

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 test the hypothesis that the success of foreign aid depends on the fragmentation of donors. 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 ineffective. This is in part because donor fragmentation increases corruption in the recipient country's government. In particular, if a country receiving the average amount of aid (3% of GDP) goes from a single donor to the sample mean of donor fragmentation, corruption increases by 7% to 10%.

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 can be, they stay in the aid business. This often results in over-whelmed government officials, who spent all their time meeting donor delegations; and ample possibilities for corruption.

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.

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 when interacted with good policies. But when the interaction of aid and policy is broken into two variables (budget support by policies and project aid by policies), Cordella and Dell’Ariccia find positive and statistically significant results in the former. Djankov, Montalvo and Reynal-Querol (2006) show that foreign aid has a negative impact on the democratic stance of developing countries, and on economic growth by reducing

³ El Pais, April 13, 2005, p. A2.

investment and increasing government consumption. But receiving grants (free money) is negatively associated with future growth, while receiving loans has an insignificant effect of economic development.

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 ineffective. This is consistent with Knack and Rahman (2004) who find that aid undermines the quality of government in recipient countries with multiple donors. We provide some evidence that this is due to increased corruption in the recipient country's government.

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. Consistent with Easterly et al (2003), we do not find a positive effect of aid on growth, nor do we find a positive effect of aid in good policy environments. Instead, we find that, for a country receiving the average amount of oda in the sample (3% of GDP), going from a single donor to the average donor fragmentation, which is 0.67, is associated with a 2.01% reduction in economic growth over a 5-year period. We then test the hypothesis that this result is driven by the effect of multiple donors of increased corruption and find that for a country receiving the average amount of oda going from a single donor to the mean of donor fragmentation is associated with a 7% to 10% increase in corruption.

Section 2 describes the data sources. Section 3 provides the basic estimation results. Section 4 presents alternative interpretations: showing that donor fragmentation is not associated with better social outcomes (negating the hypothesis that donor fragmentation is bad for growth but good for increasing the focus on improved health and education in developing countries); but 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 (DAC) 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 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. The index has two counterparts in other economics fields. First, the Herfindahl-Hirschman index is used in the industrial organization literature to measure the degree of market power in oligopolistic markets (for example, Borenstein and Rose (1984)). An index of fragmentation is also used in the literature studying the effects of ethnic diversity (for example, Montalvo and Reynal-Querol (2005a, b)).

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.

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.

Figure 1 shows the evolution of the average annual donor fragmentation over time. From this figure it is clear that donor fragmentation has increased. 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 1966.⁵ 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.

Table 2 lists all 112 sample countries, 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 standard set of controls. The set includes the ratio of real government consumption to real GDP (gov), the absolute deviation of the PPP value of the investment deflator from the sample mean (ppdev), the ratio of real domestic investment to GDP (inv), secondary-school enrollment rate (sec) and primary-school enrollment (pri). Civil war is the incidence of civil war, we include three regional dummies for Sub-Saharan Africa, Latin

⁵ Data on these institutions can be found at <http://www.worldbank.org/ida>, <http://www.oecf.go.jp>, and <http://www.adb.org>.

America, and East Asia. The sources and definitions of all variables used in the analysis are described in Table 3.

Having many donors, and higher donor fragmentation, does not lead to receiving more foreign aid (Table 4). In particular, the correlation between donfrag and oda is -0.05. Donor fragmentation is high in sub-Saharan Africa (correlation coefficient is 0.29), in countries with corrupt governments (correlation coefficients of 0.16, 0.31 and 0.34, respectively), and in countries with high level of government consumption (coefficient is 0.18) and countries in civil war (0.16). In contrast, donor fragmentation is lowest in East Asia (-0.51) 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:

$$GROWTH_{it} = \beta_1 y_{it} + \beta_2 X' s_{it} + \beta_3 cw_{it} + \beta_4 aid_{it} + \mu_{it} \quad (1)$$

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.

As aid generally flows to countries whose growth rate is getting worse, we may need an instrument for foreign aid. We follow Burnside and Dollar (2000) and Easterly et al. (2003) and use the logarithm of initial income, the logarithm of population and a group of variables that captures donors’ “strategic interests” – proxied by dummy variables for sub-Saharan Africa, the Franc Zone, Egypt, and Central American countries. Therefore the equation for aid is the following:

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

where the excluded instruments are initial income in the previous period (y), the logarithm of population in the previous period (p) and the group of variables that capture donors’ “strategic interests” (z).

3a. Replicating previous results

We start by replicating the results of earlier studies on foreign aid, using the standard Barro (1991) specification. The F test for excluded instruments is large ($F= 19.49$), which suggesting that the instruments are good. The Durbin test, however, cannot reject the

hypothesis that foreign aid is exogenous and, therefore, OLS estimation is recommended. This result is similar to the findings in Burnside and Dollar (2000) who tested and could not reject that foreign aid was exogenous in their set up. Finally, Sargan's test of over-identification shows that the chosen instruments are appropriate.

Table 5 presents the results of the OLS estimation. Note that it is quite likely that there is intra-group correlation. Under this circumstance, OLS estimators are still consistent but the usual standard deviation will not be consistent. For this reason, we present the z-statistics obtained using a cluster-robust standard deviation. Column 1 shows that foreign aid has a negative and statistically significant effect on economic growth. In particular, an increase in *oda* from zero to the sample mean (3% of GDP) results in 1.8% reduction in economic growth during a 5-year period.⁶

In column 2, we analyze whether the same result applies to the sub-sample of poor countries. Burnside and Dollar (2000) define low-income countries as the countries that have a GDP per capita lower than \$1,900. As before, the Durbin test cannot reject the hypothesis that foreign aid is exogenous for the sub-sample of low-income countries, and therefore OLS estimation is recommended. Results again indicate that foreign aid has a negative and significant effect on economic growth.⁷ This is consistent with the findings in Easterly et al (2003), Rajan and Subramanian (2005) and Djankov, Montalvo and Reynal-Querol (2006).

A second hypothesis, as in Burnside and Dollar (2000), is that the effectiveness of aid depends on prevalent policies and institutions in the recipient country. We take as a

⁶ We run the same regressions using an alternative set of instruments. Instead of including variables that capture donors' "strategic interests", we use a dummy variable that indicates whether the recipient country was a colony or not (using data from La Porta et al, 1999). The results are robust to this change.

⁷ The same result obtains if instead the World Bank classification of poor countries (below \$1,350) is used.

measure of institutional quality, the Law and Order, from the International Country Risk Guide. The law-and-order variable ranges from 1 to 6. We turn it into a discrete variable, equal to 1 if the value is 3 or higher; 0 otherwise. In the specification we include *oda*, the interaction term of *oda* and law-and-order, and law-and-order. The results, shown in columns 3 and 4, indicate that aid has a negative and significant effect on economic growth independently of the institutional development of the country. This is consistent with Easterly et al (2003).

In sum, we are able to replicate the main results from the previous empirical literature on aid effectiveness.

3b. 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 countries with good policies.

In this section we analyze the effect of donor fragmentation on the effectiveness of foreign aid. We argue 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.

Donfrag is a continuous variable that ranges between 0 and 1. For the purpose of interpreting the interaction term, we also construct a dummy variable, *d_donfrag*, which equals 1 if donor fragmentation is larger than or equal to 0.75 (the sample's median), and zero otherwise. The results are shown in table 6. Column 1 indicates that in countries with a low degree of donor fragmentation, aid has no effect on economic growth. However, if the recipient country has a high degree of donor fragmentation aid has a negative effect on economic growth.

In order to show the robustness of this result, we analyze the effect of aid in a sample of countries with high donor fragmentation and in a sample of countries with low donor fragmentation. The results are shown in columns 2 and 3. We observe that for the sample of countries with high donor fragmentation, aid has a significant negative effect on economic growth. However, for countries with a low degree of donor fragmentation, aid has no effect.

4. Interpretation

4.1 Better social outcomes

So far we have investigated the effect of foreign aid on economic growth. It could be, however, that the multiplicity of donors in a given country is a proxy for a broader focus: that some donors focus on growth and other donors focus on health, education, gender issues, the environment. If so, the results in the previous section are simply a misinterpretation of the goals of some aid organizations. To test this, we consider two

indicators - secondary education attainment and infant mortality - that capture some of the alternative interpretations.

First, we analyze the effect of foreign aid on changes in secondary education attainment. This variable captures the change in the percentage of secondary school attained in the total population. We consider several explanatory variables besides foreign aid: the initial level of secondary education, the level of GDP at the beginning of the period, and shocks to terms of trade.

As aid may flow to countries whose education is getting worse, we need an instrument for foreign aid. We follow the specification in section 3. We present the results using IV estimation. The F-test for excluded instruments is large and above the usual thresholds, which implies that the instruments are not weak. Moreover, the Durbin test rejects the hypothesis that foreign aid is exogenous and, therefore, IV estimation is recommended.

In column 1 of table 7 we summarize the results (the bottom part of the table shows the first step of the estimation). Results indicate that aid has a negative impact on the change of secondary education attainment. Following the previous analysis, in column 2 and 3, we separate the sample between the countries with donor fragmentation above the median (column 2), and the sample of countries with donor fragmentation below the median (column 3). The results indicate that aid affects negatively the change in secondary education attainment when recipient countries face multiple donors.

In columns 4, 5 and 6, we analyze the effect of foreign aid on infant mortality. Again, we include several explanatory variables besides foreign aid: the initial level of infant mortality, the level of GDP at the beginning of the period, and shocks to terms of

trade. Here, oda has a negative impact on infant mortality, independent of donor fragmentation.

In sum, the hypothesis that donor fragmentation may proxy for expanded focus on social outcomes is not borne out in the data.

4.2 Increased corruption

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. 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 (2005) shows that 28% of the aid money in community-development infrastructure projects in Indonesia is lost due to corruption.

To test this hypothesis, we use 3 existing indices on corruption in government (described in Table 3) and regress corruption on aid, donor fragmentation, and several control variables. Since corruption indicators have been constructed only recently, we use a cross-section analysis (Table 8). Aid has no effect on corruption. However, aid in countries with high donor fragmentation is associated with a higher degree of corruption. In particular, if a country receiving the average amount of oda (3% of GDP) goes from a single donor to the sample mean of donor fragmentation, corruption increases by 7% to 10%. Table 8 does not show a causal direction. But it is difficult to come up with a reason for donors giving money to more corrupt governments, which would be the implication if reverse causality were present.

5. Conclusions

Aid is generally not associated with better economic outcomes. But the effectiveness of aid is further reduced when donor fragmentation is high. This is in part because donor fragmentation seems to increase corruption in the recipient country's government.

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. Previous literature (Przeworski and Vreeland, 2000; Barro and Lee, 2005) points to the International Monetary Fund as associated with particularly negative development outcomes. This may be the place to start.

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

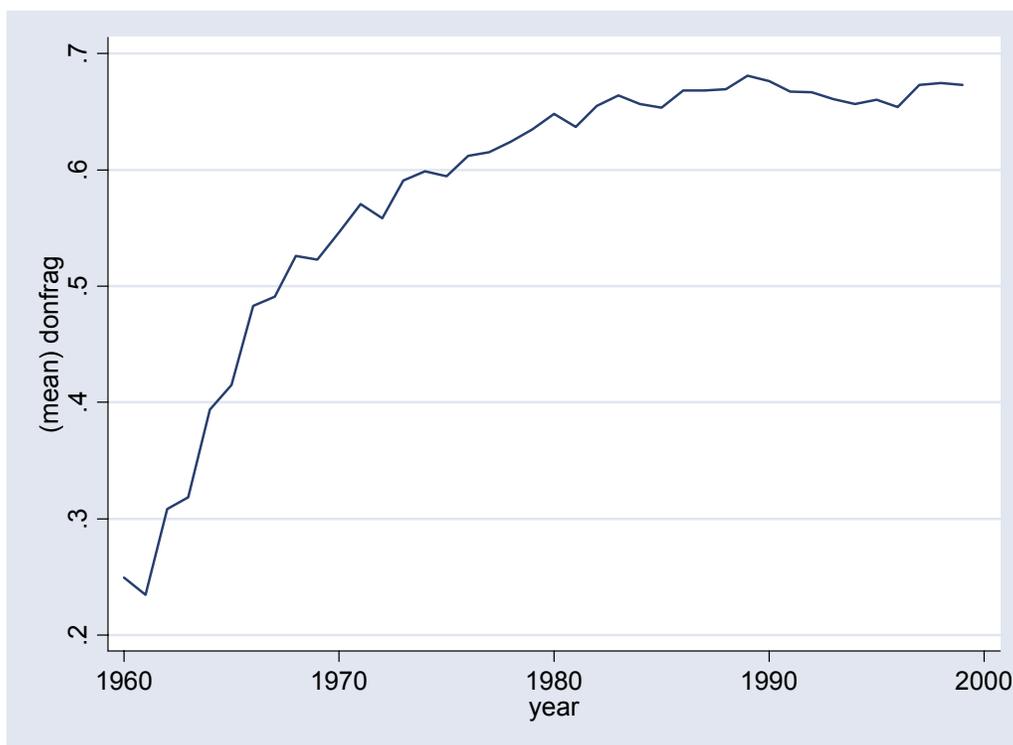


Table 1: 37 donors and their share in development aid, by time period

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 (DAC) 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 (DAC) 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.
D_donfrag	A dummy variable that equals 1 if donfrag is above the sample median (0.75), and zero otherwise. Source: Authors' calculations.
oda	The share of official development assistance in GDP. Oda includes grants and concessional loans, whose grant element is at least 25%. Source: OECD DAC
laworder	A discrete variable which takes value 1 if the county has a rating for the Law and Order equal to or larger than 3, and zero otherwise. The original law and order variable ranges from 1 to 6. It captures the strength and impartiality of the legal system and the observance of the law. Source: La Porta et al (1999).
growth	The growth rate of real GDP per capita for the 5-year period. Source: Penn World Tables 5.6.
inv	The average of the ratio of real domestic investment (private plus public) for the 5-year period to real GDP. Source: GDNGD
lngdp0	The log of real GDP per capita of the initial period (1985 international prices). Source: Easterly et al (2003).
sec	The percentage of "secondary school attained" in the total population. Taken at the beginning of the 5-year period. Source: Barro and Lee (2000).
pri	The percentage of "primary school attained" in the total population. Taken at the beginning of the 5-year period. Source: Barro and Lee (2000).
gov	The ratio of real government "consumption" expenditure to real GDP, averaged over the 5-year period. Source: GDNGD.
Inflation	The magnitude of the absolute deviation of inflation from the sample mean. Source: World Development Indicators (www.worldbank.org/data).
Civil war	A dummy variable that takes value 1 if there is a civil war during the 5-year period and zero otherwise. Source: International Peace Research Institute (www.prio.no).
afr	A dummy variable for Sub Saharan African countries. Source: GDNGD
lam	A dummy variable for Latin American countries. Source: GDNGD
eas	A dummy variable for East Asian countries. Source: GDNGD.
franczone	A dummy variable for the Franc zone countries in West Africa. Source: Easterly (2003).
cam	A dummy variable for Central American countries. Source: Eastrely (2003).
egypt	A dummy variable for Egypt.
infmort	A variable measuring the ratio of infant deaths in the total child population under 1 year. Source: World Development Indicators (www.worldbank.org/data).
lnpop	The log of population. Source: World Development Indicators (www.worldbank.org/data).
sh_tot_neg	The variable represents the mean absolute value of the negative growth rate of the terms of trade over a five-year period. Terms of trade shows the national accounts exports price index divided by the imports price index, with 1995 equal to 100. Source: World Development Indicators (www.worldbank.org/data).
sh_tot_pos	The variable represents the mean value of the positive growth rate of the terms of trade over a five-year period. Terms of trade shows the national accounts exports price index divided by the imports price index, with 1995 equal to 100. Source: World Development Indicators (www.worldbank.org/data).
cor1	A variable measuring corruption in government. It varies between 1 and 6, with higher numbers indicate less corruption. The inverse is used in the analysis. Source: International Country Risk Guide (2006).
cor2	A variable measuring corruption in government. Varies between -1.5 and 1.5, 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).
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).

Table 4: Correlation table of the main variables

	growt	donfr												d_don				
	h	ag	oda	lngdp	inv	sec	pri	gov	cw	inf	afr	lam	eas	frag	lawor	der	cor1	cor2
donfrag	-0.48																	
oda	-0.18	-0.05																
lngdp	0.29	-0.28	-0.47															
inv	0.60	-0.37	-0.28	0.50														
sec	0.41	-0.37	-0.46	0.74	0.54													
pri	0.34	-0.25	-0.45	0.66	0.68	0.75												
gov	-0.34	0.18	0.67	-0.59	-0.40	-0.40	-0.46											
civil war	-0.14	0.16	-0.33	-0.06	-0.22	-0.03	-0.11	-0.04										
inflation	-0.23	0.14	0.03	0.07	0.02	0.03	0.07	-0.04	0.01									
afr	-0.36	0.29	0.43	-0.61	-0.37	-0.58	-0.50	0.38	-0.18	-0.20								
lam	-0.24	0.03	-0.30	0.52	0.06	0.27	0.39	-0.33	-0.02	0.38	-0.50							
eas	0.65	-0.51	-0.27	0.23	0.54	0.38	0.25	-0.40	0.14	-0.13	-0.27	-0.34						
d_donfrag	-0.55	0.88	0.02	-0.26	-0.34	-0.38	-0.24	0.26	0.14	0.18	0.27	0.19	-0.65					
laworder	0.42	-0.08	-0.31	0.48	0.44	0.40	0.42	-0.27	-0.30	-0.18	-0.19	0.08	0.14	-0.14				
cor1	-0.40	0.16	0.07	-0.40	-0.52	-0.36	-0.41	0.26	0.25	0.03	0.01	0.01	-0.20	0.19	-0.53			
cor2	-0.55	0.31	0.13	-0.56	-0.49	-0.58	-0.37	0.23	0.21	0.10	0.19	0.09	-0.42	0.40	-0.48	0.62		
cor3	-0.56	0.34	0.09	-0.62	-0.57	-0.61	-0.51	0.32	0.26	0.12	0.27	-0.07	-0.33	0.38	-0.47	0.67	0.90	

Note: Variable definitions are listed in Table 3.

Table 5: Replicating the results of previous studies on aid (OLS cluster)

	All sample	Poor countries	All sample	Poor countries
	(1)	(2)	(3)	(4)
Oda	-0.006*** (-2.57)	-0.005*** (-2.63)	-0.01** (-2.38)	-0.01 (-1.70)
Oda*laworder			0.00 (0.42)	0.005 (0.79)
Laworder			0.04** (2.31)	0.03 (1.12)
Ingdp0	-0.06*** (-4.06)	-0.06** (-2.55)	-0.07*** (-4.41)	-0.05* (-1.81)
Inv	0.47*** (3.55)	0.82*** (5.42)	0.39*** (2.54)	0.67*** (3.19)
Sec	-0.00 (-0.21)	-0.00 (-0.45)	-0.00 (-0.58)	-0.00 (-0.43)
Pri	0.00 (0.33)	-0.00 (-0.59)	-0.00 (-0.36)	-0.00 (-0.57)
Gov	-0.35*** (-2.87)	-0.28** (-2.09)	-0.40*** (-2.88)	-0.36** (-2.22)
Civil War	-0.06*** (-4.12)	-0.05*** (-2.52)	-0.03** (-2.31)	-0.01 (-0.83)
Inflation	-2.93e-06 (-0.66)	-4.32e-06 (-1.17)	1.51e-06 (0.29)	-1.05e-06 (-0.26)
Afr	-0.06*** (-2.52)	-0.10*** (-4.08)	-0.06*** (-3.12)	-0.08*** (-3.07)
Lam	-0.03 (-1.54)	-0.07* (-1.85)	-0.02 (-1.07)	-0.05 (-1.23)
Eas	0.05** (1.97)	-0.03 (-1.35)	0.05** (1.97)	-0.04 (-1.14)
Constant	0.59 (5.18)	0.59 (3.42)	0.70 (5.38)	0.53 (2.47)
N	440	219	356	167
R ²	0.134	0.121	0.249	0.279

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

Table 6: Donor fragmentation and aid effectiveness
(OLS cluster)

	All sample	Sample of Donfrag> 0.75	Sample of Donfrag< 0.75
	(1)	(2)	(3)
Oda	0.004 (0.76)	-0.01*** (-2.53)	0.00 (1.07)
Oda*d_donfrag	-0.01** (-2.14)		
D_donfrag	0.01 (0.67)		
lngdp0	-0.07*** (-4.21)	-0.06*** (-2.52)	-0.07*** (-2.74)
inv	0.54*** (3.99)	0.47*** (2.91)	0.35 (1.33)
sec	0.00 (0.48)	-0.00 (-0.04)	0.00 (0.13)
pri	-0.00 (-0.01)	-0.00 (-0.27)	0.00 (1.17)
gov	-0.42*** (-3.45)	-0.28** (-2.14)	-0.56** (-2.08)
Civil war	-0.06*** (-4.07)	-0.05*** (-2.64)	-0.07*** (-3.63)
Inflation	-0.00 (-0.21)	-0.00 (0.07)	-0.00 (-1.01)
afr	-0.06*** (-2.56)	-0.05 (-1.78)	-0.06 (-1.61)
lam	-0.04** (-2.11)	-0.04 (-1.60)	-0.02 (-0.80)
eas	0.03 (1.11)	0.06 (1.94)	0.05 (1.34)
Constant	0.62*** (5.42)	0.54*** (3.40)	0.62*** (3.64)
N	428	274	166
R ²	0.220	0.172	0.272

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

**Table 7: The impact of aid on education and health
(2SLS, IV cluster)**

	Cg_sec	Cg_sec	Cg_sec	Cg_infmort	Cg_infmort	Cg_infmort
	All sample	Donfrag>0.75	Donfrag<0.75	All sample	Donfrag>0.75	Donfrag<0.75
	(1)	(2)	(3)	(4)	(5)	(6)
oda	-0.64*** (-2.85)	-0.47** (-2.08)	-1.07 (-1.22)	0.85*** (3.11)	0.68** (2.50)	1.02** (2.62)
sec	-0.64*** (-2.85)	-0.03 (-0.76)	-0.11* (-1.92)			
infmort				-0.06*** (-4.21)	-0.07*** (-2.88)	-0.06*** (-3.91)
lngdp0	-0.07* (-1.89)	0.98 (1.48)	0.70 (0.44)	-0.25 (-0.41)	-0.64 (-0.76)	0.03 (0.04)
sh_tot_neg	-11.11 (-1.23)	-4.31 (-0.48)	-39.46 (-1.62)	-5.33 (-0.66)	-4.94 (-0.51)	-6.73 (-0.48)
sh_tot_pos	6.66 (0.81)	8.95 (0.93)	-4.10 (-0.19)	-1.33 (-0.17)	3.25 (0.30)	-10.84 (-0.72)
Constant	0.97 (0.30)	-0.62 (-0.14)	6.60 (0.51)	-2.97 (-0.56)	-0.09 (-0.01)	-4.90 (-0.70)
N	261	196	65	559	344	215
First Stage	Oda	Oda	Oda	Oda	Oda	Oda
sec	-0.03** (-2.76)	-0.034** (-2.23)	-0.02 (-1.54)			
infmort				-0.01*** (-3.33)	-0.01 (-1.51)	-0.01 (-1.65)
lngdp0	-1.04*** (-4.36)	-0.90*** (-3.10)	-1.37*** (-2.97)	-1.48*** (-8.20)	-1.32*** (-5.43)	-1.32*** (-5.22)
sh_tot_neg	-3.14 (-0.93)	-3.04 (-0.74)	-1.96 (-0.31)	0.87 (0.33)	0.33 (0.10)	1.63 (0.39)
sh_tot_pos	-5.19 (-1.40)	-5.09 (-1.15)	-2.22 (-0.31)	0.90 (0.35)	-2.35 (-0.70)	2.68 (0.76)
egypt	2.73** (2.13)		1.93 (1.80)	1.83 (1.85)	1.28 (0.45)	1.32 (1.52)
franczone	0.22 (0.37)	0.47 (0.66)	-0.51 (-0.41)	0.35 (0.78)	0.40 (0.66)	0.66 (1.08)
cam	-0.39 (-0.52)	-0.35 (-0.37)	-0.28 (-0.27)	-0.56 (-1.18)	-0.00 (-0.00)	-1.11 (-2.05)
afr	1.04** (2.04)	1.32** (2.09)	0.15 (0.17)	1.28*** (3.65)	2.13*** (4.55)	-0.74 (-1.52)
lnpop	-0.96*** (-7.81)	-0.95*** (-6.44)	-0.91*** (-3.67)	-0.92*** (-11.06)	-1.00*** (-9.10)	-0.81*** (-7.14)
Constant	26.2 (8.48)	25.06 (6.80)	27.65 (4.22)	27.83 (11.93)	27.62 (8.92)	24.85 (7.76)
R ²	0.523	0.521	0.520	0.399	0.471	0.296

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

Table 8: Donor Fragmentation Increases Corruption
(Cross-section analysis)

	Cor1	Cor1	Cor2	Cor2	Cor3	Cor3
	(1)	(2)	(3)	(4)	(5)	(6)
Oda	0.06 (1.12)	0.02 (0.52)	0.01 (0.25)	-0.01 (-0.39)	-0.04 (-0.35)	-0.14 (-1.42)
D_donfrag		-0.26 (-0.88)		-0.17 (-0.98)		-0.43 (-0.81)
Oda*d_donfrag		0.19* (1.88)		0.13** (2.24)		0.49** (-2.19)
Common law	-0.19 (-0.70)	-0.14 (-0.55)	-0.12 (-0.88)	-0.09 (-0.69)	-0.01 (-0.02)	0.01 (0.01)
Afr	0.07 (0.23)	-0.09 (-0.28)	0.24 (1.49)	0.14 (0.87)	0.63 (0.90)	0.27 (0.34)
lam	0.17 (0.66)	0.15 (0.58)	-0.03 (-0.20)	-0.05 (-0.28)	-0.19 (-0.34)	-0.35 (-0.58)
eas	-0.54 (-1.03)	-0.57 (-1.12)	-0.57* (-1.94)	-0.58* (-1.96)	-1.51 (-1.46)	-1.64 (-1.68)
Constant	-2.80 (-14.06)	-2.73 (-15.18)	0.27 (1.80)	0.32 (1.90)	-3.48 (-6.58)	-3.28 (-5.45)
N	88	88	94	94	50	50
R ²	0.079	0.114	0.169	0.216	0.156	0.252

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