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It Works; It Doesn't;
It Can, But That Depends…

50 Years of Controversy over the Macroeconomic Impact of Development Aid

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Abstract

This paper surveys 50 years of empirical research on the macroeconomic impact of aid, looking mainly at studies examining the link between aid and growth. It argues that studies dating until the late 1990s produced either contradictory or inconclusive results. Aid either worked, or it didn't, according to this research. The paper then highlights a major shift in the literature that coincided with the release of the World Bank's *Assessing Aid: What Works, What Doesn't and Why*. Practically all research published since that report agrees with its general finding that aid works, to the extent that in its absence growth would be lower. One controversy may therefore have been settled. Yet, we show, the report has set-off an intense debate over the context in which aid works. That debate centres on whether the effectiveness of these inflows depends on the policy regime of recipient countries. Some possible avenues through which the heat might be taken out of this debate are considered.

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> … some writings on aid condemn the whole enterprise. But they … often start from political premises which determine their conclusions even before contemplation of such evidence as they examine. There are also excessively favourable accounts of aid, whose authors are ignorant (or choose to ignore) that a significant amount of aid has not worked well. (Cassen and Associates 1994: 2)

1   Introduction

The macroeconomic impact of foreign aid has long been a hotly contested subject. Aid's impact on growth in developing countries is arguably the most contested topic. It is also an important topic given its implications for poverty reduction, the key criterion against which aid ought to be assessed. There was much optimism associated with foreign aid to developing countries in the early years of its provision. This was shortly after the Marshall Plan. The perceived success of this plan could be revisited with developing countries. Poor countries were poor because investment levels were too low. This was due to low levels of domestic savings, insufficient amounts of foreign exchange (required to purchase foreign capital goods) or both. Foreign aid could fix this, by supplementing domestic savings or foreign exchange reserves. This would increase investment and in turn growth. Eventually this growth could become self-sustaining, the need for aid would disappear and the world would be a better, more prosperous place.

Early research on aid, dating back to the 1960s, was consistent with this optimism. It actually provided a conceptual foundation for the optimism. Aid was analysed in the context of the well-known two-gap model of aid, which itself was very much of the Harrod–Domar growth tradition. These models were very much of the 'It Works' camp. That is, they simply assumed that with given amounts of aid countries could grow at healthy target rates of growth, and sustain these rates over time. But as White (1992) and others point out, these levels of aid were more than achieved, and yet the anticipated growth was not. Something was clearly wrong. Subsequent empirical research investigated why, by looking at the relationship between aid and domestic savings. The two-gap models assumed that aid was entirely saved, or that it supplemented savings. More aid leads to more saving and more saving, in the Harrod–Domar tradition, necessarily means more growth. Much of this research found that either aid either displaced or had no impact on domestic savings. It belonged to the 'It Doesn't' camp.

These empirical studies, conducted in the late 1960s and early 1970s, set off a huge controversy, which lasts until the present. Research up until the 1990s was either of the 'It Works' or 'It Doesn't' camp. Some found that aid was associated either with higher savings or growth, other found the opposite. In short, controversy ruled and there was no consensus as to the macroeconomic impact of aid. Mosley (1987) summed up the situation by coining the term, 'micro-macro paradox' of aid. By a paradox, it was meant that while most micro or project related studies where quite clear about a positive impact of aid, macro-level studies could provide no such clarity.

This changed with the release of the landmark publication, *Assessing Aid: What Works, What Doesn't and Why*, in 1998. Produced by the World Bank, *Assessing Aid* is a landmark study in many important ways. Here we highlight two. First, it actually added to the controversy over aid impact. It found that aid was associated with higher growth,

but that this outcome was contingent on the policy regime of recipient countries. Some subsequent studies have also drawn this conclusion. These studies fall into the 'It Can Work, But That Depends…' camp. The result that aid effectiveness is contingent on policy regimes has been challenged by many additional studies. As a result the literature is now split between those studies that conclude that aid's impact on growth is conditional upon these regimes and those that do not draw this conclusion. This debate shows no signs of abating. The second way in *Assessing Aid* is a landmark study is that it defines a turning point, away from the confusion over whether aid contributes to growth. That is, practically all studies post-*Assessing Aid*, many or most of which are a direct response to the World Bank's study, conclude that aid is associated with higher growth, one way or another. The micro–macro paradox would appear to be 'dead and buried' (McGillivray 2003: 24).

This paper surveys the empirical literature on aid and growth and the related literature on aid and savings, focussing mainly on controversies that have emerged from the late 1990s onwards. It follows from previous surveys by White (1992), Morrissey (2001), Hansen and Tarp (2000), Hermes and Lensink (2001) and McGillivray (2003), among others. It consists of six additional sections. Section 2 provides a broad sweep of the literature dating from the 1950s to the mid-1990s. Sections 3, 4, and 5 look at the results of *Assessing Aid* and the research that has emerged after, or in direct response, to the report. Section 6 attempts to find common ground between the two opposing camps that have emerged post-*Assessing Aid* and research directions that might potentially take the heat out of the current controversy surrounding aid effectiveness. Section 7 concludes.

2   Aid effectiveness research: 1950–96

The provision of foreign aid, as we know it today, began after the Second World War. The US funded Marshall Plan was announced in 1947 and involved the provision of funds for the reconstruction of Europe. The Marshall plan was widely considered as a great success with many European countries undergoing a period of rapid industrialisation during the late 1940s and early 1950s. It also strengthened relationships between the US and Europe while containing Soviet expansion. In 1949, following the success of the Marshall Plan, US President Truman announced a major programme of increased foreign assistance to the developing world.

However, there was very little research examining the impact of aid on economic growth during this period. In the 1950s, development theorists emphasised the role of economic growth, with capital formation and large-scale investment as the vital ingredients (Nurske 1953; Lewis 1954). It was assumed that foreign aid could provide the necessary capital to propel developing countries into self-sustaining growth although very little empirical research was undertaken to examine the relationships between aid and growth.

The first empirical studies were undertaken in the 1960s and were motivated by what are termed 'gap' models. Basic gap models assert that the rate of economic growth is constrained by inadequate levels of savings and foreign exchange and that foreign aid is required to fill these gaps in order to achieve a target rate of growth. The Harrod–Domar growth model is the first and most well known of the gap models. The model assumes that there is an excess supply of labour and that growth is constrained only by the availability and productivity of capital. The availability of capital, or the level of

investment, is determined by the level of savings. To achieve a target growth rate, a government must increase the level of savings or increase the productivity of capital. Often savings in developing countries are too low to achieve a target growth rate. Foreign aid can relieve the savings constraint, increasing investment and leading to a higher rate of growth.

In addition to a savings gap, Chenery and Bruno (1962) and Chenery and Strout (1966) identify a foreign exchange gap, noting that developing countries are unlikely to have the export earnings required to import capital goods for investment. Again, foreign aid can help fill this gap. They developed a 'dual gap' model. A third gap is identified by Bacha (1990) and Taylor (1990). They recognise that some developing country governments simply do not have the revenue raising capacity to cover a desired level of investment. Foreign aid provided directly to the government can potentially relax this fiscal gap as long as it is used for investment purposes. In summary, gap models assert that foreign aid can supplement savings, foreign exchange, and domestic revenues. This allows for a greater level of savings and investment which will lead to a higher growth rate.

Despite the existence of three gaps which aid can potentially fill, the earliest aid effectiveness studies focused on the first of these gaps and therefore the relationship between foreign aid and savings. Later studies investigated the impact of aid in investment and on economic growth directly.[1] Table A1 presents the findings from the most well cited early aid effectiveness studies. The general finding from studies are presented in the second column of Appendix Table A1.[2] Note, however, that results might differ where the studies use different country samples and time periods.

Studies investigating the impact of aid on savings began in the late 1960s. These early models implicitly assume that one dollar of foreign aid will increase savings and investment by one dollar and therefore lead to increases in growth. If foreign aid is found to have a positive association with savings, it is concluded that aid impacts favourably on economic growth.

Empirical models commonly took the form:

$$(S/Y)_i = \delta_0 + Y_i + \delta_1(A/Y)_i + \mu_i \qquad (1)$$

where S represents domestic savings of recipient i, Y is gross national product (GNP), A is some measure of aid or foreign capital inflows, δ_0 is a constant, δ_1 is a regression (slope) coefficient, and μ_i is an error term. The model is usually estimated for a sample of developing countries using OLS. These studies are subjects to a number of major criticisms. Most notably they suffer from omitted variable bias and they fail to differentiate between aid flows and other foreign capital inflows. The particular impact of foreign aid cannot, therefore, be identified.

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1   Other early studies based on gap models estimate the amount of foreign aid required to achieve a target rate of growth rather than investigate the observed relationship between foreign aid and savings (Rosenstein-Rodan 1961; Chenery and Strout 1966).

2   For extensive reviews of the early literature, see White (1992) and Hansen and Tarp (2000).

Results from studies investigating the impact of aid on savings are presented in the first four rows of Table A1. The positive relationship between foreign capital flows and savings predicted by the Harrod–Domar model is not observed. In fact, these studies generally find a negative association between the two. An explanation for these findings is provided by Griffin (1970) and Griffin and Enos (1970). They contested the assertion of gap models that foreign aid leads to a one-to-one increase in savings, arguing that unless an aid recipient's marginal propensity to save is equal to one, a part of foreign aid will be allocated to consumption rather than savings. In his empirical analysis using cross-country data Griffin (1970) finds support for this argument, reporting a negative association between capital inflows and domestic savings. The finding is supported by Rahman (1968) and Weisskopf (1972), although Gupta (1970) finds no relationship between foreign capital inflows and domestic savings in his study.

Papanek (1972) and Newlyn (1973) provide an alternative explanation for the finding of a negative association between foreign capital flows and savings. They note that domestic savings are used as the dependent variable, calculated as national income minus consumption. This implies that if any part of foreign aid is used for consumption the impact on domestic savings will be negative *ceteris paribus*. Given that donors are not averse to funding some components of consumption, the issue of importance is whether total savings (domestic savings plus foreign aid) fall. Unless, the coefficient on the aid variable is significantly less than minus one, it can be concluded that although foreign aid displaces domestic savings, total savings increase.[3]

Papanek (1973) provides the first study to disaggregate foreign capital flows into foreign aid, foreign investment, and other flows. Although the study investigated the impact of foreign on domestic savings, it was also influential in turning the focus of aid effectiveness studies to examining the impact of aid on investment and growth.[4] The model, and most models in subsequent studies, takes the form:

$$G_i = \alpha_0 + \alpha_1 S_i + \alpha_2 A_i + \alpha_3 P_i + \alpha_4 O_i + \mu_i \qquad (2)$$

where G is growth in per capita income of recipient i, S is domestic savings, A represents foreign aid flows, P represents private capital flows, O represents other foreign capital inflows and μ_i is an error term. Papanek (1973) finds strong evidence that foreign aid flows are positively associated with higher growth rates in recipient countries. A number of aid effectiveness studies followed Papanek (1973), often augmenting his model with other explanatory variables. However, no overall consensus emerged regarding aid effectiveness.

Mosley (1980) made an important contribution to the literature by incorporating lagged aid variables into his model and by accounting for the potential endogeneity of aid.

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3   This point is demonstrated clearly in Hansen and Tarp (2000). In their survey of 41 cross-country regressions (from 29 empirical studies) using domestic savings as a dependent variable, they find only one regression (from Gupta and Islam 1983) in which the coefficient on the aid variable is less than minus one. They therefore find overwhelming evidence that aid leads to an increase in total savings, although not by as much as the aid flow. In the Harrod–Domar framework this implies that aid stimulates growth through increases in investment.

4   Levy (1987, 1988) finds that foreign aid has a positive and statistically significant association with investment. Although in a later study, Boone (1996) fails to confirm this finding.

Mosley estimates his model using two stage least squares and data for 83 developing countries covering the period 1970–77. On average, Mosley finds a negative association between aid and growth although the coefficient on the aid variable is not statistically significant. A positive and statistically significant impact of foreign aid was found when the sample is restricted to the poorest 30 countries in the sample and aid is lagged five years.

Mosley et al. (1987) provide one of the most-cited studies of aid effectiveness during the 1980s. They used different estimation techniques to investigate the impact of aid on growth for 63 countries over the period 1970–80. Results using OLS are compared with those from estimating a simultaneous equation system using 3SLS. Mosley et al. (1987) find no statistically significant relationship between aid and growth using various sub-periods and samples of developing countries.

However, findings from other studies do provide support for Papanek (1973). Gupta and Islam (1983) adopt a rigorous approach, estimating the impact of aid on savings and growth using a simultaneous equation framework and including a large number of control variables. Although their study confirms a negative association between aid and domestic savings, they find a positive and statistically significant associated between aid and growth at the 10 per cent level in the 1960s and the 1 per cent during the 1970s. Dowling and Hiemenz (1982) also account for the endogeneity of foreign aid and confirm a positive and statistically significant relationship between foreign aid and economic growth in Asia.

Boone (1996) provides the stimulus for the aid effectiveness debate from the mid 1990s. Using panel data for 91 countries covering the period 1971–90, Boone investigated the impact of foreign aid on investment, consumption, and measures of well-being. He also examined whether aid effectiveness was conditional on political regime. Results indicate that foreign aid leads to increases in government consumption rather than increasing investment or benefiting the poor. Although aid effectiveness is not contingent on the level of democracy, Boone finds that liberal political regimes and democracies, *ceteris paribus*, have on average 30 per cent lower infant mortality than the least free regimes.

In summary, up to the late 1990s, there was no consensus regarding the impact of foreign aid on economic growth. Results from empirical studies were ambiguous with no conclusive evidence that foreign aid was effective at increasing economic growth in recipient countries. A number of studies published in the late 1980s and 1990s emphasise this point. Cassen and Associates (1994: 15-16) commented that

> … research on the macroeconomic effects of aid deals with relatively large groups of developing countries. Its results are ambiguous. The relationship between aid and growth is rather weak: it can be either positive or negative, depending on the country groupings and the time period chosen. The relationship between aid and savings was once thought to be stronger, and negative. But the reasons why it was found to be so remain unexplained…

Mosley, for instance, points out that

> … there appears to be no statistically significant correlation in any post war period, either positive or negative, between inflows of development aid and the growth rate of GNP in developing countries when other causal influences on growth are taken into account. (Mosley 1987: 139).

Likewise, White (1992: 121) points out that 'We know surprisingly little about aid's macroeconomic impact', but adds that 'The combination of weak theory with poor econometric methodology makes it difficult to conclude anything about the relationship between aid and savings … and aid and growth'.

3   *Assessing Aid* and beyond: 1998 to the present[5]

The publication of the *Assessing Aid* report (World Bank 1998) provided a new stimulus to the discussion on the macroeconomic effectiveness of development aid. The report contains an extensive analysis of aid effectiveness and is based on innovative macroeconometric research, since it is one of the first studies acknowledging that aid effectiveness may depend on specific circumstances in recipient countries. The analysis in the report fits well into a new wave of aid effectiveness studies that emerged since the mid-1990s. These studies are considerably different from the traditional aid effectiveness studies: they base their empirical analysis on a general equilibrium growth model, try to address the endogeneity of aid, deal with non-linear effects of aid and explicitly link the impact of aid to economic policies and the institutional environment in the recipient countries and/or to external conditions these countries are confronted with (Hansen and Tarp 2000). Generally speaking, models since the mid-1990s used (variants of) the following specification:

$$G_g = \beta_0 + \beta_1 A_i + \beta_2 A_i^2 + \beta_3 P_i + \beta_4 (A_g * P_g) + \beta_5 Z_i + \varepsilon_i \quad (3)$$

where G_g is the per capita growth rate, A_g is foreign aid flows, P_g is a measure of the domestic policy and institutional environment, Z_g is a vector of variables that are normally included in models explaining per capita growth and ε_g is an error term, all relating to recipient country *i*. The variable A_g^2 takes into account the non-linearity of aid; the variable $(A_g * P_g)$ deals with explicitly linking the impact of aid to economic policies and the institutional environment in the recipient countries and/or to external conditions these countries are confronted with.

The *Assessing Aid* report states that aid does help to increase growth, but only in countries with sound economic management, or 'good governance'. In the report this is generally translated into 'good' economic policies and building 'strong' institutions. The main conclusion of the report is therefore that aid should be allocated based on selecting recipient countries according to their policy environment.

The claims of the *Assessing Aid* report with respect to the effectiveness of aid are mainly based on a number of background studies, and especially the ones by Burnside

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5 This section draws in part on Hermes and Lensink (2001).

and Dollar (2000) and Collier and Dollar (2002).[6] In a cross-country regression analysis for 40 low-income countries and 16 middle-income countries over the 1970–93 period (using 6 four-year averages), Burnside and Dollar estimate a neoclassical growth model, in which they include aid and aid interacted with a policy index variable, together with a number of variables that are usually included in growth models. Thus, Burnside and Dollar use a specification similar to equation (3), yet, without including the quadratic aid term. Table A2 in the appendix provides a quick overview of the model specification of the Burnside–Dollar paper. They apply both OLS and 2SLS models to take into account the possible endogeneity of aid. The policy index is a weighted index of the budget surplus to GDP ratio, the inflation rate and an index reflecting trade openness as constructed by Sachs and Warner (1995). These variables are seen as proxies for fiscal, monetary and trade policy, respectively. The weights are obtained from a growth equation, which includes these three measures, along with a number of other variables.[7] Burnside and Dollar show that aid has a positive impact on real GDP per capita growth, but only when aid is interacted with a policy index variable. In other words, aid may increase growth, but only when the government of a country carries out 'good' fiscal, monetary and trade policies. If aid is given to countries without these good policies the aid flows can be considered wasted, since they will not stimulate higher economic growth.

Collier and Dollar (2002) determine a so-called poverty-efficient allocation of aid. According to them, reallocating aid flows to poor countries with a good economic policy environment would reduce the number of poor people by an extra 18 million per year as compared to the number of people that are helped out of poverty based on the existing allocation of aid flows. The model specification of Collier and Dollar is similar to equation (3), including both the quadratic aid term as well as the interactive aid-policy term (again, see Table A2).

4   *Assessing aid*: the response

Assessing Aid has provoked a huge reaction in the research community. Several researchers have tried to redo the econometric analysis of the Burnside–Dollar paper. Dalgaard and Hansen (2001), Hansen and Tarp (2001), Lensink and White (2001), Jensen and Paldam (2003), Islam (2002), and Ram (2004), among others, have analysed the aid–growth relationship, using an interaction term between aid and a policy measure as suggested by Burnside–Dollar. Although these studies sometimes use different data sets, different model specifications (they all use variants of equation (1); the differences mainly relate to whether or not they include A^2 and the variables they include in vector *Z*), and different econometric techniques, it is nevertheless surprising that none of these studies find the interactive term to be statistically significant. Dalgaard and Hansen (2001), for instance, show that the result that aid is only growth enhancing in a good economic policy environment, crucially depends on the fact that Burnside and Dollar in their paper deleted five observations from the data set. They also show that by

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6   The Burnside and Dollar and Collier and Dollar papers were originally circulated, prior to the release of *Assessing Aid*, as discussion papers.

7   The specification of the equation of the policy index is as follows (Burnside and Dollar 2000: 855):
   Policy = 1.28 + 6.85 × Budget surplus – 1.40 x Inflation + 2.16 × Openness.

deleting other combinations of observations the opposite outcome can be produced, that is, that aid does stimulate growth irrespective of the policy environment. The results of this and other studies at least question the robustness of the Burnside–Dollar paper. To date three studies find support for the Burnside–Dollar result on the importance of a good economic policy environment in determining the effectiveness of aid: Collier and Dehn (2001), Collier and Hoeffler (2002) and Collier and Dollar (2002).

Perhaps the strongest attacks on the robustness of the Burnside–Dollar results are presented in papers by Easterly et al. (2004) and Roodman (2004). The former study uses the same data set, model specification, and econometric technique as Burnside–Dollar did and extend the data set using four more years of data (until 1997). Based on their analysis, they conclude that the interactive term is no longer statistically significant. Roodman (2004) submits not only the Burnside–Dollar results, but also those of Collier and Dehn (2001), Collier and Hoeffler (2002), and Collier and Dollar (2002), to a battery of additional tests relating to specification differences, variable definitions and, like Easterly et al. (2004) sample expansion. Roodman finds little empirical support for the aid–policy link.

So, based on the work of those researchers who tried to redo Burnside–Dollar the conclusion must be that the claims made on the importance of the policy environment for the effectiveness of aid are in fact rather fragile.

Next to the critique on the econometric analysis, several authors have also criticised the use and construction of the policy index as proposed by Burnside and Dollar. As discussed above, the policy index is a weighted index of the budget surplus to GDP ratio, the inflation rate and a measure reflecting trade openness. Yet, one may criticise the choice of variables to measure policies for various reasons.[8] First, the critics claim that measuring trade policy is very difficult. As a study by Pritchett (1996) shows, there are several types of trade policy indices, measuring different elements of policy. Moreover, Pritchett argues that different trade policies matter at different points of time. Not surprisingly, therefore, the different measures show very low correlation. The trade openness index of Sachs and Warner (1995) is a dummy variable, which takes various elements of trade policy into account. This makes it difficult to understand exactly how trade policy may affect growth, since the different effects of individual trade policy elements on growth may cancel out. Moreover, it is even more difficult to understand how trade policy influences the aid-growth relationship when using a constructed index.

Second, the use of the inflation rate as a measure of monetary policy is problematic. To begin with the inflation rate is an outcome, rather than a policy in itself. The inflation rate may be influenced by policy measures of the government, for instance by tight monetary policies. Yet, the inflation rate may also be determined by various other sources, such as changes in the domestic demand and supply conditions, and changes in the terms of trade. These sources of inflation are outside the direct control of the government. Therefore, the inflation rate may be a poor reflection of monetary policy. Moreover, the nature of the relationship between inflation and growth is unclear. Recent empirical studies show that this relationship is quadratic, rather than linear, which is the specification chosen by Burnside and Dollar (see for example Hansen and Tarp 2001).

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8   The discussion of the policy index is partly based on Lensink and White (2000).

These studies stress that while low levels of inflation may stimulate growth, inflation has a negative impact on growth only after a threshold level has been passed.

Third, one may question the use of the budget surplus as a measure of fiscal policy. The budget surplus results from different fiscal policy measures related to both government revenues and expenditures. These different policy measures may have a different impact on growth (Gemmel 2004; Hermes and Lensink 2004). Therefore, as with the trade policy measure discussed above, the budget surplus is a composite measure of policies, which makes it difficult to know exactly the relationship between policy and growth. In the literature, one generally finds the budget surplus to be unrelated to growth (Levine and Renelt 1992; Sala-i-Martin 1997), which may be due to the fact that this is a composite measure of many different policies having different effects on growth.

Fourth, Burnside and Dollar use the same weights for the three policy measures when constructing the policy index for all 56 countries in their data set. Yet, one may seriously question whether this is a correct assumption. Studies have shown that the impact of trade policies on growth may differ between countries, depending on the development of the domestic financial system (Berthelemy and Varoudakis 1996). Similarly, it has been argued that fiscal policies have different effects on growth in different countries (Hermes and Lensink 2004).

Finally, Burnside and Dollar do not really explain why they have left out other kinds of policy measures, such as privatisation, financial market liberalisation, educational policies, tax reforms, etc. There is a huge empirical literature pointing out that these measures also influence growth performance (see, for example, Cook and Uchida 2001; Berthelemy and Dessus 2000; Fry 1995). This makes the selection used by Burnside and Dollar to measure good policies rather arbitrary.

5   Aid–growth: alternative perspectives

Assessing Aid stimulated a huge amount of research to find alternative explanations of the effectiveness of aid, since many researchers contested the explanation given by the World Bank research. A number of alternative views on the effectiveness of aid have been suggested. Basically, five main alternative views can be traced: aid has decreasing returns, volatile aid flows causing uncertainty, aid effectiveness is influenced by external and climatic conditions, aid effectiveness is influenced by political conditions, and aid effectiveness depends on institutional quality.[9]

5.1 Decreasing returns to aid

Several authors suggest that giving aid may have decreasing returns. They investigate this by adding a quadratic aid term to the growth model (see equation (1)). This specification of the model tests whether the impact of aid on growth becomes negative after a certain threshold level has reached. There is an overwhelming amount of evidence for the existence of decreasing returns of aid. Most studies using this specification indeed find support for a negative effect of aid on growth after a certain

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9   See Table A2 for an overview of the results of studies analysing the aid–growth relationship.

threshold level (Durbarry, Gemmell and Greenaway 1998; Lensink and White 2001; Hansen and Tarp 2001; Hudson and Mosley 2001; Dalgaard and Hansen 2001; Islam 2002; Lu and Ram 2001; Dalgaard, Hansen and Tarp 2004). This threshold level of aid to GDP varies between 15 to 45 per cent (Feeny 2003). The decreasing returns of aid can be explained by pointing at the limited absorptive capacity of countries to take up large inflows of foreign capital and the problem of Dutch disease effects.

Only two studies do not find support for the decreasing returns of aid hypothesis. One study by Jensen and Paldam (2003) investigates the claim that giving aid has decreasing returns by simplifying the econometric model so that more observations can be taken into account than in the original data set used by most other empirical studies. Also for the extended dataset they find decreasing returns of aid. Moreover, this study carries out an out-of-sample replication of the aid-growth estimations with the extended dataset. This exercise shows that quadratic aid term is no longer significant. A second study, by Gomanee et al. (2003), shows that aid only becomes effective after the aid to GDP ratio has reached a threshold of 2 per cent. However, they do not find evidence for aid having deceasing returns after this threshold level.

5.2 Aid uncertainty

A few studies have investigated the patterns of aid flows and have found these flows to be rather volatile. Bulíř and Hamann (2003) show that aid flows are highly volatile; their volatility is even higher than the government's domestic budget revenues. Moreover, they show that the volatility of aid flows is higher the more aid dependent countries are. Next, they find that aid falls during periods in which domestic revenues of governments also fall and that the volatility of domestic revenues coincides with the volatility of aid flows. These findings do seem to suggest that although aid flows may increase the overall resources governments have, aid is currently disbursed 'in a less than ideal manner' (Bulíř and Hamann 2003: 83).

Lensink and Morrissey (2000) investigate the impact of volatile aid flows (or aid instability in their words) on the effectiveness of aid. In their analysis, the volatility of aid is seen as a measure of the uncertainty of aid flows of a recipient country. The uncertainty of aid flows is measured as the deviation of actual aid flows from expected aid flows, where expected flows are based on a simple autoregressive process (with or without a time trend). The reasons for aid flows being uncertain may be either explicit donor country policies or actions, or external shocks. In either case, aid uncertainty may have an adverse impact on government expenditures, and in particular on public investment. A reduction of public investment may in turn lead to lower private investment, and ultimately also to lower economic growth.

Lensink and Morrissey (2000) add their measure of aid uncertainty to a growth equation, which incorporates standard exogenous growth variables, including a measure of aid flows. They use data for a sample of 75 developing countries, using average values of variables for the period 1970–95. The estimation results show that, while the aid uncertainty variable has a negative impact on growth, aid has a positive effect. This confirms the hypothesis that aid in itself contributes to higher growth, but that the effectiveness of aid is reduced when aid flows are more volatile. The authors therefore suggest that donors and recipients should develop more stable relationships to increase aid effectiveness.

5.3 Aid effectiveness and external and climatic conditions

Some authors argue that aid effectiveness is crucially dependent on external and climatic factors, rather than on the economic policy environment, as is claimed by the *Assessing Aid* report. Examples of such factors are the trends in the terms of trade, short-term export instability and natural disasters such as floods, droughts, and earthquakes. Guillaumont and Chauvet (2001) show that aid is more effective in raising income the worse these external and climatic factors are for the recipient country. In their empirical analysis they estimate a growth model, using a pooled cross-section time series analysis for the period 1970–93 for 66 developing countries. The model includes the aid to GDP ratio, aid interacted with a policy index similar to the Burnside–Dollar paper and aid interacted with a composite external environment indicator, incorporating different external and climatic factors.

The results of the analysis[10] show that the variable that combines aid with the external environment indicator has a statistically significant positive impact on growth. The variable that combines aid with the policy index is not statistically significant. Thus, they find no support for the claim that a good policy environment improves the effectiveness of aid. They do find, however, that the impact of aid is more positive for countries that are confronted with adverse external conditions. In particular, they show that aid stimulates growth only when countries are more vulnerable to external conditions. A plausible interpretation of this result is that aid has decreased the negative impact of adverse external conditions. Based on their analysis, Guillaumont and Chauvet suggest that aid should be allocated based on a country's performance of economic policies, taking into account the impact of external and climatic factors on the country's growth performance.

Another paper that focuses on the effectiveness of aid, given external and climatic factors, is from Dalgaard, Hansen and Tarp (2004). In their paper, they focus on geography to assess the effectiveness of aid in enhancing growth. In particular, they take a variable measuring the fraction of a country's land located in the tropics and interact this variable with aid to evaluate the aid–growth relationship. Their reasoning to use a climate-related variable is twofold. First, some studies have shown that tropical land area and tropical diseases contribute to explaining differences in economic growth between countries (Bloom and Sachs 1998; Gallup, Sachs and Mellinger 1999). Second, other studies suggest that geographic conditions determine the nature of institutions, which in turn influence economic growth (Acemoglu, Johnson and Robinson 2001). Since climate-related circumstances are structurally different between countries, variables measuring these circumstances are interesting candidates for analysing whether the impact of aid on growth differs between countries.

Dalgaard, Hansen and Tarp (2004) add their climate-related variable, and this variable interacted with aid, to the Burnside-Dollar growth model specification. The result is that the policy index interacted with aid becomes insignificant. At the same time, however, aid and aid interacted with the climate-related variable are statistically significant and have a positive and negative sign, respectively. Their result thus shows that aid has a

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10 The analysis is based on a 2SLS specification to endogenise the policy and external environment variable.

strong positive impact on growth of countries outside topical regions, whereas its impact decreases for countries in the tropics.

Collier and Dehn (2001) also contribute to the discussion on the role of climatic and external conditions in determining the effectiveness of aid. Using the Burnside–Dollar specification as a basis, they add a measure of trade shocks, defined as the change in export prices. The results of the estimations show that, contrary to almost all other papers, the good policy index interacted with aid is positive and statistically significant, supporting the central message of the *Assessing Aid* report. However, they also show that aid may reduce the impact of negative price shocks on growth, a result similar to that of Guillaumont and Chauvet (2001).

5.4 Aid and political instability

Some authors have investigated whether political instability in the recipient country matters for the effectiveness of aid. Political instability refers to irregular changes in the political system. The sources of instability may be twofold. On the one hand, the political system may change regularly due to frequent elections. On the other hand, political systems may change due to political violence, such as riots, strikes, assassinations, etc. Frequent political instability, in turn, may lead to unpredictable changes in laws, regulations, government policies, taxation and expenditures, and property rights. The uncertainty created by these changes may reduce incentives for investment and consumption, leading to lower economic growth. In a similar vein, it may negatively affect the impact of aid on growth.

Islam (2002) investigates this issue, using annual data for a sample of 21 sub-Saharan African and 11 Asian countries for the period 1968-1997. He uses a measure of political instability that is based on De Haan and Siermann (1996), revised by using the freedom index scores from *Freedom in the World*, Freedom House, for the years 1993–97. Adding the political stability measure, and its interaction with aid, to a Burnside–Dollar-type of growth model, gives the result that the interactive term of aid and political stability is positive and statistically significant. In contrast, the interactive term of aid and the Burnside-Dollar policy index is not significant. Islam's results suggest that aid is only effective when the political situation of the recipient country is stable; in politically unstable environments aid does not have any effect on growth.

Chauvet and Guillaumont (2002) carry out a similar analysis. They estimate a growth model, using data for 53 countries for the period 1975–99, and include a political instability measure, which is a composite of the number of coups d'états and a measure of regime changes obtained from Marshall and Jaggers (2000). Chauvet and Guillaumont find evidence for the hypothesis that aid is more effective in politically stable environments, since aid interacted with the political instability variable is negative and statistically significant.

Another paper that is closely related to the work of the authors discussed here is that of Kosack (2003). This author investigates whether the effectiveness of aid depends on the political system. In particular, he investigates whether aid is able to improve the quality of life, which is measured by the human development index (HDI). Kosack uses a data set for 56 countries; the data are divided into three four-year periods (1974–77, 1978–81, and 1982–85). He uses a simple HDI growth model in which aid to GDP and

the interaction of aid to GDP with a measure of democratisation are included, along with a list of variables that are normally used in growth models. His results show that, while aid does not generally improve the quality of life, it does lead to higher HDI growth rates when the extent of democratisation is higher. In autocratic countries aid is ineffective, and possibly even harmful. Kosack suggests that to make aid more effective, donor and recipient countries should at the same time aim at stimulating democratisation.

5.5 Aid and institutional quality

Burnside and Dollar have not remained silent after their paper was published in 2000 and was criticised by many researchers in the field of the economics of aid. In one paper (Burnside and Dollar 2004a), they directly respond to the criticism brought forward by Easterly et al. (2004). In another paper, they contend that institutional quality is decisive in determining the effectiveness of aid (Burnside and Dollar 2004b). In support of their view, Burnside and Dollar point out that most economists firmly believe that differences in institutions are the main determinant of differences in income levels between countries. In comparison to Burnside and Dollar (2000), in this paper they thus shift the focus from government policies to institutions and investigate whether institutions enhance the effectiveness of aid.

They investigate this issue with a new dataset, using a single cross section for the 1990s, for 124 countries. Their measure of institutional quality is based on a dataset constructed by Kaufman, Kraay and Zoido-Lobaton (1999). This dataset contains an overall measure of institutional quality, summarising various aspects of institutions and policies in one measure. In particular, this measure consists of four broad categories of variables measuring the institutional environment: government effectiveness, regulatory quality, rule of law and control of corruption.[11]

Burnside and Dollar estimate a growth model similar to the specification they used in their previous paper, including an interactive term of aid and institutional quality, next to aid and the institutional quality measure separately. Using an instrumental variable estimation technique, Burnside and Dollar find strong evidence that institutional quality determines the effectiveness of aid. While aid in itself is not significantly related to growth, the interactive term is, indicating that institutions matter for aid effectiveness.

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[11] For further details on the contents and construction of the dataset, see the following World Bank website: http://worldbank.org/wbi/governance.

6 Towards a consensus?

There are no signs of the aid–policy debate dissipating. To the contrary, it is likely to continue for some time yet.[12] It might be argued that the debate does not matter, to the extent that it is one about econometric methodology and little else. But it is far more than this, for it is highly policy relevant. The main conclusion of *Assessing Aid* is that aid should be allocated in part on the basis of recipient country policy environments. In this sense, the report presents a clear message to aid policymakers, one that is being listened to and acted on by various donor agencies (McGillivray 2003). The implications of this are quite clear. Countries with poor policy regimes will receive less aid than would otherwise be the case; this is an explicit outcome of the Collier and Dollar (2002) selectivity model. If we accept that some of the poorest countries are poor because of bad policies, among other factors, then less aid will go to these countries. If we accept that aid has no impact on countries with bad policies, as asserted in *Assessing Aid*, then some might receive no aid at all. The debate over policy and aid effectiveness is thus important. It needs further consideration and a consensus needs to be reached.

How might a consensus be resolved? Here we provide three possible paths. First, it is interesting that despite the controversy over the Burnside and Dollar (2000) results, there is some acceptance among researchers that better policies, however, defined, should in all probability result in more effective aid (see, for example, Robinson and Tarp 2000; Benyon 2001, 2002; Morrissey 2002). Gomanee et al. (2002) analyse aid *transmission mechanisms*, channels through which aid can potentially contribute to growth. Aid can effect growth directly, but also through its impact on investment, imports, public sector fiscal aggregates, and government policy. Gomanee et al. (2002) tested for the presence of the aid–investment–growth mechanism, finding strong evidence that it existed. Morrissey (2002) suggested, on the basis of this result, that government policies can play an important role in enhancing aid effectiveness through seeking to improve the productivity of investment. The transmissions mechanism concept is a still a very new direction in the literature, one that requires further investigation. It does, however, suggest that any link between policy and aid effectiveness might be far more complex than that built into the Burnside and Dollar aid–growth model. The channels through which aid and policy interact require more consideration, as could a range of non-linear relationships and possible threshold effects.

The second path has been explored by McGillivray (2003) who argues for a broader selectivity approach than that outlined in *Assessing Aid*. It incorporates policy, but is built on a range of contingencies for which there is empirical support in the literature. A number of these contingencies have been outlined above, and include political stability, democracy, and structural vulnerability. While countries with poor policies still receive less aid according to such an approach, the direct influence of policy in determining aid allocation is reduced due to the incorporation of additional variables into the decision making process.

The third path has not yet been considered in the literature. Giving less aid to countries with bad policies might be justified if it causes them to improve their policy regimes.

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12 The authors are aware of a number of early drafts of papers (currently too preliminary to cite) that also look at the issue.

This is the outcome of a successful *ex post* conditionality strategy, and would at least mean that countries with bad policies are not needlessly penalized with less aid than would otherwise be the case. Future research could examine whether such a penalty results in better policies.

7   Conclusion

This paper surveyed 50 years of empirical research on aid effectiveness, highlighting various controversies that have arisen. Its main focus was on research on links between aid and growth. The paper argued that for most of this period the literature was, at best, ambiguous in its conclusions about aid and growth or related variables. Some studies concluded that this relationship was negative, others concluded it was positive, and others found no relationship at all. Aid either worked, or it didn't, it seemed. More generally, there seemed to be a micro–macro paradox, with evidence suggested that aid clearly worked at the micro level but evidence, on balance, relating to the macro level. The paper then looked at the findings of arguably the most influential aid effectiveness study of all time, the World Bank's *Assessing Aid* and the debate that it stimulated over the link between aid effectiveness and policy.

Assessing Aid provides an interesting and policy relevant hypothesis about how aid works in stimulating growth. As outlined in this paper, it is that the impact of aid on growth is contingent on the policy regimes of recipient countries. Yet is it not one that is widely accepted in the research community, with many studies failing to find empirical support for this hypothesis. Other studies question the validity of the econometric methods used to support the hypothesis. The current paper surveyed the literature that has emerged in response or subsequent to *Assessing Aid*, highlighting the various criticisms of its background work (in particular, of the Burnside and Dollar 1997, 2000 paper) and alternative stories of aid's impact on growth. It pointed to a profound policy implication of the *Assessing Aid* position (that countries with bad policies would receive less aid than would otherwise be the case) and to possible avenues for reaching a consensus over the relevance of policy for aid effectiveness.

Finally, it is appropriate to ask what if any controversies have been settled in the last 50 years over the macroeconomic impact of aid. One controversy has, it seems, been settled: one way or another, aid does appear to work. By that, it is meant that growth would be lower in the absence of aid. One can reasonably infer from this finding that poverty would be higher in the absence of aid. The context in which aid works remains, however, controversial.

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Appendix

Results of selected aid effectiveness studies

Table A1	Selected aid effectiveness studies up to 1996
Author(s)	Results
Rahman (1968)	Foreign capital flows have a negative impact on domestic savings
Griffin (1970)	Foreign capital flows have a negative impact on domestic savings
Gupta (1970)	Foreign capital has no impact on domestic savings
Weisskopf (1972)	Foreign aid has a negative impact on domestic savings
Papanek (1973)	Aid has a positive impact on growth
Mosley (1980)	Aid has no impact of aid on growth
Dowling and Hiemenz (1982)	Aid has a positive impact on growth
Voivodas (1973)	Aid has no impact on growth
Gupta and Islam (1983)	Aid has a positive impact on growth
Mosley et al. (1987)	Aid has no impact on growth
Boone (1996)	Aid has no impact on growth

Table A2   Result of aid–growth studies, *Assessing Aid* and beyond

Author(s)	A_i^2	$(A·P)_i$	$(A·X)_i$	Results
Burnside and Dollar (1997, 2000)	–	Yes	–	Aid effectiveness depends on the policy environment
Durbarry et al. (1998)	Yes	–	–	Aid has diminishing returns
Collier and Dehn (2001)	–	Yes	Yes	Aid effectiveness depends on the policy environment
Dalgaard and Hansen (2001)	Yes	Yes	–	Aid is effective with diminishing returns and is independent from the policy environment
Guillaumont and Chauvet (2001)	–	Yes	Yes	Aid effectiveness does not depend on the policy environment, but on climatic conditions
Hansen and Tarp (2001)	Yes	Yes	–	Aid is effective with diminishing returns and is independent from the policy environment
Hudson and Mosley (2001)	Yes	Yes	–	Aid is effective with diminishing returns and is independent from the policy environment
Lensink and White (2001)	Yes	Yes	–	Aid is effective with diminishing returns and is independent from the policy environment
Lu and Ram (2001)	Yes	Yes	–	Aid is effective with diminishing returns and is independent from the policy environment
Chauvet and Guillaumont (2002)	–	Yes	Yes	Aid effectiveness depends on political stability
Collier and Dollar (2002)	Yes	Yes	–	Aid effectiveness depends on the policy environment
Islam (2002)	Yes	Yes	Yes	Aid effectiveness does not depend on the policy environment, but on political stability
Gomanee et al. (2003)	Yes	–	–	Aid is effective after a threshold value of growth has been reached
Jensen and Paldam (2003)	Yes	Yes	–	Aid is not effective in stimulating growth
Kosack (2003)	–	–	Yes	Aid is effective in improving quality of life in democratic countries
Dalgaard et al. (2004)	Yes	Yes	Yes	Aid is effective with diminishing returns, is less effective in tropical regions and is independent from the policy environment
Burnside and Dollar (2004b)	Yes	Yes	Yes	Aid effectiveness depends on institutional quality
Easterly et al. (2004)	–	Yes	–	Aid effectiveness does not depend on the policy environment

Notes:

A_i^2 = Quadratic aid term is included in the growth model specification.

$(A·P)_i$ = Interactive term of aid and a policy index is included in the growth model specification.

$(A·X)_i$ = Interactive term of aid and an indicator other than the policy index is included.

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