Aid with Multiple Personalities

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Abstract The existing research on foreign aid offers inconclusive evidence on the factors that make aid effective. In this paper, we study the supply of aid money in 112 developing countries over the period 1960-1999 and find that the presence of multiple donors in a given country renders aid less effective. In particular, an aid-receiving country at the median of the donor fractionalization distribution will grow one percentage point faster than a country at the 75th percentile. This is in part because donor fragmentation is associated with increased corruption in the recipient country's government.

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JEL: O19, F35, F34, P11.

Introduction

After the tsunami disaster in 2004, donors directed $14 billion to the areas that suffered the greatest damage. Aid came from over 1,000 governments and non-governmental organizations. If the market for aid were like any other market, this competition among donors may have resulted in faster delivery of humanitarian aid and subsequent reconstruction efforts. But the market for aid is not like other markets: many new organizations enter every year, but no significant organization has even exited.[1] Regardless of how inefficient donors may be, they stay in the aid business. This often results in overwhelmed government officials, who spent their time meeting donor delegations.

Two examples. In 2001, Tanzania had to produce more than 2,400 reports to donors and government officials met with over 1,000 donor delegations.[2] Second, in the aftermath of the tsunami disaster a local doctor in Banda Aceh, one of the most affected areas, wrote: "In February, in Riga (close to Calang) we had a case of measles, a little girl. Immediately, all epidemiologists of Banda Aceh came in, because they were afraid of a propagation of measles among displaced people, but the little girl recovered very fast. Then, we realized that this was not a normal case of measles and we discovered that this girl has received the same vaccine three times, from three different organizations. The measles symptoms were a result of the three vaccines she received."[3]

The research on foreign aid offers inconclusive evidence on the factors that make aid effective. Most studies focus on the characteristics of recipient countries, and in particular on the presence of good policies and institutions. Burnside and Dollar (2000)

[1] Klein and Harford (2005). See chapter 2: A century of entry but no exit.
[2] Easterly (2003), p.20.

find that aid works in "good policy environments," using proxies for sound fiscal, monetary and trade policy. These results imply that increasing the conditionality of aid on policies would improve its effectiveness. Related studies have corroborated this finding: the interaction of aid and good policies is robust to the inclusion of additional explanatory variables, such as commodity export price shocks in Collier and Dehn (2001), or the usage of alternative proxies for good policies (Collier and Dollar, 2002).

However, Easterly, Levine and Roodman (2003) find that the results of Burnside and Dollar (2000) collapse when changing the sample period (by extending the sample to 1997) or filling in missing observations in the period 1970-93. The results in Przeworski and Vreeland (2000) and Barro and Lee (2005) cast further doubts. Both studies analyze the effectiveness of IMF aid and conclude that loans reduce economic growth and investment in the recipient countries. More recently, Rajan and Subramanian (2005) find no evidence of the relationship between aid and economic growth even after correcting for the fact that aid goes typically to countries with poor economic performance. Djankov, Montalvo and Reynal-Querol (2008), using panel data for 108 recipient countries in the period 1960 to 1999, find that foreign aid has a negative impact on institutions. In particular, if foreign aid over GDP over a period of five years reaches the 75th percentile in the sample, then a 10-point index of democracy is reduced between one-half and one point, a large effect.

Another strand of the literature has argued that the effectiveness of foreign aid depends on the way in which aid is disbursed. Cordella and Dell'Ariccia (2003) show that the relationship between aid, policies and growth depends on whether the aid is delivered in budget support or project financing. They find no effect of aid by itself or

[3] El Pais, April 13, 2005, p. A2.

when interacted with good policies. However, if the interaction of aid and policy is broken into two variables (budget support and policies; project aid and policies), Cordella and Dell'Ariccia find positive and statistically significant results in the former.

A third hypothesis, little explored in previous literature, is that the effectiveness of foreign aid depends on the fragmentation of donors. This is the topic of our study. In particular, we document the supply of aid money in developing countries and find that the presence of multiple donors in a given country renders aid less effective. We provide some evidence that a possible explanation for this is the resulting increased corruption in the recipient country's government.

Why can donor fragmentation increase corruption? Gibson et al (2005) argue that the presence of multiple donors increases the recipient government's negotiation power. Donors become less demanding in selecting and supervising projects and it is easier for corrupted officials to appropriate resources.

Using data on 112 recipient countries for the period 1960-1999, we distinguish among 37 donors, among which 15 are multilateral and 22 are bilateral agencies, and construct a donor fragmentation index in each recipient country. We show that donor fragmentation has increased dramatically since the 1970s. We find that an aid-receiving country at the median of the donor fractionalization distribution will grow one percentage point faster than a country at the 75th percentile in a five-year period.

We also test the hypothesis that this result is driven by the effect of multiple donors on the increase in corruption. We find that the effect of aid on corruption increases with donors' fragmentation.

Section 2 describes the data sources. Section 3 provides the basic estimation results. Section 4 presents alternative interpretations: showing that donor fragmentation is associated with increased corruption. Section 5 concludes.

2. Data

The literature that analyzes the effect of aid on development has traditionally used the Official Development Assistance (ODA) measure. This is the measure used in this paper too. ODA captures the flows of money that arrives in the recipient country in a particular year minus what the country pays back. ODA includes grants and concessional loans, whose grant element is at least 25%.

Data on ODA are in current US dollars and come from the Development Assistance Committee of the OECD. We use the IMF's unit value import index to transform the data in constant dollars and at purchasing power parity. The unit value import index is the ratio between the unit values of imports and import prices. To obtain aid data in constant dollars, we multiply the original data by the unit value import index for 1985 and then divide by the unit value import index of the current year. Finally, we divide the aid value by real GDP in constant 1985 prices from the Penn World Tables 5.6.

Following the OECD, we distinguish 37 donors, among which 15 are multilateral and 22 are bilateral agencies (Table 1).[4] In 1960-64, the United States is by far the largest donor, with nearly two-thirds of official development assistance (64.1%). France is second with 9.8% and the United Kingdom third with 8%. By 1995-99, Japan is the

[4] Data for five donors is incomplete and not included here: the Council of Europe, the Nordic Development Fund, the International Fund for Agricultural Development, the Caribbean Development Bank, and the European Bank for Reconstruction and Development.

largest bilateral donor, with 22.8%, followed by the International Development Association (IDA) with 12.3% and the United States with 10.5%.

Using these data, we measure the degree of competition among donors by constructing a donor fragmentation index. Knack and Rahman (2007) calculate two measures of donor fragmentation using the index to analyze the impact of donor fragmentation on the quality of government bureaucracy. Easterly (2007) uses the Herfindahl-Hirschman index to calculate the donor fragmentation index as a measure of specialization. The index of donor fragmentation has the following form,

$$FRAG = 1 - \sum_{i=1}^{N} \pi_i^2$$

where π_i is the proportion of aid given by donor i with respect to all aid the country received. That is, π_i is the relative size of donor i. It measures the probability that if we take two dollars of foreign aid each dollar would come from a different donor.

Figure 1 shows the evolution of the average annual donor fragmentation over time. Donor fragmentation has increased over time[5]. This started with the establishment of the International Development Association, established in 1960, Japan's Overseas Economic Cooperation Fund (1961), and the Asian Development Bank in 1966. The late 1980s and early 1990s saw the establishment of the Multilateral Investment Guarantee Agency, the European Bank for Reconstruction and Development, France's Pomarco and Denmark's Investment Fund for Central and Eastern Europe.

[5] By now this is a well know fact. See for instance Knack and Rahman (2004).

Table 2 lists all 112 countries in the sample, with their index of donor fragmentation in each time period. Not all recipient countries have fragmented donors. For some recipient countries and periods, there is only one donor: for example in Cape Verde in 1960-64 (Portugal) and 1965-69 (Germany), Oman in 1960-1964 (the UK) and Papua New Guinea in 1960-69 (Australia). Some Middle Eastern countries – Bahrain, Oman, Syria and the United Arab Emirates – have few donors throughout the sample period. Many African countries – for example Botswana, the Gambia, Guinea-Bissau, Malawi, Mozambique and Zambia – start with one or two donors in 1960-64 and have nearly every donor present by 1999.

In the analysis of the effect of donor fragmentation on growth, we use the conventional set of controls used in the literature of aid and growth: in particular, we follow Burnside and Dollar (2000), Easterly, Levine and Roodman (2004), and Hansen and Tarp (2001) among others. The set includes initial income (lngdp0), ethno-linguistic fractionalization (ethfrag), assassinations per capita (assass) and the product of ethno-linguistic fractionalization and assassination per capita, the institutional quality (icrg) from ICRG, the M2/GDP to indicate financial depth lagged one period, dummies for sub-Saharan Africa (afr) and fast growing East Asia (eas), and time-period dummies. Finally, we include the policy variable (policy) constructed by Burnside and Dollar.[6] Following the basic specification of Hansen and Tarp (2001), we include the budget balance/GDP (Bb), log (1+ inflation) and a variable measuring openness to trade (open), originally constructed by Sachs and Warner (1995), and updated by Roodman (2004). The sources and definitions of all variables used in the analysis are described in Table 3.

[6] We construct the policy variable using the same weights as Burnside and Dollar (2000), for each of the three variables: budget balance/GDP, log (1+ inflation) and openness to trade.

Having many donors, and higher donor fragmentation, does not lead to receiving more foreign aid (Table 4). In particular, the correlation between donor fragmentation and aid is –0.13. Donor fragmentation is high in sub-Saharan Africa (correlation coefficient is 0.27), in countries with corrupt governments (with a correlation of -0.21 with the ICRG index), and in countries with high level of government consumption (correlation equal to 0.18) and countries in civil war (0.16). In contrast, donor fragmentation is lowest in East Asia (-0.45) and in middle-income countries (correlation with logGDP is -0.28).

3. Estimation

Our hypothesis is that the burden imposed by multiple donors is an important determinant of the effectiveness of foreign aid. Acharya et al. (2006) argues that the "immediate consequence of the proliferation of donor organizations is a very large increase in the transactions costs incurred by agencies of recipient governments in their engagements with aid donors. The more donors there are, the easier it is to assume or assert that the lack of development progress is someone else's fault; and the greater are the temptations for individual donor agencies to focus efforts on obtaining good results from their own projects, even if this impinges adversely on overall aid performance." Morss (1984) argues that, "…donor and project build-up, which continues into the 1980s, is having a negative impact on the major government institutions of developing nations. Instead of working to establish comprehensive and consistent development objectives and policies, government officials are forced to focus on pleasing donors by approving projects that mirror the current development enthusiasm of each donor."

For all the empirical analysis we consider a sample of 112 recipient countries and data from 1960 to 1999 organized in five-year intervals:

$$GROWTH_{it} = \beta_1 y_{it} + \beta_2 X's_{it} + \beta_4 aid_{it} + \gamma_t + \mu_{it} \quad (1)$$

where GROWTH is the growth rate of GDP per capita; y_{it} is the log of gross domestic product per capita in the initial year of each sub-period; and the vector X has the usual controls in growth regressions explained above.

As aid generally flows to countries whose growth rate is getting worse, we need an instrument for foreign aid. We follow Burnside and Dollar (2000) and Easterly et al. (2004) and use a group of variables that captures donors' "strategic interests" – proxied by dummy variables for Franc Zone (franczone), a dummy for being ex-colony of UK (f_brit), a dummy for Central American countries (cam), the logarithm of population and arms imports (arms) as a fraction of total imports lagged one period. Therefore the equation for aid is the following:

$$aid_{it} = \gamma_y m_{it-1} + \phi_p p_{it} + z'_i \gamma_z + \zeta_{it} \quad (2)$$

where the excluded instruments are the logarithm of population (*p*), the group of variables that capture donors' "strategic interests" (*z*) and arms imports as a fraction of total imports lagged one period (m).

3a. Donor fragmentation and aid effectiveness

It has been argued that donors may follow political and strategic interests in directing aid. Alesina and Dollar (2000), for example, find that colonial past and political alliances are major determinants of foreign aid. Dollar and Levin (2004) examine the allocation of foreign aid by 41 bilateral and multilateral agencies. They find that some of the largest

donors, for example France and the United States, do not direct aid to the countries with best policies, but rather to countries that they have strategic interests.

In this section we analyze the effect of donor fragmentation on the effectiveness of foreign aid. We test the hypothesis that it is not only the identity of donors but their number in any recipient country that matter for aid effectiveness. When many donors are involved, aid may have no effect, or in some cases even a negative one. The former may be the result of increased coordination problems between the government and various donors. The latter can take place when the presence of multiple donors increases corruption in government. We use the index of donors' fragmentation (Donfrag) to capture the extent of the multiplicity of agencies providing aid to a country. Therefore, Donfrag varies between 0 (only one donor) and 1 (highest level of donor fragmentation). The results of the regressions are shown in table 5, 6 and 7. The regressions compare the results using two conventional specifications in the literature on growth and foreign aid: the one in Burnside and Dollar (2000), and the one in Hansen and Tarp (2001).

Table 5 analyzes the effect of aid on growth. In columns1 to 4 we use the Burnside and Dollar (2000) specification, and in columns 5 to 8 the Hansen and Tarp (2001) specification. There is likely to be intra-group correlation: estimators are still consistent but the standard deviation will not be. For this reason, we present the z-statistics obtained using a cluster-robust standard deviation in all the regressions. Column 1 presents the OLS estimation. The effect of aid on growth is not significant. The results of the IV estimation appear in column 2. However, IV estimators in the presence of heteroskedasticity may not be efficient. For this reason column 3 presents the results of the estimation using the generalized method of moments (GMM). The estimator for aid is

similar to the one shown in column 1 and 2: foreign aid has no significant effect. Finally, there could still be some omitted variables, which are fixed over time that could affect the amount of aid received and the growth path of countries. If this is the case we need to control for country fixed effects: the results in column 4 show a similar effect as in previous columns. In this specification the excluded instruments are the logarithm of population (p), and arms imports as a fraction of total imports lagged one period (m). Since the group of variables that capture donors' "strategic interests" (z), are invariant over time, we cannot include them in the regression.

Hansen and Tarp (2001) use a similar specification as Burnside and Dollar (2000), but instead of including the policy variable they include each of its components: the budget balance/GDP, log (1+ inflation) and a variable measuring openness to trade. In columns 5 to 8 we present the same analysis of columns 1 to 4 using the Hansen and Tarp (2001) specification. In line with previous results, aid has no significant effect on growth.

In table 6 and 7 we introduce donors' fragmentation as an additional explanatory variable. In table 6 we use the specification of Burnside and Dollar (2000), and in table 7 we use the alternative specification of Hansen and Tarp (2001). In column 1 we present the results using OLS estimation. As argued before, the results can be biased so we present the results of the IV estimation in column 2 and 3, where aid and the interaction between foreign aid and donors' fragmentation are considered as endogenous variables. In column 3 we include only the interaction. The results, significant at 10% level, show that increasing donor fragmentation reduces the effectiveness of foreign aid on economic growth. Column 4 and 5 present the results of the estimation using the generalized method of moments (GMM).

The second part of the table presents a specification assuming the existence of time invariant unobservable regressors potentially correlated with the random perturbation, and we use an instrumental variables estimator. The results show that increased donors' fragmentation reduces the effectiveness of foreign aid on economic growth. Using specification (6) we can calculate that if a country moves from the median of the distribution of donors' fragmentation to the 75th quartile (the most likely change occurring between two consecutive periods of five years), its growth rate is reduced by one percentage point for each period of five years. In this specification, any level of donors' fragmentation over 0.47 implies a non-significant effect of aid on growth.[7] Since the 25th percentile of donors' fragmentation is 0.58 it is reasonable to find an overall non significant effect of aid on growth, given that most of the distribution is located above the 0.47 threshold.

We also check whether the results are robust to the inclusion of the interaction between policy and aid, a variable that has been widely used in this literature. Following previous research this interaction is also treated as an endogenous variable. Column 8 of table 6 presents the results[8], which are very similar to the ones obtained in column 6. Moreover, in line with Roodman (2004) and Easterly et al. (2004), once we use an extended sample of recipient countries the effect of this interaction term (policy*aid) is not significant. Is the relationship in table 6 properly identified? The issue of how to test for underidentification in the context of multiple right hand side variables is still a matter of debate, specially using a GMM estimator. However, there are some results that can be use. Let's take the IV and GMM estimators. The Anderson canonical correlation LR

[7] This is the level of donors' fragmentation that makes the combined effect of the parameter of aid plus the interaction parameter times donors' fragmentation statistically significant.

statistic is 18.7 which delivers a p-value very small (0.0009) and, therefore, rejects the null of underidentification. A second test that could be used in this set-up is the Cragg and Donald (1993) statistic, which is equal to 19.2 and also rejects clearly the null hypothesis of lack of identification. Nevertheless, the detection of weak identification in the estimation using GMM is still an open area of research. By analogy with IV we can rely on the Cragg-Donald statistic. Another symptom of weak identification in the GMM context would be that the two-step GMM estimator delivers very different results from the CUE estimator (continuously updated GMM estimator). In the case of table 6 the estimators are almost identical using the standard two-step GMM estimator and the CUE. Using these alternative criteria we believe that underidentification is not an issue in this empirical exercise.

Columns 9 and 10 present the results using another proxy to capture donors' fragmentation. There are at least two other possible ways to proxy for the homogeneity or heterogeneity of donors. If only one donor is in charge of providing most of the aid to the recipient country then the coordination problem is weakened and the transaction costs are reduced. Donor dominance could be proxied by the size of the largest donor (the percentage of aid coming from the largest donor over total aid). Column 9 includes aid, the interaction of foreign aid with the size of the largest donor, and the size of the largest donor. In line with our pervious results we find that when the size of the largest donor increases, the effectiveness of foreign aid on economic growth increases as well.

We also construct a dummy that takes the value 1 if the recipient country has a donor that represents more than 45% percent of the ODA received, and zero otherwise. Countries with a high level of donor fragmentation have no dominant donor, and

[8] In this specification we need to introduce an extra instrument. We use the lag of per capita income.

countries with a dominant donor have low levels of donor fragmentation. In the specification we include, as before, ODA, the dummy for dominance and the interaction of ODA with the dummy of dominance. As in column 9 we find that going from the absence of having a major donor, to having a major donor, increases the effectiveness of foreign aid on economic growth.

In table 7 we present a robustness analysis of the findings in table 6 using the alternative specification of Hansen and Tarp (2001). Overall, the main result of the analysis is robust to the use of this alternative conventional specification. Using our preferred specification (fixed effects estimated using instrumental variables, column 6) we find that an aid-receiving country at the median of the donor fractionalization distribution will grow one percentage point faster than a country at the 75th percentile. For table 7 the Anderson canonical correlation LR statistic and the Cragg-Donald statistic indicate that we can reject the null of underidentification.

4. A possible interpretation: Increased corruption

So far we have investigated the effect of foreign aid on economic growth. The literature has proposed different explanations for the costs of aid fragmentation. High levels of donors' fragmentation lead to high transaction costs on recipients, which have to prepare lots of documents and reports for each donor. This process could also absorb a high proportion of the time of competent local officials. Many donors may also find in their interest to hire the most qualified local administrators, reducing government capacity to run an efficient administration. Knack and Rahman (2004) find that bureaucratic quality decreases with donors' fragmentation in Sub-Saharan Africa.

There are other explanations too. Competition may not be beneficial in the market of aid, because it could generate corruption in the government. This could happen by various donors working with different layers of the government, sometimes with little oversight of how the money is spent. Donors may want to disburse funds fast to show visible results, at least in terms of money spent. This may increase the risk that the funds are captured by local officials or the administration elite. Corruption is recognized as an important problem for the effectiveness of aid. Reinikka and Svensson (2004), for example, show that in Uganda only 16 cents of every aid dollar directed to primary school education reached its intended target. The rest disappeared on the way. Olken (2007) shows that 28% of the aid money in community-development infrastructure projects in Indonesia is lost due to corruption.

To test these hypotheses, we use three measures of corruption: a variable that captures control against corruption from the World Bank Institute; the ICRG index of corruption, and the CPISCORE index from Transparency International (all described in Table 3). The variable constructed by the World Bank Institute measures corruption in government. It varies between -2.5 and 2.5, with higher values indicating more control against corruption. The ICRG corruption variable measures the level of control for corruption. It varies from 0 to 6, where high values indicate low levels of corruption. The CPISCORE measures the perception of corruption, as determined by expert assessments and opinion surveys. It varies between 0 and 10, with high numbers indicating low levels of corruption. We regress corruption on aid, donor fragmentation, and the core control variables in table 8. Following La Porta et al (1999) and Djankov et al. (2002, 2003), we divide national legal traditions into common law and civil law. The idea is that legal

tradition captures the level of intervention of government. More recently, Mulligan and Shleifer (2005) focus on the fix costs theory of introducing and administering regulations. They argue that legal origin can serve as a proxy for regulatory costs. In order to mitigate endogeneity problem potentially generated by the inclusion of the contemporaneous level of income, we use the per capita income at the beginning of the period. Finally, latitude and ethnic fractionalization are also traditional variables that have been used as a determinant of institutional quality. Therefore, the explanatory variables for the core specification of corruption includes a dummy for common law system, the log of real GDP per capita in 1970[9], latitude and ethnic fractionalization.

Following the literature on the determinants of the quality on institutions, we run cross section regressions.[10] We consider three proxies: the control for corruption variable calculated in 1998 (columns 1 to 4); the ICRG variable, averaged over the period 1984-1999 (columns 5 and 6); and the CPISCORE variable, measured for the end of 90's (columns 7 and 8). For our empirical exercises the core regression is extended to include the interaction between aid and donors' fragmentation, and the level of donors' fragmentation. Both variables are calculated for each country at the average value over the whole period.

Aid may flow to countries whose institutions are getting worse, and therefore this could be reflected in more corrupted institutions. For this reason we need instruments for foreign aid. We consider the same instruments of the previous section. However, the exclusion restrictions implied by the instruments in the case of the effect of aid on the

[9] In the previous versions of this paper we use the value of GDP per capita in the 1960. We thank the comment of an anonymous referee, who argued that lagging income too many periods may fail to control for income effects. The results are robust to the use of the income in 1960.

change in institutions are different. We follow the arguments in Djankov, Montalvo and Reynal-Querol (2008), which uses these instruments for aid in the analysis of the effect of aid on institutional change.

Table 8 presents the z-statistics. Column 1 includes only the log of per capita income as control variable. The results indicate that donor fragmentation increases the effect of aid on corruption. This result is robust to the inclusion of the conventional variables used to analyze the quality of institutions, like latitude (column 2), common law (column 3), and ethnic fractionalization (column 4).

In columns 5 to 8 we perform the same analysis of columns 1 and 4, but using as the dependent variable the average ICPRG index for the period 1984-99, and the CPISCORE. The results using ICPRG mesures (columns 5 and 6) are similar to the previous columns. Using the results of column 6, if a country goes from the median of donors' fragmentation to the 75th quartile, the average quality of instiutions is reduced by 0.4 points. We find no effect of the interaction of aid by donors' fragmentation when using the CPISCORE variable.

5. Conclusions

The effectiveness of aid is reduced when donor fragmentation is high. This is in part because donor fragmentation is associated with increased corruption in the recipient country's government.

[10] The reason for using cross section regressions is the absence of time series of the corruption variables for most of the proxies used in the literature.

This finding has two implications. First, the recent focus on reducing corruption in donors' programs may have a larger-than-expected benefit in increasing the impact of aid. Second, winding down some aid agencies may improve the market for development assistance.

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Figure 1: The evolution of average donor fragmentation, 1960-1999.

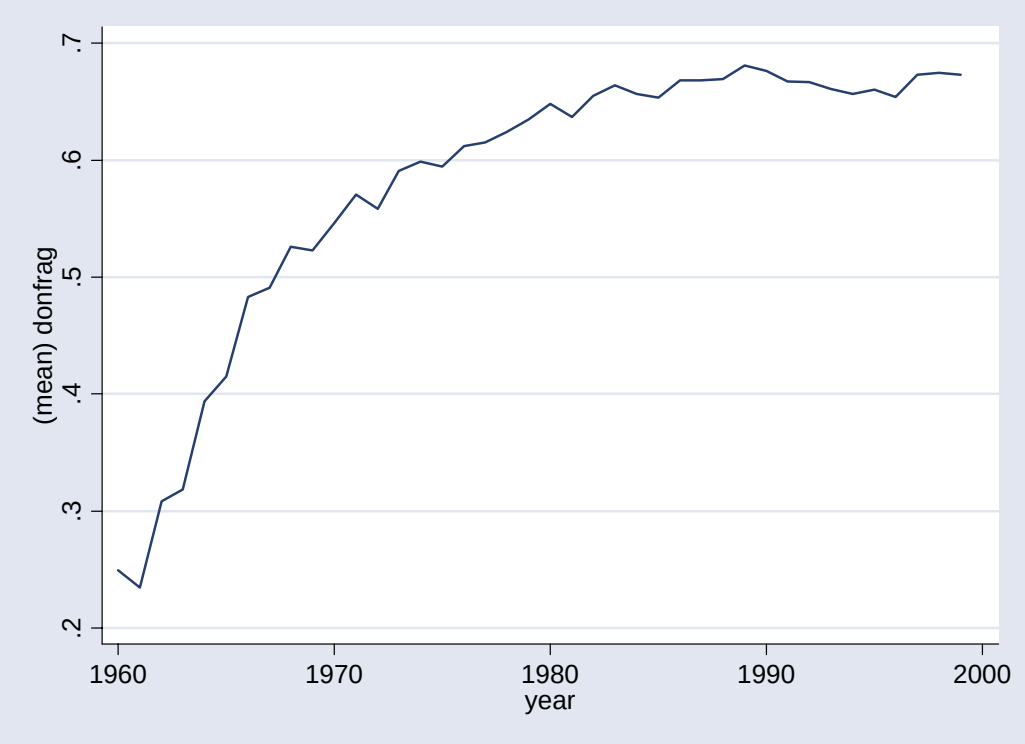

Table 1: 37 donors and their share in development aid, by time period

Donor	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-99	60-99
United States	64.1%	47.7%	27.3%	21.7%	22.0%	19.1%	17.5%	10.5%	28.7%
Japan	2.2%	5.8%	9.4%	9.8%	12.1%	16.8%	18.7%	22.8%	12.2%
Germany	6.9%	8.3%	10.9%	11.6%	11.1%	9.1%	9.7%	9.7%	9.7%
France	9.8%	8.4%	8.9%	7.1%	7.4%	7.4%	9.4%	9.0%	8.4%
IDA	1.1%	5.1%	6.9%	8.6%	10.2%	10.4%	9.6%	12.3%	8.0%
United Kingdom	8.0%	8.4%	7.1%	5.1%	4.5%	2.9%	2.5%	3.3%	5.2%
European Union	1.0%	2.5%	4.2%	4.6%	4.7%	4.6%	5.7%	7.8%	4.4%
Canada	1.6%	2.9%	4.5%	3.6%	2.9%	2.7%	2.1%	1.6%	2.7%
Netherlands	0.7%	0.7%	2.6%	4.3%	4.0%	3.4%	2.7%	3.2%	2.7%
Italy	2.0%	2.3%	1.6%	0.5%	1.3%	4.7%	3.5%	1.6%	2.2%
Australia	0.0%	2.5%	3.7%	2.8%	2.4%	1.6%	1.2%	1.3%	1.9%
WFP	0.0%	0.2%	2.3%	2.6%	2.5%	2.2%	2.3%	1.0%	1.6%
UNDP	0.0%	1.2%	2.9%	2.3%	2.4%	1.8%	1.1%	0.9%	1.6%
Sweden	0.1%	0.5%	1.4%	2.6%	1.8%	1.8%	1.8%	1.5%	1.4%
Belgium	1.8%	1.5%	2.1%	2.1%	1.4%	0.9%	0.7%	0.8%	1.4%
Arab Funds	0.0%	0.0%	0.3%	4.1%	1.5%	0.8%	0.8%	0.3%	1.0%
Denmark	0.0%	0.3%	0.7%	1.1%	0.9%	1.3%	1.0%	1.7%	0.9%
Norway	0.0%	0.1%	0.5%	1.0%	1.1%	1.2%	1.1%	1.3%	0.8%
UNHCR	0.0%	0.0%	0.2%	0.7%	1.5%	1.2%	1.1%	0.7%	0.7%
UNICEF	0.0%	0.1%	0.7%	0.7%	0.8%	0.9%	1.1%	1.0%	0.7%
IMF's esaf	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%	1.6%	2.1%	0.6%
Switzerland	0.0%	0.2%	0.4%	0.6%	0.6%	0.8%	0.9%	0.9%	0.5%
Austria	0.1%	0.5%	0.2%	0.4%	0.7%	0.5%	0.6%	0.5%	0.4%
UN	0.0%	0.1%	0.5%	0.9%	0.6%	0.6%	0.4%	0.3%	0.4%
Spain	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	1.5%	1.6%	0.4%
UN Population Fund	0.0%	0.1%	0.5%	0.4%	0.3%	0.4%	0.3%	0.5%	0.3%
Finland	0.0%	0.0%	0.1%	0.2%	0.3%	0.7%	0.5%	0.3%	0.3%
Portugal	0.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.2%
UNTA	0.0%	0.0%	0.0%	0.1%	0.4%	0.2%	0.2%	0.3%	0.2%
IBRD	0.0%	0.0%	0.0%	0.3%	0.3%	0.0%	0.0%	0.0%	0.1%
New Zealand	0.0%	0.0%	0.1%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%
UN Relief Agency	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.1%	0.2%	0.1%
Ireland	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%
Luxembourg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
Asian DB	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Greece	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
AfDB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Notes: Data from the Development Assistance Committee in the OECD. Donors are ranked by their average share in total aid for the 1960-99 period. Data for five donors is incomplete and not included here: the Council of Europe, the Nordic Development Fund, the International Fund for Agricultural Development, the Caribbean Development Bank, and the European Bank for Reconstruction and Development.

Table 2: Donor fragmentation index, by country and time period

Country	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-99	60-99
Afghanistan	0.30	0.58	0.74	0.88	0.78	0.79	0.78	0.89	0.72
Algeria	0.16	0.26	0.48	0.67	0.70	0.78	0.74	0.65	0.56
Angola	0.22	0.10	0.47	0.81	0.87	0.90	0.90	0.92	0.65
Argentina	0.55	0.81	0.91	0.93	0.89	0.84	0.76	0.88	0.82
Bahamas, The	0.77	0.33	0.43	0.67	0.71	0.83	0.78	0.69	0.65
Bahrain	0.00	0.17	0.29	0.12	0.05	0.29	0.22	0.11	0.15
Bangladesh	..	..	0.82	0.89	0.90	0.91	0.92	0.90	0.89
Barbados	..	0.55	0.57	0.85	0.93	0.83	0.75	0.55	0.72
Benin	0.58	0.61	0.77	0.87	0.89	0.88	0.89	0.91	0.80
Bolivia	0.24	0.43	0.70	0.88	0.89	0.88	0.86	0.92	0.73
Botswana	0.01	0.29	0.74	0.87	0.89	0.91	0.91	0.83	0.68
Brazil	0.29	0.50	0.77	0.88	0.86	0.84	0.82	0.85	0.73
Burkina Faso	0.56	0.60	0.69	0.85	0.88	0.90	0.88	0.90	0.78
Burundi	0.28	0.59	0.72	0.84	0.89	0.91	0.89	0.91	0.75
Cameroon	0.65	0.70	0.72	0.84	0.81	0.83	0.67	0.71	0.74
Cape Verde	0.00	0.00	..	0.83	0.91	0.92	0.94	0.92	0.64
Central African Rep	0.48	0.52	0.66	0.67	0.63	0.79	0.77	0.78	0.66
Chad	0.27	0.58	0.60	0.78	0.79	0.85	0.82	0.86	0.69
Chile	0.35	0.56	0.87	0.75	0.83	0.84	0.86	0.83	0.74
China	..	..	..	0.78	0.75	0.78	0.78	0.73	0.76
Colombia	0.19	0.40	0.65	0.87	0.93	0.91	0.81	0.85	0.70
Comoros	..	0.10	0.11	0.70	0.82	0.77	0.77	0.71	0.57
Congo, Dem. Rep.	0.53	0.61	0.66	0.77	0.86	0.87	0.85	0.90	0.75
Congo, Rep.	0.36	0.55	0.62	0.66	0.72	0.53	0.50	0.54	0.56
Costa Rica	0.36	0.37	0.68	0.90	0.68	0.59	0.83	0.90	0.66
Cote d'Ivoire	0.57	0.54	0.64	0.68	0.61	0.62	0.61	0.75	0.63
Cyprus	0.47	0.71	0.76	0.68	0.80	0.76	0.77	0.81	0.72
Dominica	..	..	0.81	0.67	0.86	0.87	0.85	0.75	0.80
Dominican Republic	0.28	0.23	0.55	0.82	0.76	0.74	0.87	0.89	0.64
Ecuador	0.23	0.46	0.82	0.92	0.94	0.89	0.92	0.91	0.76
Egypt, Arab Rep.	0.27	0.62	0.49	0.64	0.58	0.62	0.67	0.81	0.59
El Salvador	0.31	0.45	0.76	0.94	0.51	0.40	0.59	0.85	0.60
Ethiopia	0.48	0.71	0.82	0.88	0.91	0.90	0.91	0.93	0.82
Fiji	0.02	0.24	0.55	0.76	0.82	0.80	0.79	0.75	0.59
Gabon	0.52	0.58	0.47	0.52	0.36	0.45	0.25	0.34	0.44
Gambia, The	0.03	0.45	0.71	0.86	0.89	0.93	0.93	0.94	0.72
Ghana	0.64	0.68	0.79	0.86	0.88	0.84	0.86	0.85	0.80
Grenada	..	..	0.76	0.83	0.77	0.79	0.83	0.83	0.80
Guatemala	0.27	0.44	0.67	0.84	0.86	0.64	0.81	0.90	0.68
Guinea	0.58	0.49	0.70	0.79	0.88	0.88	0.86	0.88	0.76
Guinea-Bissau	0.00	0.38	0.27	0.84	0.90	0.91	0.90	0.89	0.64
Guyana	0.29	0.59	0.72	0.82	0.95	0.88	0.85	0.82	0.74
Haiti	0.44	0.48	0.68	0.88	0.84	0.82	0.67	0.85	0.71
Honduras	0.54	0.63	0.76	0.89	0.86	0.69	0.79	0.90	0.76
Hong Kong, China	0.34	0.53	0.54	0.66	0.68	0.70	0.69	0.77	0.61

India	0.41	0.65	0.82	0.87	0.82	0.84	0.82	0.80	0.75
Indonesia	0.58	0.69	0.80	0.83	0.83	0.72	0.66	0.54	0.71
Iran, Islamic Rep.	0.28	0.72	0.80	0.64	0.69	0.78	0.81	0.75	0.68
Iraq	0.61	0.69	0.76	0.56	0.75	0.65	0.74	0.81	0.70
Israel	0.51	0.53	0.48	0.15	0.15	0.13	0.26	0.29	0.31
Jamaica	0.30	0.63	0.79	0.85	0.72	0.72	0.65	0.80	0.68
Jordan	0.57	0.70	0.56	0.46	0.25	0.51	0.79	0.82	0.58
Kenya	0.27	0.64	0.81	0.91	0.91	0.92	0.90	0.90	0.78
Korea, Rep.	0.08	0.46	0.55	0.70	0.54	0.39	0.32	0.43	0.43
Kuwait	1.00	0.71	0.52	0.39	0.61	0.71	0.67	0.71	0.67
Lesotho	0.06	0.35	0.76	0.89	0.89	0.92	0.93	0.91	0.71
Liberia	0.41	0.39	0.57	0.81	0.69	0.78	0.76	0.80	0.65
Madagascar	0.33	0.58	0.68	0.82	0.84	0.83	0.82	0.83	0.72
Malawi	0.03	0.45	0.68	0.82	0.87	0.88	0.90	0.88	0.69
Malaysia	0.44	0.74	0.78	0.66	0.64	0.59	0.48	0.24	0.57
Mali	0.64	0.68	0.77	0.87	0.88	0.90	0.89	0.90	0.82
Malta	0.02	0.16	0.51	0.69	0.54	0.69	0.53	0.36	0.44
Mauritania	0.37	0.53	0.78	0.65	0.80	0.87	0.86	0.83	0.71
Mauritius	0.14	0.26	0.76	0.81	0.76	0.78	0.66	0.73	0.61
Mexico	0.57	0.76	0.97	0.95	0.83	0.84	0.77	0.71	0.80
Morocco	0.35	0.68	0.77	0.70	0.64	0.78	0.84	0.78	0.69
Mozambique	0.01	0.18	0.59	0.83	0.91	0.91	0.93	0.90	0.66
Myanmar	0.47	0.59	0.53	0.80	0.77	0.71	0.67	0.61	0.64
Nepal	0.20	0.41	0.79	0.92	0.92	0.91	0.90	0.92	0.75
Nicaragua	0.29	0.54	0.65	0.84	0.92	0.91	0.87	0.90	0.74
Niger	0.53	0.55	0.77	0.85	0.87	0.91	0.86	0.86	0.77
Nigeria	0.49	0.76	0.83	0.86	0.87	0.82	0.87	0.78	0.78
Oman	0.00	0.05	0.18	0.11	0.14	0.60	0.59	0.43	0.26
Pakistan	0.29	0.66	0.80	0.86	0.91	0.90	0.91	0.88	0.78
Panama	0.26	0.31	0.63	0.69	0.80	0.81	0.44	0.75	0.59
Papua New Guinea	0.00	0.00	0.05	0.15	0.31	0.42	0.57	0.56	0.26
Paraguay	0.35	0.77	0.87	0.92	0.83	0.72	0.67	0.76	0.74
Peru	0.21	0.64	0.88	0.88	0.86	0.82	0.82	0.85	0.74
Philippines	0.43	0.57	0.61	0.77	0.75	0.65	0.64	0.60	0.63
Rwanda	0.27	0.68	0.74	0.86	0.90	0.92	0.91	0.89	0.77
Samoa	1.00	0.79	0.83	0.87	0.90	0.86	0.86	0.77	0.86
Saudi Arabia	0.61	0.79	0.67	0.55	0.65	0.70	0.56	0.69	0.65
Senegal	0.72	0.56	0.69	0.76	0.84	0.87	0.81	0.83	0.76
Seychelles	0.03	0.07	0.02	0.37	0.79	0.83	0.82	0.79	0.47
Sierra Leone	0.38	0.64	0.78	0.88	0.89	0.86	0.82	0.90	0.77
Singapore	0.66	0.65	0.57	0.69	0.70	0.61	0.66	0.67	0.65
Solomon Islands	0.05	0.19	0.09	0.37	0.76	0.82	0.80	0.80	0.49
Somalia	0.64	0.73	0.79	0.73	0.88	0.83	0.75	0.88	0.78
South Africa	..	..	..	..	..	..	0.84	0.89	0.86
Sri Lanka	0.62	0.80	0.87	0.92	0.91	0.89	0.88	0.82	0.84
St. Lucia	..	..	0.78	0.67	0.81	0.89	0.86	0.73	0.79
St. Vincent	..	..	0.70	0.46	0.89	0.90	0.88	0.60	0.74
Sudan	0.46	0.78	0.84	0.73	0.87	0.90	0.91	0.92	0.80
Suriname	0.04	0.24	0.21	0.09	0.31	0.59	0.44	0.40	0.29
Swaziland	0.14	0.10	0.63	0.82	0.87	0.89	0.90	0.86	0.65

Syrian Arab Republic	0.53	0.69	0.44	0.18	0.16	0.44	0.66	0.73	0.48
Tanzania	0.38	0.81	0.88	0.90	0.93	0.92	0.92	0.92	0.83
Thailand	0.29	0.64	0.76	0.78	0.72	0.61	0.60	0.34	0.59
Togo	0.77	0.76	0.79	0.82	0.84	0.82	0.80	0.83	0.80
Tonga	1.00	0.52	0.56	0.77	0.85	0.82	0.81	0.82	0.77
Trinidad and Tobago	0.26	0.58	0.86	0.87	0.82	0.62	0.73	0.35	0.63
Tunisia	0.38	0.70	0.84	0.86	0.85	0.87	0.85	0.78	0.77
Turkey	0.28	0.65	0.71	0.71	0.74	0.76	0.78	0.76	0.67
Uganda	0.24	0.67	0.82	0.80	0.89	0.86	0.90	0.90	0.76
United Arab Emirates	0.14	0.02	0.32	0.43	0.67	0.37	0.58	0.59	0.39
Uruguay	0.35	0.56	0.66	0.91	0.84	0.86	0.86	0.85	0.74
Vanuatu	0.01	0.07	0.30	0.51	0.71	0.81	0.83	0.81	0.51
Venezuela	0.16	0.44	0.90	0.89	0.76	0.76	0.78	0.87	0.70
Yemen, Rep.	0.48	0.39	0.70	0.50	0.66	0.83	0.88	0.84	0.66
Yugoslavia	..	..	..	..	..	..	0.57	0.78	0.67
Zambia	0.01	0.41	0.78	0.88	0.91	0.91	0.88	0.83	0.70
Zimbabwe	0.04	0.54	0.64	0.42	0.87	0.92	0.92	0.91	0.66
Mean	0.35	0.51	0.66	0.73	0.77	0.77	0.77	0.77	0.67
Median	0.34	0.56	0.71	0.82	0.83	0.83	0.82	0.82	0.75
Std Deviation	0.24	0.21	0.19	0.20	0.18	0.16	0.15	0.17	0.23

Note: Data from the Development Assistance Committee in the OECD. This table presents the average values of the donor fragmentation index for each 5-year period, for each of the 112 sample countries.

Table 3: Variables used in the analysis

Main Variables	
Variable	Description
donfrag	One minus the Herfidahl index. Donfrag measures the probability that if we take two dollars of foreign aid each dollar would come from a different donor. Source: Authors' calculations.
aid	The share of official development assistance in GDP. Aid includes grants and concessional loans, whose grant element is at least 25%. Source: OECD.
growth	The growth rate of real GDP per capita for the 5-year period. Source: World bank
lngdp0	The log of real GDP per capita of the initial period (1985 international prices). Source: GDNGD.
ethfrag	Ethnolingustoc fragmentaion. Source: Montalvo and Reynal-Querol (2005).
assass	Assassination per capita, Banks 2001. Taken from Roodman (2004)
icrg	Institutional quality from ICRG. Revised version from Roodman (2004).
m2lag	Money velocity. Source: Roodman (2004)
policy	1.28+6.85BB-1.40*inf+2.16*open. Formula taken from Burnside and Dollar (2000). See definition and source of each variable below.
Bb	Budget Surplus. Source: Roodman (2004)
inf	Natural logarithm of 1- inflation rate. Source: Roodman (2004).
open	Sachs and Warner update oppenenss variable. From Roodman (2004).
afr	A dummy variable for Sub Saharan African countries. Source: Roodman (2004).
eas	A dummy variable for East Asian countries. Source: Roodman (2004).
franczone	A dummy variable for the Franc zone countries in West Africa. Source: Easterly (2003).
cam	A dummy variable for Central American countries. Source: Easterly (2003).
f_brit	A dummy variable for ex-colony of UK. Source: Easterly (2003).
lnpop	The log of population. Source: World Development Indicators (www.worldbank.org/data).
arms	Ration of arms imports over total imports. U.S Department state. From Roodman (2004).
Cor1	A variable measuring corruption in government. Varies between -2.5 and 2.5, with higher values indicating more control against corruption**.** The inverse is used in the analysis. Source: World Bank Institute (www.worldbank.org/wbi/governance/govdata).
Cor2	A variable measuring corruption in government. It varies between 1 and 6, with higher numbers indicate less corruption. Source: International Country Risk Guide (2006).
Cor3	A variable measuring the perception of corruption, as determined by expert assessments and opinion surveys. Varies between 0 and 10 with higher numbers indicating less corruption. The inverse is used in the analysis. Source: Transparency International (http://www.transparency.org/policy_research/surveys_indices/cpi).
common law	A dummy variable for the origin of the legal system: equals 1 if common law (English-origin) system; 0 otherwise. Source: La Porta et al (1999).
latitude	Absolute value of the latitude of the country, scaled to take values between 0 and 1, where 0 is the equator. From: La Porta (1999).

Table 4: Correlation table of the main variables

	growth	aid	donfrag	lgdp	ethnf	assass	icrg	m2lag	ssa	easia	bb	inf	open	policy	Corr1	Corr2	Common law
aid	-0,11																
donfrag	-0,42	-0,13															
lgdp	0,14	-0,43	-0,15														
ethnfrag	-0,25	0,03	0,30	-0,48													
assass	-0,19	-0,25	0,05	0,17	-0,13												
icrg	0,50	-0,22	-0,08	0,49	-0,16	-0,26											
m2lag	0,43	0,20	-0,28	0,20	-0,20	-0,21	0,36										
ssa	-0,30	0,38	0,27	-0,59	0,62	-0,32	-0,06	-0,24									
easia	0,61	-0,28	-0,45	0,06	0,04	-0,19	0,22	0,34	-0,28								
bb	0,45	-0,25	-0,14	0,46	-0,12	0,04	0,40	-0,01	-0,17	0,29							
infl	-0,31	-0,09	0,32	0,16	-0,18	0,09	-0,12	-0,42	-0,14	-0,23	-0,21						
open	0,49	0,08	-0,45	0,31	-0,10	-0,16	0,34	0,34	-0,35	0,50	0,34	-0,16					
policy	0,62	0,05	-0,49	0,27	-0,03	-0,18	0,38	0,37	-0,23	0,50	0,59	-0,50	0,88				
cor1	0,35	-0,08	-0,05	0,38	-0,27	-0,16	0,83	0,41	-0,04	0,14	0,18	-0,01	0,22	0,18			
cor2	0,52	-0,03	-0,21	0,58	-0,39	-0,07	0,70	0,49	-0,27	0,20	0,49	-0,10	0,42	0,48	0,61		
common law	0,14	0,09	0,10	-0,31	0,59	-0,29	0,17	0,14	0,52	0,07	-0,08	-0,25	-0,03	0,06	0,13	0,05	
latitude	0,23	0,06	-0,03	0,17	-0,43	0,10	0,06	0,28	-0,26	-0,05	-0,15	0,02	-0,16	-0,17	0,16	0,23	-0,24

Note: Variable definitions are listed in Table 3.

Table 5: Aid and growth
(Burnside-Dollar (2000) and Hansen and Tarp (2001) specifications, clustered standard errors)

	BD	BD	BD	BD	HT	HT	HT	HT
	OLS	IV (2SLS)	IVgmm	IV FE	OLS	IV (2SLS)	IV gmm	IV FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Aid	0.02	-0.19	-0.31	0.48	0.04	-0.20	-0.31	0.56
	(0.21)	(-0.98)	(-1.69)	(1.02)	(0.36)	(-1.14)	(-1.86)	(1.24)
Lngdp	-0.35	-0.70	-0.93	-0.67	-0.28	0.66	-0.88	-0.64
	(-0.81)	(-1.28)	(-1.78)	(-0.58)	(-0.65)	(-1.31)	(-1.83)	(-0.55)
Ethfrag	-1.08	-1.38	-1.45		-0.86	-1.23	-1.21	
	(-1.17)	(-1.35)	(-1.46)		(-0.96)	(-1.22)	(-1.25)	
Assass	-0.52 ***	-0.5 ***	-0.41 **	-0.72**	-0.46 **	-0.44 **	-0.36 **	-0.68**
	(-2.65)	(-2.84)	(-2.54)	(-2.18)	(-2.17)	(-2.33)	(-2.14)	(-2.03)
Ethfrag*assas	0.73	0.66	0.55	0.83	0.55	0.48	0.45	0.82
s	(1.66)	(1.67)	(1.48)	(1.09)	(1.21)	(1.16)	(1.22)	(1.07)
Icrge	0.3 **	0.31 **	0.38 ***	0.11	0.32 ***	0.34 ***	0.39 ***	0.12
	(2.50)	(2.57)	(3.38)	(0.65)	(2.73)	(2.83)	(3.52)	(0.69)
M2lag	0.01	0.01	0.01	0.01	0.00	0.01	0.10	0.01
	(0.63)	(1.07)	(1.01)	(0.39)	(0.24)	(0.75)	(1.02)	(0.25)
Su-saharan af.	-1.00	-0.70	-0.34		-1.29 **	-0.92	-0.56	
	(-1.57)	(-1.00)	(-0.51)		(-2.05)	(-1.36)	(-0.88)	
East-asia	1.72 ***	1.49 **	1.61 ***		1.93 ***	1.68 **	1.78 ***	
	(2.29)	(2.24)	(2.55)		(2.58)	(2.53)	(2.90)	
Policy	0.83 ***	0.86 ***	0.78 ***	0.91***				
	(4.07)	(4.35)	(4.49)	(5.11)				
BB					9.20	7.75	12.66 ***	7.75
					(1.77)	(1.48)	(2.92)	(1.51)
Infl					-1.96 ***	-2.06 **	-1.80 ***	-1.88***
					(-3.43)	(-3.49)	(-3.22)	(-3.33)
sacw					0.95 **	1.09 **	0.93 ***	1.30**
					(2.02)	(2.44)	(2.62)	(2.06)
Time periods	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.95	3.81	5.58	2.62	2.25	5.40	6.88	4.09
	(0.28)	(0.85)	(1.30)	(0.26)	(0.68)	(1.34)	(1.79)	(0.39)
N	361	360	360	360	360	360	360	360

Note: Variable definitions are listed in Table 3. *** denotes significance at the 1% level; ** significance at the 5% level;

Table 6: Aid, donor fragmentation and growth
(Burnside-Dollar (2000) specification, clustered standard errors)

	OLS	IV (2SLS)	IV (2SLS)	IVgmm	IVgmm	IV FE	IV FE	IV FE	IV FE	IV FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Aid	0.36	6.46	2.91*	6.04	2.60*	7.41**	4.41**	8.05**	-2.82*	-0.58
	(0.93)	(1.43)	(1.68)	(1.52)	(1.92)	(2.17)	(2.28)	(2.28)	(-1.77)	(-0.75)
aid*donfrag	-0.44	-8.24	-4.42*	-7.69	-4.09**	-10.06**	-6.78**	-10.54**		
	(-0.92)	(-1.50)	(-1.87)	(-1.60)	(-2.21)	(-2.12)	(-2.17)	(-2.08)		
donfrag	2.14	22.60		19.97*		22.9**		26.09**		
	(1.35)	(1.68)		(1.69)		(2.17)		(2.30)		
Lngdp	-0.28	-0.24	-2.01**	-0.38	-2.00***	-2.63	-5.29	-1.00	-2.93	-1.64
	(-0.64)	(-0.32)	(-2.50)	(-0.53)	(-2.85)	(-1.04)	(-1.95)	(-0.37)	(-1.32)	(-0.91)
Ethfrag	-1.17	-0.89	-1.12	-0.62	-1.36					
	(-1.24)	(-0.54)	(-0.79)	(-0.39)	(-1.09)					
Assass	-0.54***	-0.57	-0.50	-0.58	-0.49	-0.97	-0.75	-1.10**	-1.01**	-0.84
	(-2.96)	(-1.75)	(-1.69)	(-1.92)	(-1.85)	(-1.79)	(-1.56)	(-2.02)	(-2.00)	(-1.89)
Ethfrag*assas	0.75	0.80	0.70	0.83	0.70	1.28	1.01	1.44	1.57	1.05
s	(1.77)	(1.12)	(1.21)	(1.22)	(1.31)	(1.04)	(0.90)	(1.14)	(1.34)	(1.03)
Icrge	0.29**	0.37	0.62***	0.44**	0.57***	0.31	0.49	0.27	0.38	0.35
	(2.34)	(1.82)	(3.03)	(2.27)	(3.28)	(1.05)	(1.61)	(0.87)	(1.39)	(1.37)
M2lag	0.01	-0.01	-0.01	-0.02	-0.01	0.14	0.07	0.18	0.10	0.09
	(0.66)	(-0.40)	(-0.63)	(-0.59)	(-0.65)	(1.80)	(1.50)	(1.89)	(1.73)	(1.76)
Su-saharan af.	-0.86	0.05	-0.36	-0.18	-0.14					
	(-1.37)	(0.04)	(-0.33)	(-0.15)	(-0.14)					
East-asia	1.99**	5.41**	1.62**	5.10***	1.85***					
	(2.34)	(2.51)	(2.17)	(2.57)	(2.79)					
Policy	0.82***	0.58	0.73**	0.54	0.65**	0.79***	0.76***	0.16	0.84***	0.82***
	(3.98)	(1.95)	(2.54)	(1.90)	(2.51)	(2.72)	(2.80)	(0.13)	(3.21)	(3.36)
Policy*aid								0.28		
								(0.52)		
Aid*sizelargd									7.19**	
onor									(2.28)	
Sizelargdonor									-14.53**	
									(-2.23)	
Aid*Maj										3.17**
										(2-37)
Maj										-5.4**
										(-2.40)
Time periods	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-1.29	-16.55	14.46	-13.40	14.85	-2.13	37.64	-18.40	23.40	9.28
	(-0.35)	(-1.16)	(2.18)	(-1.05)	(2.53)	(-0.09)	(1.71)	(-0.78)	(1.24)	(0.61)
N	356	355	355	355	355	355	355	355	355	355

Note: Variable definitions are listed in Table 3. *** denotes significance at the 1% level; ** significance at the 5% level; * significance at 10%.

Table 7: Aid, donor fragmentation and growth
(Hansen and Tarp (2001) specification, clustered standard errors)

	OLS	IV (2SLS)	IV (2SLS)	IVgmm	IVgmm	IV FE	IV FE	IV FE	IV FE	IV FE
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Aid	0.48	6.61	2.68*	5.64	2.62**	7.98**	4.82**	8.30**	-2.87	-0.48
	(1.03)	(1.52)	(1.68)	(1.47)	(1.99)	(2.18)	(2.33)	(2.27)	(-1.74)	(-0.62)
aid*donfrag	-0.56	-8.34	-4.08*	-7.12	-4.09**	-10.60**	-7.15**	-10.81**		
	(-1.01)	(-1.58)	(-1.86)	(-1.52)	(-2.26)	(-2.10)	(-2.18)	(-2.08)		
Donfrag	3.00	23.73		19.57		24.54**		26.42**		
	(1.65)	(1.85)		(1.72)		(2.18)		(2.31)		
Lngdp	-0.14	-0.01	-1.87**	-0.17	-1.91***	-2.57	-5.44**	-1.40	-2.88	-1.52
	(-0.31)	(-0.01)	(-2.43)	(-0.24)	(-2.72)	(-0.99)	(-1.96)	(-0.46)	(-1.26)	(-0.82)
Ethfrag	-0.94	-0.35	-0.93	0.03	-1.11					
	(-1.01)	(-0.19)	(-0.65)	(0.02)	(-0.90)					
Assass	-0.47**	-0.45	-0.44	-0.41	-0.44	-0.93	-0.68	-1.02	-0.99	-0.82
	(-2.47)	(-1.30)	(-1.47)	(-1.25)	(-1.62)	(-1.62)	(-1.37)	(-1.84)	(-1.86)	(-1.74)
Ethfrag*assass	0.54	0.42	0.53	0.39	0.53	1.28	0.99	1.39	1.63	1.07
	(1.26)	(0.54)	(0.88)	(0.53)	(0.99)	(1.01)	(0.88)	(1.10)	(1.35)	(1.00)
Icrge	0.31**	0.40	0.61***	0.44**	0.58***	0.32	0.52	0.29	0.41	0.36
	(2.42)	(1.79)	(3.06)	(2.22)	(3.25)	(1.07)	(1.66)	(0.91)	(1.42)	(1.37)
M2lag	0.004	-0.02	-0.01	-0.02	-0.01	0.14	0.07	0.17	0.10	0.08
	(0.30)	(-0.72)	(-0.74)	(-0.89)	(-0.08)	(1.71)	(1.34)	(1.69)	(1.64)	(1.61)
Su-saharan af.	-1.13	-0.56	-0.64	-0.83	-0.37					
	(-1.87)	(-0.39)	(-0.54)	(-0.61)	(-0.36)					
East-asia	2.36***	6.01***	1.76**	5.53***	2.02***					
	(2.68)	(2.59)	(2.34)	(2.57)	(2.99)					
BB	9.03	15.02**	10.08	14.88**	8.10	11.89	12.73	7.05	14.06	15.21
	(1.74)	(2.03)	(1.41)	(2.41)	(1.22)	(1.39)	(1.61)	(0.41)	(1.74)	(1.91)
Infl	-2.07***	-2.33***	-1.67	2.23***	-1.62**	-2.17***	-2.26***	-1.32	-2.17***	-1.65**
	(-3.59)	(-2.89)	(-1.94)	(-2.94)	(-2.08)	(-2.35)	(-2.67)	(-0.55)	(-2.60)	(-2.10)
sacw	0.84	-0.60	0.80	-0.48	0.70	0.23	-0.04	-0.41	0.33	0.66
	(1.71)	(-0.45)	(0.96)	(-0.38)	(0.90)	(0.20)	(-0.04)	(-0.17)	(0.32)	(0.70)
Policy*aid								0.21		
								(0.35)		
Aid*sizelargdonor									7.80**	
									(2.27)	
Sizelargdonor									-16.12**	
									(-2.28)	
Aid*Maj										3.39**
										(2.32)
Maj										-5.82**
										(-2.38)
Time periods	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-1.05	-16.71	15.13	-12.55	15.60	-1.72	41.08	-13.94	25.72	10.29
	(-0.28)	(-1.29)	(2.41	(-1.07)	(2.73)	(-0.07)	(1.80)	(-0.51)	(1.30)	(0.64)
N	356	355	355	355	355	355	355	355	355	355

Note: Variable definitions are listed in Table 3. *** denotes significance at the 1% level; ** significance at the 5% level; * significance at 10%.

Table 8: Aid, donor fragmentation and corruption
(La Porta (1999) specification, IV(2SLS))

source	World Bank Institute				ICPRG		CPISCORE	
	Cor1	Cor1	Cor1	Cor1	Cor2	Cor2	Cor3	Cor3
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
aid	1.93**	2.30**	2.23**	3.16**	1.96**	3.19**	4.28	2.23
	(2.12)	(2.51)	(2.22)	(2.05)	(2.13)	(2.15)	(1.45)	(1.20)
aid*donfrag	-2.64***	-3.05***	-2.96**	-4.28**	-2.49**	-4.05**	-6.23	-3.33
	(-2.70)	(-2.40)	(-2.15)	(-2.02)	(-1.97)	(-2.04)	(-1.46)	(-1.26)
Donfrag	7.3**	8.64***	8.34**	10.65	7.56**	10.74**	2.15	0.93
	(2.44)	(2.67)	(2.20)	(1.79)	(2.40)	(1.98)	(0.52)	(0.32)
Lngdp70	0.41***	0.49**	0.48**	0.34	0.68***	0.55**	0.74***	0.77***
	(2.75)	(2.47)	(2.48)	(1.70)	(2.73)	(2.38)	(2.83)	(2.95)
Latitude		1.95	1.93	1.47		1.85		0.59
		(1.52)	(1.48)	(0.84)		(0.93)		(0.29)
Common Law			0.07	-0.19		0.28		1.42**
			(0.19)	(-0.38)		(0.49)		(2.11)
Ethnfrag				0.12		-0.55		-1.48**
				(0.26)		(-0.72)		(-2.00)
Constant	-8.35	-10.36	-10.13	-10.61	-7.73	-9.39	-2.90	-2.09
	(-2.98)	(-2.96)	(-2.67)	(-1.94)	(-2.43)	(-1.93)	(-0.95)	(-0.80)
N	73	73	73	67	67	63	43	42

Note: Variable definitions are listed in Table 3. *** denotes significance at the 1% level; ** significance at the 5% level;