

CONFLICTS IN DEVELOPMENT ECONOMICS

Aid Does Matter, After All

Revisiting the Relationship Between Aid and Growth

Camelia Minoiu and Sanjay Reddy

Recent influential studies among development economists claim that aid to developing countries is not nearly as beneficial to recipient nations as had been expected. Are these statistical analyses right? One problem is that total aid, on which most studies are based, includes two distinct kinds of aid. The first is what we might call “developmental” aid, and the second, geopolitical aid. When the authors focus only on the first kind of aid, they find strong correlations between the level of such aid and average economic growth experienced over the long term. Moreover, they do not find that aid is more effective under specific policy conditions.

CAMELIA MINOIU is a Ph.D. candidate in economics at Columbia University and a graduate fellow at the Institute for Social and Economic Research and Policy (e-mail: cm2036@columbia.edu). **SANJAY REDDY** is an assistant professor of economics at Barnard College and also teaches at the School of International and Public Affairs, Columbia University (e-mail: sr793@columbia.edu). This article is based on Camelia Minoiu and Sanjay Reddy, *Growth Divergences: Explaining Differences in Economic Performance*, ed. J.A. Ocampo, Jomo K.S., and Rob Vos (New York: United Nations Publications, 2007). The authors thank the Department of Economic and Social Affairs of the United Nations for supporting this research, as well as Kathleen Aptauer for her help in editing this essay.

THE EFFECTIVENESS OF OFFICIAL DIRECT ASSISTANCE (ODA) to developing countries has been fiercely debated. Analyses of the average effect of aid on growth have long yielded contradictory answers to the question of whether aid spurs economic growth. Despite the abundance of studies that have attempted to investigate the aid-growth relationship, a consensus is yet to emerge. In the recent words of the International Monetary Fund (IMF) chief economist, “the debate about aid effectiveness is one where little is settled” (Rajan 2005).

Early protagonists in the debate on aid focused on case studies.¹ More recent work has evaluated the available data using increasingly complex econometric techniques. In our view, these studies—many of which have come to pessimistic conclusions concerning the impact of aid—have failed to adequately assess the relationship between aid and growth. None of the studies has asked whether aid directed toward developmental purposes spurs economic growth over time periods sufficiently lengthy to produce results. In other words, none has asked the question, what is the *long-term* impact of developmental aid? Furthermore, few studies have attempted to disentangle the effects of different components of aid (such as developmental versus geopolitical aid, multilateral versus bilateral aid, or tied versus untied aid) on economic growth. In this article, we report the results of an effort to do both of these things together. Our conclusion—at variance with the recent “aid pessimistic” literature—is that developmental aid has a large impact on subsequent economic growth.

We use a large cross-section of recipient countries spanning the period 1960–2000 and explore the impact of developmental aid (as opposed to total aid) on economic growth over periods of up to several decades. In addition to our central finding that developmental aid (appropriately defined) appears to have a large effect on growth, we find (contrary to an important strand of the recent literature) that the quality of the domestic policy environment does not affect the growth effectiveness of aid and that there is no evidence of diminishing returns to aid or that the effect of aid on growth depends on whether the recipient country is a low- or lower-middle-income country. Our results are robust to the choice of a wide variety of dif-

ferent specifications of the model and the application of alternative proxies for the explanatory variables (in particular, developmental and geopolitical aid).

This study has important policy implications. For aid to spur economic growth, it must be developmental in nature. Furthermore, the effects of developmental aid can only be observed over long periods of time, sometimes decades, as having translated into growth outcomes. Increased aid flows of the right sort can have substantial growth impact, if donors and recipients are patient.

Previous Studies and Our Contribution

The Recent Cross-Country Aid-Effectiveness Literature

Two major assumptions have been made in the recent aid-effectiveness literature, and in particular that using econometric methods. The first assumption is that total aid has a *contemporaneous* (rather than a lagged) effect on economic growth. The second assumption is that *all* components of aid have the *same* impact on average growth. In this section, we first review selected influential studies, highlighting the consequences of these assumptions for coefficient estimates of the marginal effect of growth in econometric models. Next, we challenge these assumptions and propose new ways of addressing the aid-effectiveness question.

As noted, the first assumption underlying empirical studies in the aid-effectiveness literature is that *present* aid has a causal effect on *present* growth. The difficulty in estimating the causal impact of present aid on present growth has to do with its possibly endogenous nature: aid may be extended in expectation of good growth performance (rendering aid a determinant of economic growth), or a poor expected growth performance may trigger higher aid flows. To address this issue, an instrumentation approach has been undertaken in most studies. The approach is based on the idea that exogenous variation in aid can be isolated using variation in so-called *friends of the donors* variables (Easterly 2005), which capture geopolitical influences on the exten-

sion of aid. Examples of such variables include dummies for common signatories to ententes or alliances; the size of the recipient countries as measured by their population; indicator variables for Egypt and for oil-producing countries (with which to reflect the increase in U.S. aid to these countries after the 1977 Camp David accords); dummy variables for former French, Spanish, Portuguese, and other colonies; and common language dummies.

A second frequently used instrument for current aid is past aid. The former approach to instrumentation has been implemented, for example, by Boone (1994; 1996), Burnside and Dollar (2000), Easterly (2003; 2005) and Rajan and Subramanian (2005). In contrast, Dalgaard et al. (2004) have taken the second approach. It should be noted, in relation to this choice of instruments, that an important requirement for variables to serve as instruments (in our case, either lagged aid or geopolitical variables) is that they satisfy the exclusion restriction, that is, they do not have a direct causal impact on growth. If one believes, as we do, that both lagged aid and the geopolitical variables that are used to predict exogenous variation in aid have a direct causal effect on growth (i.e., that they belong to the true model of the determinants of growth), then this untestable restriction fails and the models proposed in the literature suffer from misspecification.

Burnside and Dollar (2000) influentially examined the growth effectiveness of aid in a panel of fifty-six countries between 1970 and 1993. They reported little evidence that aid is a determinant of growth in countries with poor domestic fiscal, monetary, and trade policies. The authors concluded that such aid is effective only in countries where the "quality" of policies is high, but that aid itself does not play a role in producing policies. Burnside and Dollar argued that reallocating aid toward countries with "good" policies would result in a substantial improvement in those countries' growth performance.

A study that builds on the original Burnside-Dollar approach is that by Collier and Dollar (2002). The authors assess the effect of aid on growth as a function of the quality of the policy environment between 1990 and 1996 in a cross-section of eighty-six countries. Collier and Dollar argue in favor of a proxy for the policy environ-

ment that is different from the weighted average of budget surplus, inflation, and trade openness used by Burnside and Dollar (2000). Specifically, Collier and Dollar use the World Bank's Country Policy and Institutional Assessment (CPIA) index. The authors claim that the Burnside-Dollar results are robust to uses of alternative samples and time periods. In contrast to that study, however, they do not find evidence of diminishing returns to aid. Other successors to the Burnside-Dollar study include the comment by Easterly et al. (2004) and the reply by Burnside and Dollar (2004). Easterly et al. enrich the original database by adding four more years (to cover 1970-97) and find that Burnside and Dollar's initial findings do not hold up to this extension of the original dataset. While the authors do not explicitly argue that aid is completely ineffective, they find no evidence that it works better in "good" policy environments.

More recently, Dalgaard et al. (2004), employing a sample of sixty-five countries, find evidence that aid has been less effective in countries located in tropical areas, but that in general it is growth promoting. The authors argue against the use of the World Bank's CPIA as an indicator of countries' policy environment (due to its possible endogeneity to growth and because its use in aid allocation across countries may result in systematic correlation with unobserved unfavorable initial conditions). Rajan and Subramanian (2005) is the most recent study to reassesses the aid-growth relationship in a cross-country setting (using a sample of 107 countries). As before, the authors rely on an instrumentation strategy to identify the effect of present (total) aid on present economic growth, and find "little robust evidence of a positive (or negative) relationship between aid inflows into a country and its economic growth" (2005, 1).

Although the aid effectiveness literature is vast, few studies have attempted to identify the impact of different components of aid on growth. The working hypothesis in these studies has been that all aid has the same effect on growth, regardless of the sector to which it is allocated (e.g., general budgetary support or emergency assistance, technical cooperation or health and education). A notable exception is Clemens et al. (2004), who look at the short-run impact of aid al-

located to support the budget and balance of payments, investments in infrastructure, agriculture, and industry (amounting to 53 percent of total aid receipts). The authors argue that aid allocated to these sectors is likely to have a discernible impact on growth within the subsequent four years. They find strong evidence that this is the case, with estimates suggesting that a \$1 increase in short-impact aid raises income, on average, by \$1.64 (in present value). The authors suggest that aid that is aimed at supporting democracy, the environment, health, and education is likely to have a long-term impact on growth, but they do not attempt to identify its effect.

Rajan and Subramanian (2005) also investigate the relationship between different components of aid and growth. They distinguish between multilateral and bilateral aid, economic, social, and food aid; long-impact and short-impact aid as defined by Clemens et al. (2004), and aid originating from Scandinavian countries. In all these cases, the authors attempt to uncover the contemporaneous effect of distinct components of aid on average growth, use *friends of the donors* variables as instruments, and find no evidence that the type of aid matters in explaining growth performance. In a similar vein, Miquel-Florensa (2006) disentangles the growth effectiveness of tied aid versus untied aid. Using the dataset of Easterly et al. (2004), the author finds that tied aid is negatively and statistically significantly associated with average growth. However, the result is not robust to the use of different samples. The overall conclusion is that untied aid is more growth effective than tied aid in countries with more “favorable” policy environments.

An explanation as to why previous studies had failed to uncover an effect of aggregate aid on growth is offered by Headey (2005). This study argued that bilateral aid (amounting to 70 percent of total aid) did not have an impact on growth before 1990 (during the cold war) primarily because it served—at the global level—the donors’ geopolitical interests. It is thus not surprising, according to the author, that aggregate aid does not seem to have influenced average growth between 1970 and 2001. Headey (2005) uses a dataset of fifty-six countries spanning the 1970–2001 period and finds evidence that multilateral

aid flows were more effective than bilateral aid flows during the pre-cold war period, a finding explained by the fact that bilateral aid was dominated by largely geostrategically driven contributions from a few large donors. In contrast, using the post-cold war sample, the author identifies a large positive effect of bilateral aid on growth, and he concludes that the pooling of the two samples might serve as an explanation of why earlier studies (often covering precisely the cold war period) often found that aggregate aid was growth ineffective.

Challenging the Assumptions

As noted, many of the previous studies assume that all components of aid have the same impact on economic growth. Furthermore, they frequently assumed that ODA solely has a contemporaneous or nearly contemporaneous effect on growth. These two working hypotheses lead to the following model being typically estimated in a cross-country context:

$$Growth_{it} = \beta(Total_Aid/GDP)_{it} + \delta(Controls)_{it} + \varepsilon_{it}$$

where i is an index for recipient countries, t is the time index, and ε_{it} is a composite error term comprising fixed effects, time-specific shocks, and random error. The control variables usually account for the possibly confounding effect of other growth determinants, such as initial conditions, the quality of institutions (governance), geographical factors (e.g., frost days or share of land in tropical areas), the quality of the policy environment (in particular, a measure of trade openness or a policy index appropriately defined), inflation (as a measure of domestic monetary policies), and political and social stability. The model is usually estimated in the cross-sectional setting using Ordinary Least Squares (OLS) or Two-Stage Least Squares. In the latter case, total aid is usually instrumented for with either past values of aid or with geostrategic variables from the *friends of the donors* class. In a panel setting, the model is estimated using Fixed Effects or Generalized Method of Moments (GMM) techniques.

In the work summarized in this chapter, we depart from the above

equation in two major ways. We assume that (a) different components of aid have a distinct effect on growth, and (b) aid has a discernible impact on economic growth over the long term. In relation to the first point, we argue that aid expended in a manner that can reasonably be anticipated to promote development (e.g., aid aimed at or spent on building growth-promoting infrastructure such as roads, bridges, or ports or on health and education) can be expected to have a different effect on growth than aid that could not reasonably be anticipated to have this effect (e.g., aid spent on strengthening a military or reinforcing a political alliance).² For this reason, we distinguish between aid spent in a manner that could reasonably be anticipated to promote development and aid of all other kinds. We refer to the former type of aid as developmental aid, and to the latter type of aid as geopolitical aid. Of course, it may be the case that geopolitical aid, thus defined, ultimately has an effect on development. The definitions we offer are “expenditure side” definitions, which do not directly hinge on the motives for providing aid. Of course, there may be an empirical tendency for aid that is motivated by geopolitical considerations to be nondevelopmental according to the expenditure-side definition we provide here, which we may rely on in our efforts to differentiate these types of aid econometrically. The heart of this distinction between different types of aid is a view that total aid contains a developmental, possibly growth-enhancing, expenditure component (developmental aid), in addition to a growth-neutral or possibly growth-depressing expenditure component (geopolitical aid).

Our second departure from the standard model derives from the belief that developmentally oriented aid takes longer to translate into development outcomes than the periods of one or four years that have been assumed in the recent literature. Our definition of developmental aid is therefore closest to that of long-impact aid proposed by Clemens et al. (2004) and Rajan and Subramanian (2005). Since it is natural to expect that investments in infrastructure, health, and education should affect economic growth over the long run, we allow for various possible lags of developmental aid to enter the model as distinct determinants of present average growth. There is no reason

to treat geopolitical aid differently (unless one believes that it has no effect on growth, which is an empirical question), and multiple lags of geopolitical aid are also included in the model. We are thus specifying a very broad model that allows each component of aid to have a distinct, long-term effect on growth. As will be explained in the next section, data limitations will place a restriction on the model that we can estimate.

Empirical Findings

The Sample

We use information on aid disbursements (representing net loans and grants) from the Organization for Economic Cooperation and Development's Development Assistance Committee database (DAC 2006) and gross domestic product (GDP) data from the World Bank's *World Development Indicators* (2006) for 107 countries between 1960 and 2000. All other variables are from Rajan and Subramanian (2005) and were made available to us by courtesy of the authors. Reddy and Minoiu (2006) contains a complete list of the variables and their sources. Since we wish to assess the long-term impact of aid on growth, we focus on the determinants of average growth in the 1990s. All control variables represent averages over 1990–2000, while developmental aid enters the specifications in lagged form. Depending on data availability, the sample varies between a minimum of sixty-four and a maximum of seventy-seven countries. Summary statistics for selected variables used in the regressions are reported in Reddy and Minoiu (2006).

Proxies for Developmental Aid

We face several challenges in defining proxies for developmental aid. The ideal procedure for isolating the developmental component of total aid would entail classifying aid by type of expenditure and classifying expenditures by their expected effect on economic growth. For

example, aid that is spent on infrastructure (e.g., for building roads, irrigation systems, water and electricity delivery systems, housing, etc.) and aid spent on health, education, and population policies would fall under the category of developmental aid since such expenditures are expected to have a positive impact on development and economic growth. In contrast, aid covering the administrative costs of donors or aimed at emergency relief would not be classified as developmental in nature. However, data on aid by type of expenditure only goes back to 1990 (for disbursements) and to 1973 (for commitments). It is thus not appropriate for purposes of our analysis.

To arrive at proxies for developmental aid, we take another approach. First, we treat all multilateral aid as developmental in nature, since, as the definition for multilateral aid from the Development Assistance Committee database reads, “multilateral transactions are those made to a recipient institution which conducts all or part of its activities in favor of development” (DAC 2006), and multilateral aid channeled through international organizations is less likely to have a geopolitical rationale. Furthermore, we take total bilateral aid from the Nordic countries to be a proxy for development aid, since Nordic countries are reputed to have aid programs that are more developmentally oriented than other donor countries. Total bilateral aid from Denmark, Finland, Norway, Sweden, and Iceland (comprising group G1 of donors) is the first proxy for developmental aid that we consider. Since this proxy for developmental aid may be subject to the claim that bilateral aid from other donors also contains development components (which would otherwise remain unaccounted for in our analysis), we extend the list of G1 donor countries by adding five more donors (comprising group G2 of donors). The additional countries are Austria, Canada, Luxembourg, the Netherlands, and Switzerland. The choice of countries is, admittedly, based on a subjective judgment of the development orientation of these donor countries’ aid programs.

A second proxy that reduces this subjectivity is based on the aid-quality ranking according to the Commitment to Development Index (for aid) developed by Roodman (2006). A donor country is ranked higher according to the index if the country offers a larger proportion

of grants than loans, if its aid is less likely to be tied, if it channels aid toward poorer and less “corrupt” governments, and if its aid programs consist of fewer projects (not to place a strain on a recipient country government’s administrative capacity). According to the Commitment to Development Index (for 2005), the highest-ranked five donor countries (defined as group G3 of donor countries) are Denmark, Norway, Sweden, the Netherlands, and Switzerland. Finally, the highest-ranked ten donor countries form group G4 of development-friendly donor countries, and include the donors from G3 as well as Ireland, the United Kingdom, Belgium, Finland, and France.

Notably, one shortcoming of our approach is that the 2005 aid-quality ranking of donors may not be representative of the quality of aid from the same donors in the past. Despite this possible source of concern, and in light of a lack of alternative feasible approaches to identifying proxies for developmental aid, we use cumulative bilateral aid from donor groups G1, G2, G3, and G4, in turn, as proxies for development aid to estimate our model.

Proxies for Geopolitical Aid

A possible proxy for geopolitical aid is the share of total aid predicted by geostrategic variables. Another possible proxy is cumulative bilateral aid from donor countries that extend aid for geostrategic reasons (computed as total aid minus total bilateral aid from each of the four groups of development-friendly donor countries). Since our main results are similar for the two proxies, we present findings in this article based on the former proxy. See Reddy and Minoiu (2006) for a complete summary of the statistical issues.

Partial Correlations and Cross-Sectional Regression Results

We present partial scatterplots that illustrate the conditional relationships between the variables of interest, namely our proxies for developmental and geopolitical aid, and average growth in the 1990s. At the same time, we discuss regression results presented in Reddy and

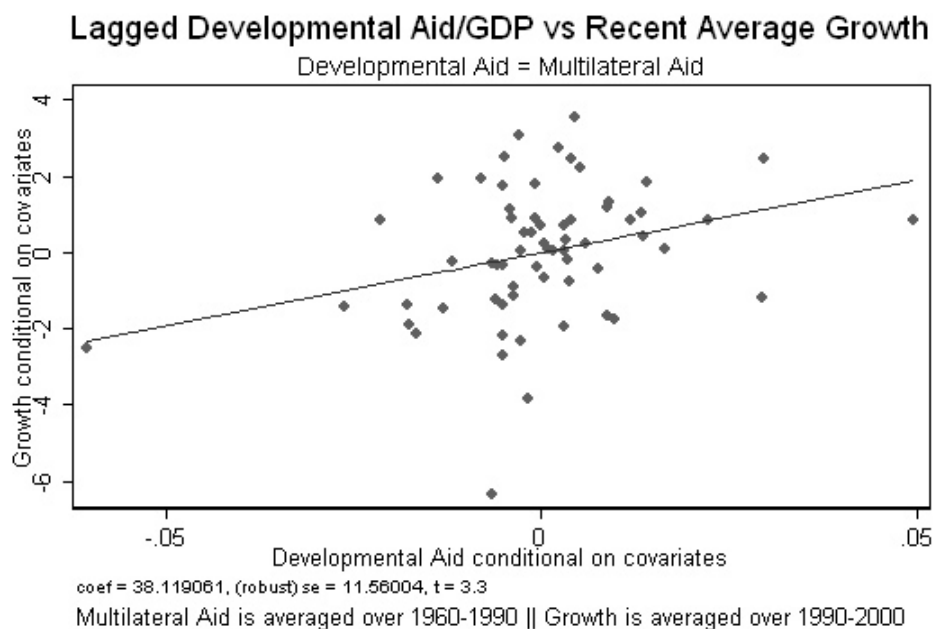


Figure 1. Conditional Scatterplot of Lagged Developmental Aid (Proxied by Lagged Multilateral Aid) Against Average Growth

Minoiu (2006). Figure 1 depicts the conditional relationship between lagged developmental aid (averaged over 1960–1990) and growth in the 1990s when the sole proxy for developmental aid is aid extended by multilateral institutions.

As expected, there is a positive and statistically significant relationship between past multilateral aid and current growth. The result is also evident in the regression analyses outlined in Reddy and Minoiu (2006). Lagged multilateral aid has a large subsequent effect on average growth. Average growth in the 1990s is higher by one-third of a percentage point on average when the share of multilateral aid in GDP increases by one percentage point. At the same time, geopolitical aid appears to have a negative and statistically significant, yet smaller, effect on average growth. Despite our attempt to control for possible confounding factors, these results should be interpreted with caution. It may be the case that growth-enhancing elements of aid have been omitted from this specification. For example, since our proxies for developmental and geopolitical aid do not add up to total aid (by construction), we

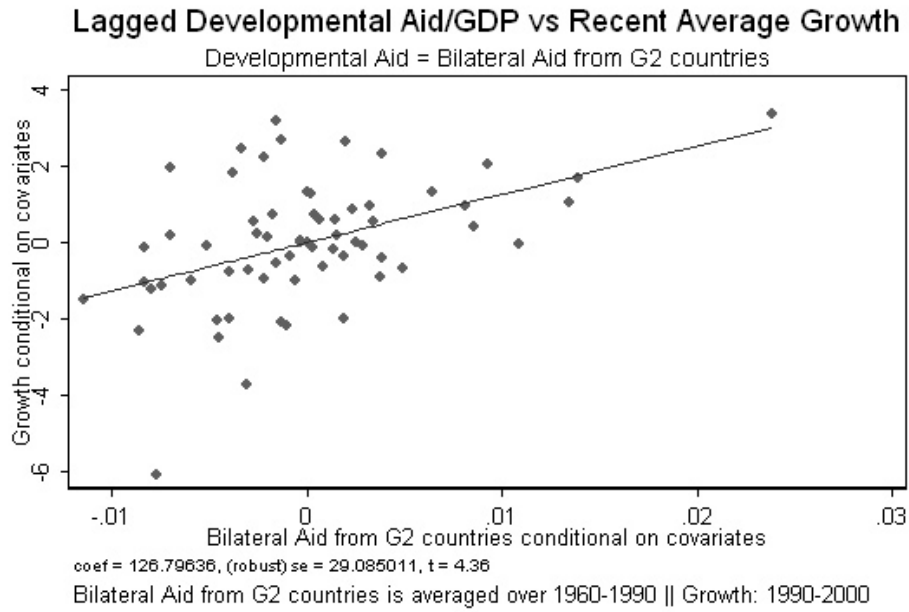
cannot ensure that all forms of aid (productive or unproductive) have been accounted for in this specification. For this reason, in subsequent specifications we use richer proxies for developmental aid.

Next, we illustrate the conditional scatterplots of lagged developmental aid against average growth (Figure 2). We focus on two proxies for developmental aid, representing total bilateral aid from groups G2 to G4 of development-friendly donor countries. In each specification underlying the conditional scatterplot, the share of multilateral aid in GDP is included as a control variable to attenuate the possible bias in the coefficients on bilateral aid that might arise if multilateral aid were omitted. The remaining sources of bias in these coefficient estimates are those developmental components of total aid (if any) that have not been accounted for by our proxies for developmental aid. An example would be bilateral aid from donor countries that are not included in groups G2 and G4.

The two diagrams speak for themselves. Our proxies for lagged developmental aid (averaged over 1960–1990) are strongly positively correlated with average growth in the 1990s, conditional on the set of covariates. The regression results corresponding to this figure are shown in Reddy and Minoiu (2006).

This positive and statistically significant relationship is also robust when using alternative proxies for developmental aid (namely, total bilateral aid from groups G1 to G4 of donor countries), as well as alternative time periods over which the developmental aid is lagged and averaged. Developmental aid averaged over periods such as 1960–70, 1960–75, 1960–80, 1960–85, 1960–90, 1970–80, 1970–90, and 1980–90 is always accompanied by a statistically significant and large marginal effect on subsequent growth (in the 1990s). This is a consequence of the high degree of correlation of aid across the time periods considered. For this reason, we believe that the best specification among those shown is that in which aid is lagged over 1960–90, that is, the entire period for which data are available. In that model, the possibility of omitted variables such as lagged aid from other time periods is minimal. We decided not to include several lags of aid as explanatory variables in any given model due to the small sample size

Panel 1



Panel 2

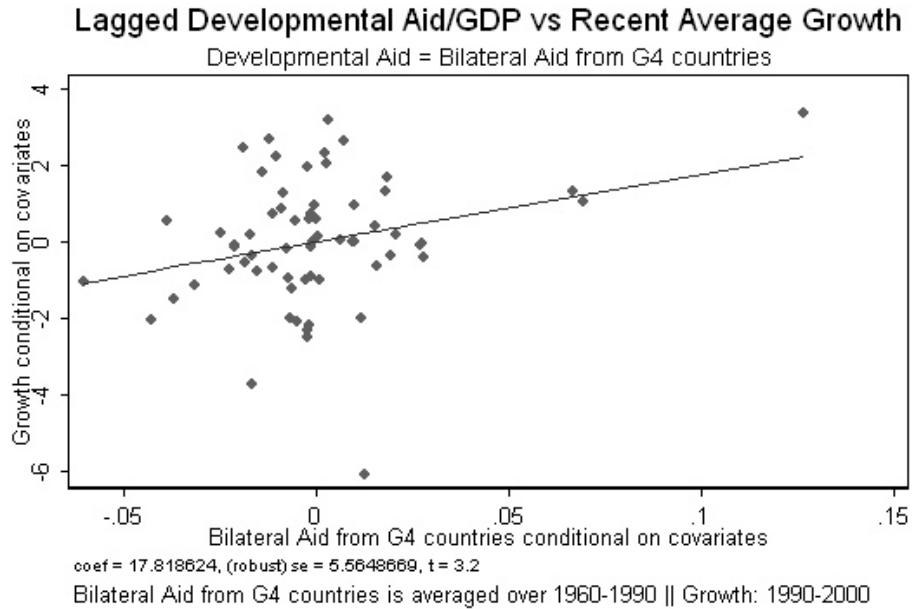


Figure 2. Conditional Scatterplots of Lagged Development Aid (Proxied by Lagged Total Bilateral Aid from Groups G2 and G4 of Development-Friendly Donor Countries) Against Average Growth

(between sixty-four and seventy-seven countries) and the relatively large number of covariates.

We find that the proxy for geopolitical aid is consistently negatively correlated with growth, but that its coefficient estimate is not always statistically significantly different from zero. Insofar as geostrategical aid is endogenous to the growth performance of a country (for example, since strategic alliances may be formed in anticipation of higher aid flows of the richer partners in those alliances), this finding should be interpreted with caution. However, the presumption in the literature has been that geopolitically motivated aid is exogenous to growth, and for this reason it has been considered an appropriate instrument for total aid. Under this assumption, the inclusion of present geopolitical aid as an explanatory variable would not give rise to misspecification (unless one believes that *past* geopolitical aid is likely to affect current growth and has been omitted). In our models, present geopolitical aid (expressed as the share of total aid predicted by *friends of the donors* variables) is often negatively correlated with growth. The negative (contemporaneous) relation between geopolitical aid and average growth is depicted in Figure 3.

Robustness Checks

Alternative Proxies for Developmental Aid

We subjected our main results to a series of robustness checks. First, we identify an alternative proxy for developmental aid. Developmental aid is defined as the share of total aid predicted by National Rainfall Index (NRI), developed by the Food and Agriculture Organization, Environment and Natural Resource Service (FAO-SDRN). In developing this proxy, our premise is that the level of developmental aid offered to recipient countries is related to their agricultural productivity. Since the NRI serves as an indicator of the quality of the agricultural season, we use its exogenous variation to predict the (exogenous) part of total aid that can be interpreted as developmental in nature. More precisely, we create a variable that represents the share of total aid in

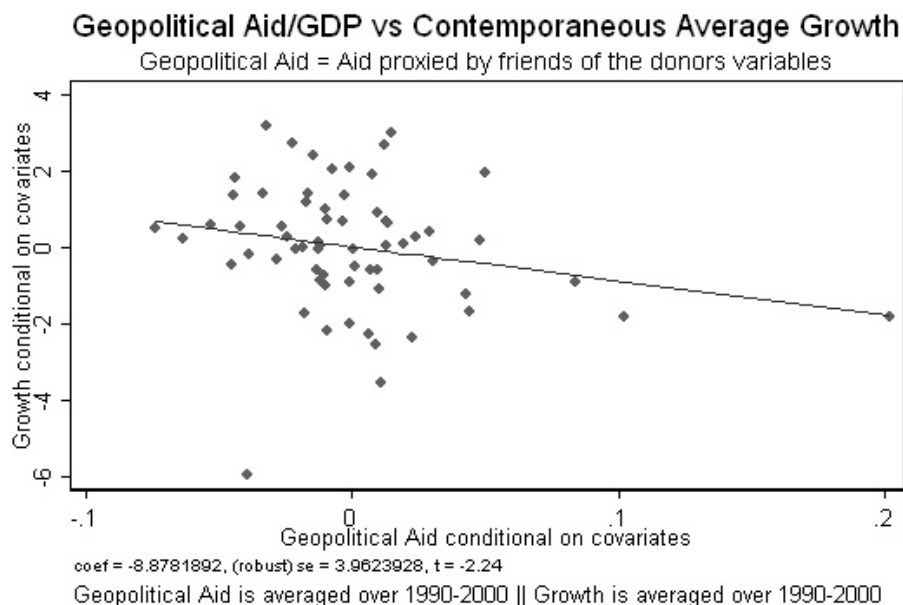


Figure 3. Conditional Scatterplot of Recent Geopolitical Aid (Proxied by the Share of Total Aid Explained by Geostrategic Variables) Against Contemporaneous Average Growth

GDP predicted by NRI lagged one period. Then we use that variable as a proxy of developmental aid alongside that for geopolitical aid. The results in a cross-sectional setting are reported in Reddy and Minoiu (2006).

We find that the previously uncovered positive and statistically significant relationship between lagged developmental aid and average growth in the 1990s holds up when this alternative proxy for developmental aid is used. However, the magnitude of the coefficient estimates is lower. A one percentage point increase in the developmental aid-to-GDP ratio (1960–90) is associated with an almost one-quarter of a percentage point increase in average growth (in the 1990s). In this model, the coefficient on geopolitical aid is not statistically significant, which suggests that geopolitically motivated aid may well have a neutral impact (as contrasted with our previous finding of a possibly depressing effect on economic growth).

Alternative Specifications

Three other propositions have been central to the recent aid-effectiveness literature. The first is that a big push in aid is needed by countries caught in a “poverty trap” (Sachs et al. 2004) to set them on a trajectory of sustained economic growth. The hypothesis is that geopolitics, geography, disease, lack of infrastructure, and low levels of technology produce income levels that are too low to allow for capital investment sufficient to trigger and sustain growth. We tested this premise by evaluating whether the impact of aid on growth depends on the income level of the country (in particular, whether they are low- or lower-middle-income countries). Our results indicated that there were no income thresholds affecting countries’ ability to use aid productively. The interaction terms between developmental aid and income levels had statistically insignificant coefficient estimates. However, developmental aid continued to display a high level of positive conditional correlation with subsequent average growth.

Second, a number of studies have advanced the conclusion that there are diminishing returns to aid. Again, this finding was not evident using our data and specifications. Our models suggested that there are either no diminishing returns to aid or small negative effects. However, these results were not robust across multiple specifications and time periods, so a definite conclusion could not be reached.

Third, a number of authors, including Burnside and Dollar (2000) and Collier and Dollar (2002) have asserted that aid is effective only in “good” policy environments. Using a number of proxies for the quality of the policy environment, we reestimated our specifications, including interaction terms between the components of aid and the policy variables. These proxies included: the Sachs and Warner (1995) openness indicator variable, the updated Sachs and Warner variable (Wacziarg and Welch 2003), the World Bank CPIA ratings (used by Collier and Dollar 2002), and the policy index representing a weighted average of budget surplus, inflation, and openness (constructed by Burnside and Dollar 2000). We found no evidence that developmental aid is more growth-effective in countries with “better” domestic poli-

cies. Again, developmental aid appeared to spur growth regardless of the quality of policy environment as captured by these variables.

Conclusions

We offer new evidence that aid “matters” for growth and indeed that it can matter a great deal. However, only certain kinds of aid have a statistically and economically discernible impact on average growth, and only over the long term. This article contributes to the aid-effectiveness literature by disentangling the distinct effects of developmental and geopolitical aid on growth. Furthermore, it reports evidence that aid assistance to developing countries translates into development outcomes with a lag, sometimes involving several decades.

Using a variety of proxies for developmental aid and numerous specifications, we found that developmental aid has a positive, large, and statistically significant effect on subsequent growth. These proxies included total bilateral aid from Nordic countries, as well as from countries that rank high on a widely used aid-quality index. Furthermore, developmental aid predicted as the share of total aid explained by the quality of the agricultural season also had a statistically significant effect on subsequent growth. In contrast, geopolitical aid was found to have either a negative or zero effect on average growth. In a series of robustness checks, we did not find evidence that aid is more growth effective in “better” policy environments, that there are diminishing returns to aid, or that there are income thresholds in the ability of countries to utilize aid productively.

In conclusion, recent judgments regarding the growth ineffectiveness of aid are not supported by the data. Aid matters for growth. However, it is developmental aid rather than geopolitical aid that matters. The policy implications of this study stand in contrast to those of previous studies. A change in the composition of total aid that favors developmental aid, as well as an increase in the total volume of ODA extended to developing countries, are policy measures likely to have a substantial and large effect on the future growth of those countries. To validate and improve these results, we believe

that further research should aim at identifying the growth impact of distinct categories of aid over the medium and long term, using more fine-grained data. This appears to be a promising area for future research, which must move beyond the debate on whether aid is effective and shed light on the far more pertinent question of what makes aid more and less so.

Notes

1. See, e.g., the work on this subject by Peter Bauer (1959; 1971; 1981) and the review of Bauer (1981) by Sen (1982).
2. Clearly, there is a need for a threshold with which to undertake such differentiation. We note this requirement without explicitly specifying such a threshold.

For Further Reading

- Bauer, Peter Thomas. 1959. *United States Aid and Indian Economic Development*. Washington, DC: American Enterprise Association.
- . 1971. *Dissent on Development: Studies and Debates in Development Economics*. Cambridge: Harvard University Press.
- . 1981. *Equality, the Third World and Economic Delusion*. Cambridge: Harvard University Press.
- Boone, Peter. 1994. "The Impact of Foreign Aid on Savings and Growth." Working paper 1265, Centre for Economic Performance, London School of Economics, London.
- . 1996. "Politics and the Effectiveness of Foreign Aid." *European Economic Review* 40 (2): 289–329.
- Burnside, Craig, and David Dollar. 2000. "Aid, Policies and Growth." *American Economic Review* 90, no. 4: 847–69.
- . 2004. "Aid, Policies and Growth: Reply." *American Economic Review* 94, no. 3: 781–84.
- Clemens, Michael A., Steven Radelet, and Rikhil Bhavnani. 2004. "Counting Chickens When They Hatch: The Short-Term Effect of Aid on Growth." CGD working paper no. 44, Center for Global Development, Washington, DC.
- Collier, Paul, and David Dollar. 2002. "Aid Allocation and Poverty Reduction." *European Economic Review* 46, no. 8: 1475–1500.
- Dalgaard, Carl-Johan, Henrik Hansen, and Finn Tarp. 2004. "On the Empirics of Foreign Aid and Growth." *Economic Journal* 114 (496): 191–216.
- Development Assistance Committee. 2006. Online database. Paris: Development Assistance Committee, Organization for Economic Cooperation and Development (www.oecd.org/dac/stats/idsonline/).

- Easterly, William. 2003. "Can Foreign Aid Buy Growth?" *Journal of Economic Perspectives* 17, no. 3: 23–48.
- . 2005. "What Did Structural Adjustment Adjust? The Association of Policies and Growth with Repeated IMF and World Bank Adjustment Loans." *Journal of Development Economics* 76, no. 1: 1–22.
- Easterly, William, Ross Levine, and David Roodman. 2004. "New Data, New Doubts: A Comment on Burnside and Dollar's 'Aid, Policies and Growth.'" *American Economic Review* 94, no. 3: 774–80.
- Headey, Derek. 2005. "Foreign Aid and Foreign Policy: How Donors Undermine the Effectiveness of Overseas Development Assistance." CEPA working paper 5, Centre for Efficiency and Productivity Analysis, School of Economics, University of Queensland, Australia.
- Miquel-Florensa, Josepa. 2006. "Aid Effectiveness: A Comparison of Tied and Untied Aid." Columbia University, New York.
- Rajan, Raghuram. 2005. "Aid and Growth: The Policy Challenge." *Finance and Development* 42, no. 4 (www.imf.org/external/pubs/ft/fandd/2005/12/straight.htm).
- Rajan, Raghuram, and Arvind Subramanian. 2005. "Aid and Growth: What Does the Cross-Country Evidence Really Show?" IMF working paper WP/05/127, International Monetary Fund, Washington, DC.
- Reddy, Sanjay, and Camelia Minoiu. 2006. "Development Aid and Economic Growth: A Positive Long-Run Relation." Working paper 29, Department of Economic and Social Affairs, United Nations, New York.
- Roodman, David. 2006. "Building and Running an Effective Policy Index: Lessons from the Commitment to Development Index." Center for Global Development, Washington, DC.
- Sachs, Jeffrey D., and Andrew M. Warner. 1995. "Economic Reform and the Process of Global Integration." *Brookings Papers on Economic Activity* 1: 1–118.
- Sachs, Jeffrey D., John W. McArthur, Guido Schimdt-Traub, Margaret Kruk, Chandrika Bahadur, Michael Faye, and Gordon McCord. 2004. "Ending Africa's Poverty Trap." *Brookings Papers on Economic Activity* 1: 117–240.
- Sen, Amartya. 1982. "Just Deserts." *New York Review of Books* 29, no. 3 (http://finance.sauder.ubc.ca/~bhatta/BookReview/sen_on_bauer.html).
- Wacziarg, Romain, and Karen Horn Welch. 2003. "Trade Liberalization and Growth: New Evidence." NBER working paper 10152, National Bureau of Economic Research, Cambridge, MA.
- World Bank. 2006. *World Development Indicators*. Washington, DC (<http://devdata.worldbank.org/dataonline/old-default.htm>).

To order reprints, call 1-800-352-2210; outside the United States, call 717-632-3535.

Copyright of Challenge is the property of M.E. Sharpe Inc. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.