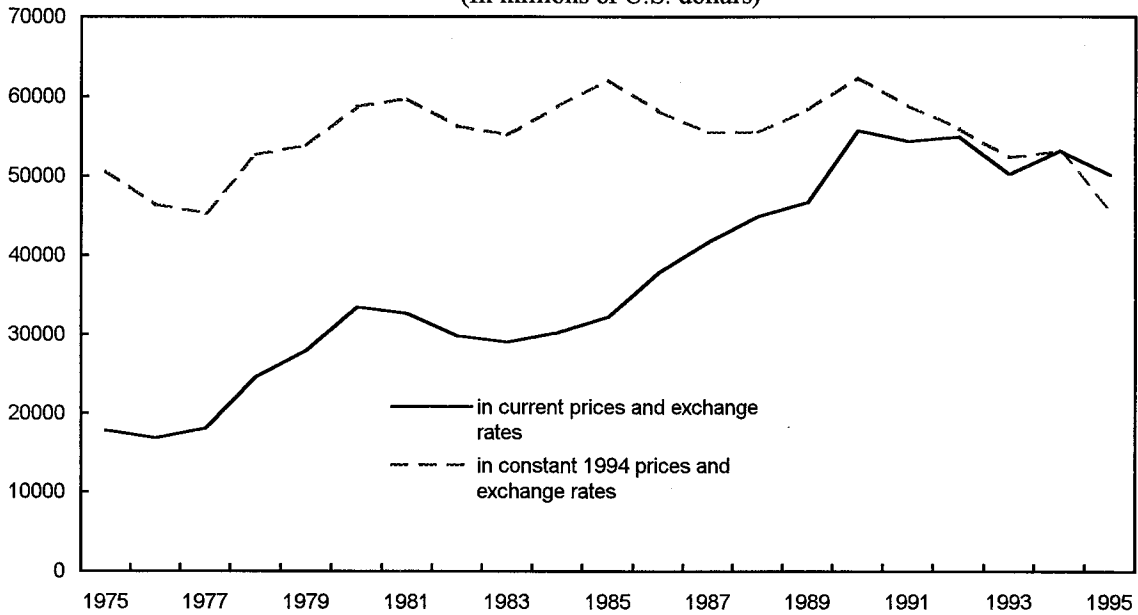
⁸ The discussion here of the composition of bilateral aid is based on aid commitments data. The requisite data was not available for disbursements. Although commitments and disbursements have followed a similar long-term trend, caution is required in making inferences about disbursements from data on commitments.

⁹ According to Jayarajah and Branson (1995), the ratio of investment lending to adjustment lending at the World Bank went from 95:5 in 1976–80 to 74:26 in the early 1990s.

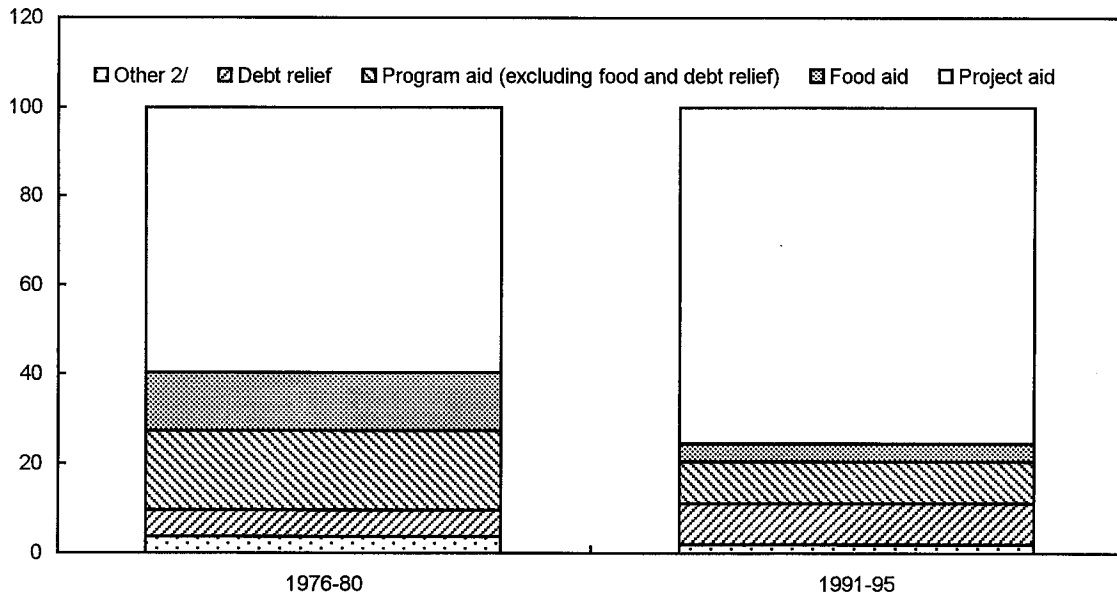
¹⁰ One aspect of aid that is not covered in this note is food aid, a common caricature of which is cheap (if not free) imports undermining the domestic capacity to produce food. To the extent that food aid replaces commercial imports, there should be no impact on domestic production. Also, when food aid is in response to a temporary shortfall in domestic production (e.g., related to a temporary shock such as drought), incentives to domestic production can be maintained in large part through appropriate pricing policy. Today, food aid tends to be a way of providing financial support to the recipient government, and issues related to it are as likely to be about its impact on the budget as they are to be about its impact on domestic production.

Figure 1. ODA Indicators

Evolution of ODA Disbursements, 1975-95 1/
(In millions of U.S. dollars)



Distribution of Bilateral ODA Commitments by Type, 1976-80 vs 1991-95
(In percent of total)



Source: OECD database.

1/ Excluding aid to transition economies (Central and Eastern Europe, and successor states to the former Soviet Union).

2/ Including emergency assistance.

How important has aid been to recipient countries? An examination of data for a sample of 56 aid recipients indicates that despite the decline in the real value of total aid flows in the 1990s, a large number of countries became more aid-dependent in the 1990s than they were in the late 1970s (Figure 2).¹¹ For the sample as a whole the median ratio of aid to GNP increased from about 6 percent to 11 percent over the period.¹² However, the median share of domestic investment in GNP fell slightly (from 22 percent to 20 percent) and imports remained at 36–37 percent of GNP. Per capita real GNP growth for the sample also fell on average (the median went from 1.3 percent per annum in 1976–80 to 0.4 percent per annum in 1991–95).

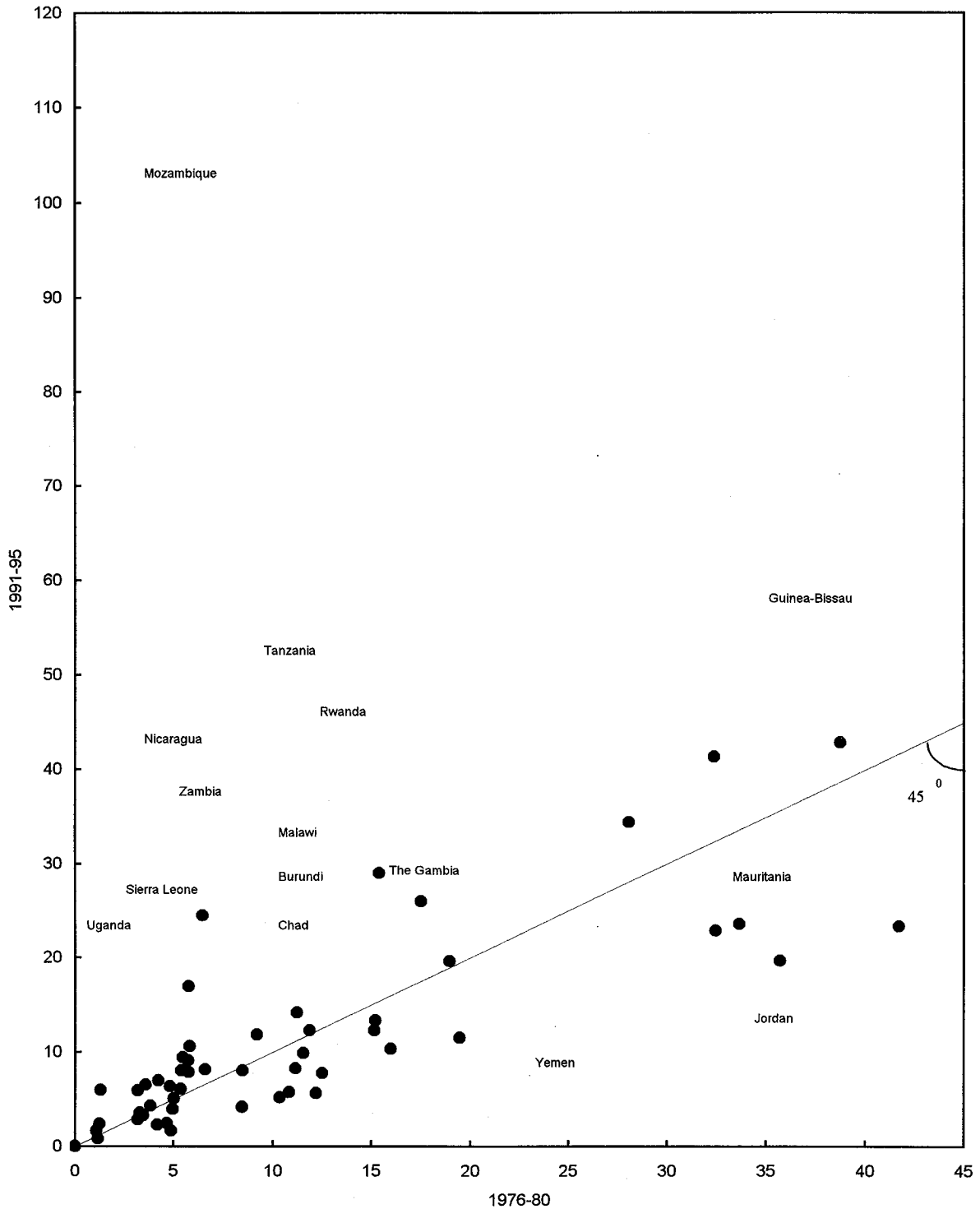
III. AID, POLICIES, AND GROWTH

What role can aid play in the growth process? Different growth models suggest different answers. The basic premise of two-gap models is that low domestic savings and inadequate foreign exchange earnings constrain the level of investment in poor countries. Given these countries' limited access to private foreign capital, aid has the straightforward role of filling "financing gaps" between domestic saving and the investment needed to attain a

¹¹ Data on the evolution of aid/GNP ratios for individual countries and regional groups are presented in the Appendix. Coverage is countries classified as low- or middle-income in the World Bank's *World Development Indicators* database, and in which there was at least one year during 1975–95 when the aid/GNP ratio was equal to or greater than 5 percent. Excluded are countries with populations of less than one million in 1995 and transition economies. A few countries were also excluded on account of lack of data.

¹² For many countries, part of this increase may reflect the (negative) impact on measured dollar GNP of more realistic exchange rates in the 1990s compared to the 1970s.

Figure 2. Total ODA Net Disbursements by Country, 1991-95 vs 1976-80 1/
(In percent of GNP; period averages)



Source: OECD database.

1/ Points above (below) the 45-degree line represent countries that became more (less) aid-dependent between 1976-80 and 1991-95. Countries whose names appear on the chart are those in which average aid/GNP ratios exceeded 20 percent in at least one of the periods.

targeted rate of growth.¹³ Estimated growth equations that are motivated by two-gap models highlight the role of domestic saving, aid and other sources of financing investment. Often, they also include other explanatory variables, including variables thought to be important in aid allocation decisions, proxies for government policies, and indicators that measure exogenous shocks.

The role of aid is not as clear-cut in the “new growth” literature—encompassing various modifications to the Solow-Swan neoclassical growth model, and endogenous growth models.¹⁴ In some of these models the impact of aid depends on whether it is perceived as permanent or temporary; permanent aid merely raises consumption and does not increase investment nor growth. Others allow the possibility that an injection of aid can help a country escape from a “poverty trap” onto a higher steady-state growth path. An important feature of the empirical work motivated by “new growth” models is the prominence given to human capital, policies that promote investment (in both physical and human capital), and institutional factors that may constrain growth.

Aid and growth through two-gap spectacles

Snyder (1993) shows that estimates of the impact of aid on growth can be highly sensitive to the specification of the growth equation. Using ordinary least squares (OLS), he

¹³ The two-gap literature recognized the danger of aid dependency, and stressed the need for countries to increase their domestic saving rate if they were going to attain self-sustained growth (see, for example, Chenery and Strout (1966)). Easterly (1997) presents a critical theoretical and empirical assessment of two-gap models.

¹⁴ On the “new growth” models see, for example, Barro and Sala-i-Martin (1995). Similar models have also been used to study the impact of transfers to relatively poor regions in industrial countries. For example, Funke and Strulik (1997) employ an endogenous growth model in their study of transfers to Eastern Germany.

regresses growth on domestic saving, aid, other foreign capital inflows, export growth, and GDP (to represent country size) for a sample of developing countries. He finds that when country size is excluded, the coefficient on the aid term is small and not statistically significant; when country size is included, the coefficient becomes positive and statistically significant in nearly all the regressions. He argues that larger countries grow faster than smaller ones; that smaller countries receive more aid than larger ones; and that failure to allow for the effects of country size underestimates the strength of the relationship between aid and growth.

A common criticism of the use of OLS to estimate the impact of aid in growth equations is that it is unlikely to adequately capture the inter-relationships between growth, domestic saving, and aid. In particular, it is likely to yield estimated parameters that are susceptible to simultaneity bias.¹⁵ Reichel (1995) tackles the simultaneity concern by specifying a model with three endogenous variables: aid, domestic saving, and growth. The aid equation includes GDP (country size) and the level of per capita income among its right-hand-side variables.¹⁶ His results from two-stage-least-squares (2SLS) estimation based on

¹⁵ If, for example, aid tends to be directed to countries that have experienced negative shocks, it will be correlated with consumption (or saving) and low growth, and an estimation method that does not allow for the endogeneity of aid is likely to yield misleading results.

¹⁶ Country size (in terms of GDP or population), and per capita income are the two variables that show up most consistently as key determinants of aid in cross-country empirical studies of aid allocation.

period average data over the 1980s for 83 developing countries showed that aid had no statistically significant effect on growth.¹⁷

Mosley et al. (1987) contrast results from OLS regressions with results from estimating a simultaneous system of equations using three-stage least squares (3SLS), based on data averaged over the period 1970–80 for 63 countries. Neither method yielded a statistically significant correlation between aid and growth.¹⁸ A distinguishing feature of the analytical framework used by the authors is the incorporation of indirect effects of aid on growth through two channels: the spending pattern of the public sector (fungibility), and changes in relative prices (hence influence on private sector behavior).¹⁹ They interpreted the finding of no statistically significant correlation between aid and growth as suggesting possible leakages of aid to non-productive expenditures in the public sector, and the transmission of negative price effects to the private sector. They recommend that donors concentrate aid on countries that meet certain criteria for high effectiveness of aid (e.g., estimated rates of return on investment, proportion of aid allocated to “non-productive” recurrent expenditure, and estimated impact of aid on the private sector).

In a follow-up paper that extended the data base to the 1980s (Mosley et al, 1992), the authors report a positive and significant association between aid and growth in an OLS

¹⁷ In contrast to aid, strong export performance and stable prices (the two policy related variables in the growth equation) were positively and significantly associated with growth.

¹⁸ In these regressions, growth is a function of aid, other financial inflows, domestic saving, growth in the literacy rate, and export growth.

¹⁹ This represents an elaboration of the basic framework in Heller (1975); the government minimizes a loss function—defined in terms of deviations of various intermediate targets from desired levels—subject to financing constraints.

regression for the whole sample. However, regressions for regional subgroups yielded no statistically significant relation. They also explicitly examine the role of policy orientation in the effectiveness of aid by including an index of outward-orientation in the regressions. They find that for their sample as a whole the coefficient on this term is positive but not significant. However, they note that all “strongly outward-oriented” countries in the sample and a high proportion (55 percent) of “moderately outward-oriented” countries fell into the “high aid, high growth” category, while a significant proportion (35 percent) of “strongly inward-looking” countries fell into the “low aid, low growth” category.

Mosley et al. (1992) conclude that the effect of aid on growth is country specific. They propose a scheme in which aid effectiveness and policy orientation depend on the stage of development of recipient countries, which they argue could explain the lack of significant association between aid and growth observed in cross-section regressions. They suggest the following four stages of aid effectiveness: (i) “low aid, low growth” stage where a near subsistence economy is cut off from aid because of war, political instability, or economic mismanagement; (ii) “high aid, low growth” stage in which increased aid flows have no immediate impact because of gestation lags etc; (iii) “high aid, high growth” stage in which aid flows remain high, and became more effective as lags unwind; and (iv) “low aid, high growth” stage in which aid diminishes but growth continues at a high pace (the authors cite Botswana and Mauritius as examples of countries that have recently entered this stage).

Aid in the “new growth” framework

In an important recent contribution, Burnside and Dollar (1997) examine the interaction between aid and policies that promote growth in a neoclassical growth framework.

For their base specification of a growth equation, the authors draw on the recent empirical growth literature to incorporate a range of institutional and policy distortions that have been found to help explain the growth performance of poor countries (Table 1). OLS estimation of the base specification (using panel data for 40 low-income and 16 middle-income countries over 6 four-year periods from 1970–73 to 1990–93) indicated that institutional quality, inflation, and trade openness were the most robust variables affecting growth.²⁰ The impact of aid was consistently found to be not significant for observations with average policies. Estimates of the impact of aid evaluated at good policy levels (one standard deviation above the mean for low-income countries and slightly higher for the whole sample) were all positive.

Burnside and Dollar also examined the direction of influence between aid and policies; i.e., whether aid “causes” good policies (e.g., via conditionality) or whether donors reward good policies. Results from estimated aid equations indicated that after controlling for income, population and donor strategic interest, good policies were positively associated with aid. World Bank aid was found to be more strongly associated with good policies than bilateral and total multilateral aid. An estimated policy equation using a policy index constructed from three variables (budget surplus, inflation and openness indicator) suggested that aid did not have a statistically significant impact on policies.²¹ Finally, treating aid and policies as endogenous variables in growth regressions yielded similar results to the regressions which

²⁰ Two-stage least squares estimation was used to check for robustness of the OLS results.

²¹ A couple of difficult to explain results—a positive and statistically significant association between assassinations and policy, and a statistically significant negative relationship between financial deepening and policy—cast some doubt on the specification of the policy equation.

Table 1. Growth Regressions (Burnside & Dollar, 1997) 1/

	Dependent Variable		
	Per Capita GDP Growth 2/	Per Capita GDP Growth 3/	Policy 2/
Constant	0.92 (0.19)	7.02 (0.76)	-0.93 (0.53)
Initial GDP per capita	-0.44 (0.65)	-1.39 (1.12)	0.29 (1.25)
Ethnic fractionalization	-0.005 (0.66)	-0.009 (0.80)	0.004 (1.22)
Assassinations	-0.43 (1.58)	-0.85 (1.67)	0.29 (2.33)
Ethnic x assassin	0.007 (1.60)	0.002 (0.17)	-0.009 (2.87)
Institutional quality	0.71 (3.95)	0.91 (4.07)	0.27 (3.24)
M2/GDP (lagged)	0.022 (1.27)	0.03 (1.38)	-0.02 (2.52)
Sub-Saharan Africa	-1.47 (1.68)	-2.19 (2.71)	-0.36 (1.68)
East Asia	1.26 (2.05)	2.64 (2.26)	1.29 (7.15)
Aid/GDP	-0.05 (0.27)	-1.00 (1.80)	-0.01 (0.15)
Budget surplus	0.90 (0.18)		
Inflation	-1.19 (2.16)		
Openness	1.61 (2.76)		
Policy 4/	--	-0.24 (0.30)	--
Government consumption	-8.25 (1.43)	1.50 (0.19)	--
Aid x policy	0.24 (2.87)	0.76 (2.05)	--
Number of observations	224	184	191
Adjusted R-squared	0.35	0.36	0.35
Method	OLS	2SLS	2SLS

1/ Absolute values of t-statistics are shown in parentheses.

2/ Panel growth regression covering 56 low- and middle-income countries and six four-year periods (1970–73 to 1990–93).

3/ 2SLS regressions with policy as an endogenous variable.

4/ Policy index made up of budget surplus, inflation, and trade openness, with weights derived from growth regression.

treated policies as exogenous: while aid did not systematically affect policies, it did have a positive effect on growth in a good (fiscal, monetary, and trade) policy environment.

Other studies of the impact of aid on growth that have been motivated by “new growth” approaches include Boone (1994) and Hadjimichael et al. (1995). Boone finds no significant relationship between aid and growth, while Hadjimichael et al find a non-linear relationship; specifically, there is a threshold above which aid becomes detrimental to growth.²²

IV. AID, DOMESTIC SAVING AND INVESTMENT

Does the lack of a positive association between aid and growth reflect the failure of aid to augment domestic saving and to boost investment? This section examines these questions by focusing on studies that attempt to gauge the direct impact of aid on domestic saving and investment, including the impact on the government budget.

Aid and domestic saving

Snyder (1990) argues that the negative association between saving and aid reported in earlier studies was the “spurious result of omitted variables.” Using data for 50 low- and middle-income countries (covering the 1960s, 1970s, and early 1980s), he demonstrates that after controlling for per capita income, aid has no statistically significant effect on domestic saving. However, because the coefficient on the aid term is consistently negative in various specifications of the saving function, the author does not rule out the possibility of some

²² The threshold was estimated at 25 percent of GDP using pooled time-series and cross-section data, and at 4 percent using cross-section (period averaged) data.

substitution between aid and domestic saving in some countries. He acknowledges a potential simultaneity problem but does not address it.

As indicated above in the discussion of growth, Reichel (1995) addresses the simultaneity concern through a model consisting of 3 endogenous variables (including aid), which he estimates using 2SLS. He finds a strong and highly significant negative relationship between saving and aid, and concludes that there is considerable substitution between the two variables.

Hadjimichael et al. (1995) also find a negative relationship between aid and domestic saving in a sample of 39 countries in Sub-Saharan Africa. However, when they group the countries according to growth performance and the degree to which adjustment efforts were sustained, they find that “the negative impact is concentrated in those countries with protracted imbalances and negative per capita growth, whereas in the group of sustained adjusters, foreign aid appears to have stimulated domestic savings.”

Aid and investment

Levy (1988) reports positive and statistically significant coefficients on aid in an investment equation based on a cross-section of 22 Sub-Saharan African countries. Results of regressions that eliminated fixed country effects indicated that “countries that experienced an increase in the flow of foreign aid found that their investment increased on average by an equal amount.” There was no support for the view that aid merely increased consumption. The impact of aid was not found to be as strong in McGillivray and Ahmed (1994), who employed 2SLS procedures to estimate an investment function for each of five Asian countries (Bangladesh, India, Nepal, Pakistan, and Sri Lanka). Only in two countries (Nepal

and Sri Lanka) did aid have a significant positive effect; there was no statistically significant effect in the other 3 cases.

Boone (1994) examines the impact of aid on consumption and investment. An estimated aid-determinants equation showed aid to be strongly negatively correlated with income per capita, and country size (population); once these two variables are controlled for, other variables (e.g., external shocks, growth, regional dummies) are not significant.²³

Boone's principal empirical results are that the marginal propensity to consume aid was not significantly different from one, and the marginal propensity to invest was not significantly different from zero. However, these results were based on a sub-sample which excluded countries with aid/GDP ratios of 15 percent or higher. Inclusion of these countries—all had relatively small populations—yielded radically different results: the marginal propensity to consume fell to 0.45 and the marginal propensity to invest rose to 0.35 (both significant at the 1 percent level). The author attributes the difference in the results to non-fungibility of aid in small countries (where one infrastructure project may be equivalent to a large fraction of GDP). To be able to convert aid into consumption, aid must effectively replace a project that would have been undertaken anyway.

²³ In Boone's view, the above results "likely reflect political rather than altruistic motives behind aid transfers." His preferred explanations for the fact that small poor countries receive relatively more aid than larger richer countries is that this reflects influence trading (e.g., "sale" and "purchase" of UN votes) and the political unwillingness of donors to offer a large share of their aid budget to any specific country. Other authors (e.g., Reichel (1995), Svensson (1997)) have argued that the close relationship between aid and per capita income, when taken together with mixed results on dummies designed to capture political and strategic considerations, indicate that recipient needs (e.g., as measured by indicators of poverty) are more important than political considerations in aid allocation.

Boone also examined the allocation of aid between government and private consumption, and concluded that neither the government nor the private sector chose to invest aid receipts. Hadjimichael et al. (1995) investigated the impact of aid on both government and private investment in their sample of Sub-Saharan African countries. They report a strong relation between government investment and aid; a result that they do not find surprising in view of “the high proportion of government capital expenditure financed by aid.” They report mixed results with respect to the impact of aid on private investment: the impact is positive for “strong adjusters” and negative for countries with negative per capita growth.

Aid and the Government Budget

In practice, most aid goes to the public sector and may be used to increase government spending (investment or consumption), to reduce taxes (or avoid increasing them), or to substitute for foreign non-concessional and domestic borrowing.²⁴ Because government spending may be fungible, even when aid is earmarked for a specific sector or activity there is no guarantee that government spending for that purpose will increase by the full amount of the aid.

One stylized fact on aid noted earlier is the large share of project aid in ODA. Although it is unrealistic to assume that all project aid represents investment, Boone’s finding that aid does not add to investment is nevertheless surprising. In contrast to Boone, Feyzioglu et al. (1996) found a positive and statistically significant relationship between public

²⁴ A complication sometimes arises in relation to the proceeds from the sale of commodity aid: donor insistence on how the proceeds (“counterpart funds”) must be spent can increase the budget deficit (by increasing expenditures rather than being a purely financing item) and complicate macroeconomic management.

investment and ODA. They examine links between aid and public spending in a sample of 14 low- and middle-income countries over the period 1971–90. Their principal findings include the following: (i) total government spending increases by nearly the full extent of ODA; (ii) almost 30 percent of ODA goes to government capital expenditure and about 70 percent to recurrent expenditure;²⁵ (iii) about 20 percent of ODA goes to public investment;²⁶ and (iv) there was no evidence that ODA's impact on public investment crowds out private investment. The authors also report results indicating that concessional loans (mostly from multilateral financial agencies) were more stimulative of both total government expenditure and public investment than was total ODA.

Feyzioglu et al. compare their results with Boone's and attribute the divergent outcomes to differences in sample selection. Specifically, they argue that their use of annual observations (compared to Boone's use of 10 year averages) better captures the impact of annual net disbursements of aid on that period's government budget. Other recent studies that have found a significant positive relation between aid and public investment include Khan and Hoshino (1992) and Otim (1996).²⁷ Otim reports significant differences in impact between bilateral and multilateral aid in a sample of 3 low-income Asian countries (India, Pakistan, and

²⁵ The authors argue that the high proportion of aid that goes to recurrent expenditure is not necessarily bad, since several components of such spending (e.g., on education, health, operations, and maintenance) may have higher rates of return than capital expenditure. They note that Devarajan et al. (1996) found that the only broad category of public expenditure that was associated with higher economic growth was current expenditure.

²⁶ Investment of the general government and public enterprises; a broader coverage than government capital expenditure.

²⁷ See also McGillivray (1994) and Khan (1994).

Sri Lanka): a third of bilateral aid goes to consumption in these countries while multilateral aid increases investment by more than the amount of the aid (i.e., it pulls resources out of consumption). The author explains the difference in terms of the impact of conditionality attached to financial assistance from multilateral agencies.^{28 29}

V. INCENTIVES , AID, AND POVERTY ALLEVIATION

In addition to investigating the direct impact of aid on investment and growth, a section of the emerging aid effectiveness literature examines incentives in donor-recipient relations and the nature of the political regime in recipient countries, and how these factors might influence the extent to which policy reforms intended to alleviate poverty and foster growth, are implemented. Two studies in this area are discussed in this section.

Incentives in donor-recipient relations and implementation of policy reform

What are donor motives in allocating aid, and how do these motives affect the likelihood that donors will withhold funds when recipients fail to comply with the conditionality attached to aid? Svensson (1997) examines these questions using a game theory model in which an altruistic donor allocates aid according to recipient need (i.e., how poor a

²⁸ Khan and Hoshino found no significant differences in impact between bilateral and multilateral aid in a similar group of countries (Bangladesh, India, Malaysia, Pakistan, and Sri Lanka).

²⁹The Otim and Khan and Hoshino studies, like many others in the literature on the fiscal response to aid, build on Heller (1975). White (1992a) characterizes this class of models as “partial” in the sense that they do not adequately capture the channels through which aid affects the macroeconomy. In particular, key variables (e.g., national income and imports) are treated as exogenous, investment is driven by exogenous price changes, and there is no role for the interest rate.

country is). In this model, the policies that aid supports—contained in stabilization and structural reform programs—are designed to move recipients towards sustainable fiscal positions. Fiscal imbalances reflect exogenous factors (state of the world) as well as adjustment effort. A moral hazard problem arises because of the inability of donors to perfectly monitor adjustment effort.

Two implications of the model—concessional assistance is allocated according to recipient needs, and the aid allocation rule adversely affects recipients' incentives to carry out policies to improve the welfare of the poor—are tested empirically using equations for aid allocation and 3 human development indicators (infant mortality, life expectancy, and primary school enrolment). The main determinants of aid were found to be recipients' need and population (on average smaller countries receive more aid).³⁰ In the estimated equations for the human development indicators, the coefficient on aid was not significant in any specification.³¹ By contrast, the coefficient on the terms of trade term was significant in one specification and barely insignificant in another.

Svensson argues that if recipient governments treated aid as an exogenous source of income, then the “government induced impact on poverty reduction from aid” should be similar to the impact from favorable terms of trade developments. He interprets the difference

³⁰ Four human development indicators—infant mortality, life expectancy, primary school enrollment, and real GDP per capita—are combined into a composite measure of recipients' need.

³¹ Feyzioglu et al. (1996) also found no significant impact of aid on infant mortality in regressions of the latter on aggregate ODA. However, they found that concessional loans to the health sector improved infant mortality. They draw the policy implication that an effective way of giving aid to developing countries might be through public expenditure programs targeted to areas that are critical for development.

in the levels of significance in the estimations as suggesting that there are adverse incentive effects associated with aid which make it ineffective (compared to the impact of an exogenous increase in income from the terms of trade). He suggests a two-prong approach to getting around the moral hazard problem: the allocation of part of the aid budget to an international agency with less aversion to poverty than bilateral donors, and more use of tied project aid (to reduce fungibility).

Aid, political regime, and poverty alleviation

Boone (1996) employs a public choice framework to examine the importance of political regime in recipient countries for the effectiveness of aid. He motivates his study by rejecting capital market imperfections as a rationale for providing aid to poor countries, and also dismissing the view that minimum subsistence needs explain low saving rates in developing countries.³² In the framework, politicians finance two activities—“productive” government spending, and transfers to supporters—using either distortionary taxes or aid. Aid may also be used to reduce the distortionary taxes. Three alternative political regimes are considered: (i) an elitist regime whose optimal policy is to transfer aid resources to a wealthy elite which backs it; (ii) an egalitarian regime whose optimal policy is to transfer the aid resources to the poor (and hence improve poverty indicators); and (iii) a laissez-faire regime whose optimal policy is to use the aid to lower distortionary taxes, and hence stimulate investment and growth.

³² Boone argues that capital markets work (citing “large net flows to developing countries over the last 20 years”). On saving rates, he refers to evidence that a small wealthy elite account for the bulk of income in developing countries, and asks why this elite invests domestically in some countries and not in others.

Empirical analysis based on data for some 97 countries yielded three main results. First, there was no significant impact of aid on tax proxies nor on measures of distortionary policies (e.g., black market premium); thus there was no support for the hypothesis that governments use aid to reduce distortions (i.e., data did not support a “laissez-faire” political regime). Secondly, there was no significant impact of aid on basic indicators of poverty/human development (infant mortality, primary schooling, and life expectancy), suggesting that aid does not benefit the poor (i.e., reject the egalitarian regime model). Thirdly, the marginal propensity to consume aid resources was not significantly different from one, and the marginal propensity to invest aid resources was not significantly different from zero.³³ Noting that virtually all aid goes to consumption, and that it increases the size of government but has no significant impact on human development indicators, Boone concludes that the predictions of the model for an elitist regime best fit the data. He attributes the lack of impact on poverty alleviation partly to the fact that aid does not introduce incentives into recipient countries for policies that would improve human indicators.

VI. AID AND THE REAL EXCHANGE RATE

Countries that experience a surge in aid need to be mindful of the potential conflict between aid and export competitiveness. To the extent that aid contributes to an increase in the demand for domestic goods and services, it would exert upward pressure on prices in the nontraded sectors, lead to an appreciation in the real exchange rate, and in all likelihood

³³ As noted above, these results are based on a sample that excludes countries with large aid/GNP ratios.

same time, in order to meet monetary ceilings under Fund-supported programs they severely limited credit expansion by the commercial banks (to counteract the monetization of aid flows), with adverse consequences for private investment. In effect, the government crowded out the private sector with the help of aid flows. In the author's view a more appropriate policy mix would have had three elements: a tighter fiscal stance (including "saving" some of the aid flows); a less stringent monetary policy (i.e., more credit to the private sector); and allow the real exchange rate to appreciate to reflect a permanent increase in capital inflows and to stimulate imports.

In the case of Sri Lanka, a sweeping liberalization program in 1977 was expected to spur export-led growth. In the event, the performance of exports (especially manufactured exports) was disappointing through the late 1980s. This performance has been partly attributed to the failure of the authorities to achieve depreciation of the real exchange rate, in spite of steady depreciation of the nominal rate. White and Wignaraja (1992) conduct an empirical analysis based on a model in which fundamentals (e.g., trade regime, terms of trade, capital inflows) as well short-term factors (e.g., evolution of the nominal exchange rate) are key determinants of the real exchange rate. The authors argue that some of the policies of the authorities—e.g., a massive expansion in public investment expenditure—may have undercut the attempt to achieve real depreciation, and that what was required was "more judicious allocation of public investment [over time and across sectors]" and measures to remove bottlenecks in the production of nontradables.

VII. CONCLUSIONS

The preponderance of the evidence from the empirical literature on aid effectiveness suggests that aid has not had a statistically significant impact on growth in recipient countries. Evidence regarding the relationship between aid and the main channels through which its impact on growth could flow—investment and domestic saving—is mixed, with some indication that aid has had a positive impact on domestic saving and investment in countries where adjustment efforts were sustained. Two findings in Burnside and Dollar (1997)—that aid has been effective when the policy environment has been good, but that aid has not stimulated the adoption of good policies—suggest that greater selectivity in aid allocation (in support of strong policies) might have delivered better performance on growth and poverty alleviation in recipient countries.

Perhaps the most surprising result in this survey was Boone's finding for a broad range of countries that the marginal propensities to consume and to invest aid resources were one and zero, respectively. Notwithstanding widespread evidence of fungibility, it is difficult to believe that aid does not add to investment at all in recipient countries. This is the harder to believe against the background of the dominance of project aid in ODA. The results in Feyzioglu et al, that about 20 percent of aid goes to public investment, come across as more credible.

Not much empirical work has been done on possible "Dutch disease" effects of aid, but the studies that have been undertaken highlight the importance of an appropriate macroeconomic policy mix to address issues of competitiveness and the crowding out of private investment.

BIBLIOGRAPHY

- Barro, Robert J., and Xavier Sala-i-Martin, 1995, *Economic Growth* (New York: McGraw-Hill)
- Boone, Peter, 1996, "Politics And The Effectiveness Of Foreign Aid," *European Economic Review* 40, pp. 290–329.
- Boone, Peter, 1994, *The Impact of Foreign Aid on Savings and Growth*, London School of Economics (June), mimeo.
- Burnside, Craig and David Dollar, "Aid, Policies and Growth," Policy Research Working Paper No. 1777 (Washington: The World Bank, June 1997).
- Chenery, Hollis B., and Alan M. Strout, 1966, "Foreign Assistance and Economic Development," *The American Economic Review*, Vol. 56 (September), pp.679–733.
- Devarajan, S., V. Swaroop, and H.H. Zou, 1996, "The Composition of Public Expenditure and Economic Growth," *Journal of Monetary Economics* 37, pp. 313-344.
- Easterly, William, "The Ghost of Financing Gap: How the Harrod-Domar Growth Model Still Haunts Development Economics," Policy Research Working Paper No. 1807 (Washington: The World Bank, August 1997).
- Easterly, William, and S. Rebelo, 1993, "Fiscal Policy and Economic Growth: An Empirical Investigation," *Journal of Monetary Economics* 32, pp. 417–458.
- Feyzioglu, Tarban, Vinaya Swaroop, and Min Zhu, "Foreign Aid's Impact on Public Spending," Policy Research Working Paper No. 1610, (Washington: The World Bank, May 1996).
- Funke, Michael and Holger Strulik, "Transfer payments to Eastern Germany at the Crossroads: How to Proceed in the Future?" Mimeo, Economics Department, Hamburg University (July 1997).
- Griffin, Keith, 1970, "Foreign Capital, Domestic Savings and Economic Development," *Oxford Bulletin of Economics and Statistics* 32, (February 1970), pp. 99–112.
- Hadjimichael and others, 1995, *Sub-Saharan Africa: Growth, Saving, and Investment, 1986–93*, IMF Occasional Paper No. 118 (Washington: International Monetary Fund).
- Harvard Institute for International Development (HIID), 1997, *A New Partnership for Growth in Africa*, (Cambridge: Massachusetts).

- Heller, P. (1975), "A Model of Public Fiscal Behavior in Developing Countries: Aid, Investment, and Taxation," *American Economic Review*, Vol. 65 (June), pp. 429–45.
- International Monetary Fund, 1995, *Official Financing for Developing Countries*, World Economic and Financial Surveys (Washington: International Monetary Fund).
- Jayarajah, Carl, and William Branson, 1995, *Structural and Sectoral Adjustment: World Bank Experience, 1980–92*, A World Bank Operations Evaluation Study (Washington: The World Bank).
- Khan, Haider Ali, 1994, "Explaining the Impact of Foreign Aid: Response to McGillivray," *World Development* 22:12 pp. 2019–2020.
- Levy, Victor, 1988, "Aid and Growth In Sub-Saharan Africa: The Recent Experience," *European Economic Review* 32, pp. 1777–1795.
- McGillivray, Mark, 1994, "The Impact of Foreign Aid on the Fiscal Behavior of Asian LDC Governments: A Comment on Khan and Hoshino (1992)," *World Development* 22:12, pp. 2015–2017.
- Mc Gillivray, Mark, and Akhter Ahmed, 1994, "Aid, Savings and Investment Re-Explored: The Cases of Bangladesh, India, Nepal, Pakistan and Sri Lanka," *Asian Economic Review*, Vol. 36 (December), No. 3, pp. 737–746.
- Mosley, Paul, John Hudson, and Sara Horrell, 1987, "Aid, The Public Sector And The Market In Less Developed Countries," *The Economic Journal*, Vol. 97 (September), pp. 616–641.
- _____, 1992, "Aid, The Public Sector and The Market in Less Developed Countries: A Return to The Scene of The Crime," *Journal of International Development*, Vol. 4, No.2, pp. 139–150.
- Otim, Samuel, 1996, "Foreign Aid and Government Fiscal Behavior in Low-Income South Asian Countries," *Applied Economics* 28, pp. 927–933.
- Papanek, Gustav F., 1972, "The Effect Of Aid And Other Resource Transfers On Savings And Growth In Less Developed Countries," *The Economic Journal*, Vol. 82 (September), pp. 934–50.
- Papanek, Gustav F., 1973, "Aid, Foreign Private Investment, Savings, and Growth in Less Developed Countries," *Journal of Political Economy*, Vol. 81 (January-February), pp.120–130.

- Reichel, Richard, 1995, "Development Aid, Savings and Growth in the 1980s: A Cross-Section Analysis," *Savings and Development*, Vol. 19, No. 3.
- Snyder, Donald W., 1993, "Donor bias towards small countries: an overlooked factor in the analysis of foreign aid and economic growth," *Applied Economics*, Vol. 25, pp. 481–88.
- _____, 1990, "Foreign Aid and Domestic Savings: A Spurious Correlation?," *Economic Development and Cultural Change*, Vol. 39 (October), No. 1, pp. 175–181.
- Svensson, Jakob, "When is Foreign Aid Policy Credible?," Policy Research Working Paper No. 1740 (Washington: The World Bank, March 1997).
- van Wijnbergen, Sweder, *Aid, Export Promotion and The Real Exchange Rate: An African Dilemma*, Macroeconomics Division, Development Research Department, World Bank, and Centre for Economic Policy Research, London, October 1986.
- Weisskopf, Thomas E., 1972, "The Impact of Foreign Capital Inflow on Domestic Savings in Underdeveloped Countries," *Journal of International Economics*, Vol. 2, pp. 25–38.
- White, Howard, and Joke Luttik, "The Countrywide Effects of Aid," Policy Research Working Paper No. 1337 (Washington: The World Bank, August 1994).
- White, Howard, and Ganeshan Wignaraja, 1992, "Exchange Rates, Trade Liberalization and Aid: The Sri Lankan Experience," *World Development*, Vol. 20, No. 10, pp. 1471–1480.
- White, Howard, 1992a, "The Macroeconomic Impact of Development Aid: A Critical Survey," *The Journal of Development Studies*, Vol. 28, No. 2, pp. 163–240.
- _____, 1992b, "What Do We Know About Aid's Macroeconomic Impact? An Overview of The Aid Effectiveness Debate," *Journal of International Development*, Vol. 4, No. 2, pp. 121–137.
- _____, 1992c, "Aid, the Public Sector and the Market in Less Developing Countries: A Comment," *The Economic Journal* 102, pp. 161–162.
- Younger, Stephen D., 1992, "Aid and the Dutch Disease: Macroeconomic Management When Everybody Loves You," *World Development*, Vol. 20, No. 11, pp. 1587–1597.

Evolution of Aid/GNP Ratios for Selected Countries 1/

(In percent)

	Annual Averages			
	1976-80	1981-85	1986-90	1991-95
Angola	1.1	1.0	1.3	10.4
Bangladesh	9.3	8.1	9.2	6.5
Benin	8.7	7.5	12.4	14.5
Bolivia	5.4	6.0	10.8	11.6
Botswana	16.0	10.3	10.5	3.0
Burkina Faso	15.2	13.3	13.1	18.5
Burundi	11.9	12.3	18.0	26.5
Cameroon	4.9	2.1	3.0	6.8
Central African Rep.	11.2	14.1	19.0	15.4
Chad	11.5	14.4	26.4	21.0
Congo	8.5	4.2	6.5	9.8
Costa Rica	1.3	6.0	4.7	1.5
Cote D'Ivoire	2.2	1.7	4.2	14.3
Dominican Republic	1.3	2.4	2.2	0.7
Egypt	12.2	5.6	7.3	8.4
El Salvador	1.9	7.0	8.3	5.0
Ethiopia	4.4	7.8	13.7	17.6
Gabon	1.1	1.7	3.1	3.3
Gambia	17.5	26.0	55.1	26.8
Ghana	3.4	3.7	9.5	10.6
Guatemala	1.2	0.8	2.6	1.9
Guinea	3.2	5.9	11.7	13.2
Guinea-Bissau	38.0	38.8	66.7	55.2
Haiti	8.5	8.0	8.2	18.8
Honduras	4.2	7.0	8.3	10.6
Jamaica	3.6	6.5	8.0	3.6
Jordan	35.7	19.7	14.0	11.1
Kenya	5.2	6.5	10.0	12.1
Lebanon	3.3	3.6	1.4	2.0
Lesotho	11.9	13.6	16.6	10.4
Madagascar	4.8	6.4	12.3	12.3
Malawi	11.6	11.0	25.8	30.9
Mali	13.1	21.6	23.0	19.1
Mauritania	34.5	25.9	25.5	25.4
Morocco	3.9	4.3	2.8	2.9
Mozambique	5.5	9.4	50.1	101.3

	Annual Averages			
	1976-80	1981-85	1986-90	1991-95
Namibia	0.0	0.0	2.4	6.1
Nepal	5.8	7.9	12.8	13.0
Nicaragua	5.0	5.1	10.9	40.7
Niger	9.2	11.8	17.5	17.6
Oman	4.9	1.7	0.4	0.5
Pakistan	4.7	2.5	3.0	2.3
Papua New Guinea	15.2	12.3	11.1	8.9
Rwanda	13.7	10.5	11.8	43.6
Senegal	9.0	12.7	16.6	12.4
Sierra Leone	5.4	5.1	9.0	25.5
Sri Lanka	8.3	8.4	8.4	6.6
Sudan	6.0	10.5	9.3	9.5
Syria	10.8	5.8	3.6	3.0
Tanzania	11.6	9.9	21.6	49.6
Togo	9.5	11.4	16.2	12.7
Tunisia	4.2	2.3	3.0	1.6
Uganda	1.6	5.6	7.3	20.6
Yemen	24.3	11.5	5.4	6.5
Zambia	6.6	8.1	19.5	35.4
Zimbabwe	0.9	3.9	5.1	10.1
Mean (whole sample)	8.8	8.8	12.9	15.9
Median (whole sample)	5.9	7.3	9.7	11.3
Regional means: 2/				
Asia and Pacific (5)	8.6	7.8	8.9	7.4
Middle East & North Africa(8)	12.4	6.8	4.8	4.5
Sub-Saharan Africa (34)	9.4	10.3	16.9	21.2
Western Hemisphere (9)	3.6	5.4	7.1	10.5

Source: OECD database.

1/ Coverage is low- and middle-income countries in which there was at least one year during 1975-95 when the aid/GNP ratio was equal to or greater than 5 percent. Excluded are transition economies, countries that did not exist in 1975 (e.g., Eritrea) and countries with a population of less than a million.

2/ Simple average for each regional group. Number of countries in each group is reported in parenthesis. The Asia and Pacific group has Bangladesh, Nepal, Pakistan, Papua New Guinea, and Sri Lanka; Middle East and North Africa has Egypt, Jordan, Lebanon, Morocco, Oman, Syria, Tunisia, and Yemen; Western Hemisphere has Bolivia, Costa Rica, Dominican Republic, El Salvador, Guatemala, Haiti, Honduras, Jamaica, and Nicaragua. The remaining countries belong to Sub-Saharan Africa.

increase production costs in the sectors producing traded goods (especially exports). Over time, this erosion in export competitiveness—a “Dutch disease” effect of aid—may make the aid recipient even more dependent on aid.

Van Wijnbergen (1986) demonstrates that the conflict between aid and export competitiveness is particularly severe when export production is characterized by positive (learning-by-doing) externalities, and capital markets are not perfect.³⁴ He estimated that aid flows had a statistically significant effect on the real exchange rate (all in the predicted direction) in four out of six African countries that he examined empirically. The main operational conclusion he drew was that explicit policies are needed to reduce the adverse impact of aid on external competitiveness. Specifically, measures should be taken to reduce anti-export bias in the trade and tax policies of aid recipients.

In contrast to van Wijnbergen who treated aid as “temporary,” Younger (1992) and White and Wignaraja (1992) examine “Dutch disease” effects in two situations—for Ghana and Sri Lanka, respectively—where they argue that there was a permanent increase in the level of aid and private transfers. According to Younger, aid-financed government spending boosted aggregate demand and put upward pressure on prices (especially of nontraded goods and services) in Ghana in the late-1980s and early 1990s. The authorities attempted to maintain the real exchange rate via devaluations designed to offset domestic inflation. At the

³⁴As exports decline in response to the initial aid-induced real exchange rate appreciation, productivity in the export sector is permanently reduced; even after the aid subsides and the real exchange rate depreciates, productivity does not return to what it was before the increase in aid. There would be no problem in a world of perfect capital markets since exporters could ride out the temporary “aid boom” by borrowing and investing to ensure that they have the requisite capital in place when aid declines and export competitiveness increases.