

Aid allocation: Comparing donors' behaviours

Jean-Claude Berthélemy*

Summary

■ This paper synthesises previous findings on bilateral aid allocation behaviours and compares them with multilateral agency behaviours. It shows that self-interest motives predominate developmental motives in bilateral aid allocation decisions, save for Switzerland and a few Nordic donors. The influence of commercial interests plays a major role in this respect and has a much higher quantitative influence on aid allocation than geopolitical motives. Among developmental motives, recipients' needs play a significant role, together with political governance. Bilateral aid allocation is also influenced by multilateral aid flows. Among multilateral donors, the European Commission (EC) has a quite specific behaviour, with a small role played by recipients' needs and merits, and a strong bias in favour of ACP countries. Conversely, multilateral aid, excluding EC's assistance, strongly responds to recipients' needs. Significant influences of US and Japanese commercial interests on multilateral aid decisions, and of British commercial interests on EC's aid, are also detected. ■

JEL classification: F35, C23, C24.

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The current architecture of official development assistance (ODA) combines a variety of actors, who have different objectives and statutes: bilateral donors, multilateral donors with regional constituencies (the European Commission, Arab funds), multilateral donors with regional clients (regional development banks), and truly multilateral donors. The aid allocation behaviours may vary to a large extent from one group to another, and within these groups from one individual donor to another. A clear understanding of the functioning of the aid architecture requires an evaluation of commonalities and differences among these various donors. This paper attempts to contribute to this objective.

As a group, bilateral donors account for about three quarters of total ODA commitments, but this group is very heterogeneous. Understanding individual behaviours of bilateral donors has therefore been a priority in the aid allocation literature. Concerning multilateral donors, there is also a wide variety of situations, which could also justify studying them individually. However, multilateral aid agencies are not independent actors, insofar as their decisions are in the end made collectively by the governments that constitute their membership. In this paper, we will consider that multilateral donors, with the exception of the European Commission (which is the largest multilateral donor with about 40 per cent of all multilateral flows, and whose policy is clearly the expression of European objectives), form a single homogeneous group of donors. In doing so, we do not disregard the fact that each of them may have specific behaviours, but we assume that their collective aid allocation decisions represent what may be considered as a single multilateral aid policy, resulting from the combination of the different objectives of their principal shareholders, which are also the principal bilateral donors (with the exception of Arab funds, which are of small size, as compared to the rest of the multilateral do-

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nors). All in all, in this paper we then consider three categories of donors: individual bilateral donors (DAC members), the European Commission (EC) and a consolidated group of non-EC multilaterals, which we will henceforth call “the multilaterals”. This last group is essentially composed to about two thirds by IDA and to one third by several relatively small regional agencies (e.g., the African Development Bank group).

The existing literature provides a large set of information and analyses on aid allocation behaviours. There is a growing consensus on the need to combine three principal categories of explanatory variables in the analysis of aid allocation decisions: the self-interest of the donors, recipient needs, and their merits. Self-interested motives may be defined as geopolitical (Alesina and Dollar, 2000) or commercial (Berthélemy, 2006); they are usually specific to bilateral donors. The definition of recipient needs is not simple, but most participants in the debate simply measure them by the income per capita of the recipient. The definition of merits is much more controversial. Although there is a general agreement to refer, somewhat vaguely, to “good governance” criteria, such criteria are not easily defined. World Bank researchers (e.g., Dollar and Levin, 2004) have argued that the multilaterals, notably the World Bank, give a higher weight to good governance than bilateral donors, because they are more detached from vested interests that influence the latter’s decisions. To make their point, they use the CPIA (country policy and institutional assessment) index as the explanatory variable, which seems to be a reasonably good solution. However, this indicator presents two major problems. First, it has, so far, been confidential, which is not compatible with its use in an open scientific debate. This confidentiality policy was supposed to change in 2006, but this decision announced by the Board of the World Bank has only been partially implemented: only recent data, and for “IDA only” countries, have been released. Second, the CPIA is based on the opinion of World Bank staff members, who are themselves involved in decision making regarding aid allocation and, as a result, its observed correlation with multilateral aid allocation decisions to some extent reflects a tautology.¹ In order to solve this difficulty, Dollar and Levin have introduced another indica-

¹ One could argue that regional banks have different decision processes. This is not usually the case, because they have frequent interactions with the World Bank. For instance, the African Development Bank has a CPIA itself, but it is very highly correlated with that of the World Bank

tor, the Kauffman and Kray governance indicator, and have shown that their results are qualitatively comparable. However, the proof is based on limited evidence, given that the Kauffman and Kray indicator is available only for recent years, and only every two years.

In this paper, we will not attempt to contribute to this debate on the measurement of good governance that is supposed to influence decisions, although we will introduce partial indicators of political governance such as dummy variables for “democracy” and conflicts that we have built for previous papers on aid allocation (Berthélemy and Tichit, 2004, and Berthélemy, 2006). Taking for granted that multilateral institutions take into account the recipients’ governance, as defined by themselves, in their decision, we will then use the observation of multilateral aid allocations as another partial, and indirect, indicator of recipients’ governance. In other words, data should reveal commonalities among non-observable determinants of bilateral and multilateral aid allocation, if both bilateral and multilateral donor decisions are influenced by recipients’ governance. This will provide a way to reduce the possible estimation bias in bilateral allocation equations that could result from the absence of a complete set of indicators of governance in the list of explanatory variables.

Our principal findings will be the following:

- On average, self-interest variables, notably commercial interest, play a major role in bilateral allocation decisions;
- There are large differences among bilateral donors regarding the role given to self-interest in their ODA allocation behaviours;
- Bilateral donor allocation decisions are partially correlated with multilateral decisions, as expected;
- Some similarities among bilateral and multilateral donors are detectable in the correlation between the fixed effect parameters of their aid allocation equations, which is also consistent with the hypothesis that there are commonalities among the non-observable determinants of their aid allocation behaviours.

The paper is organized as follows. In Section 1, we discuss data and methodology. In Section 2, we report our findings on bilateral aid allocation. In Section 3, we provide stylised facts, based on the previous estimations, on the magnitude of biases in bilateral aid allocation that are due to self-interested behaviours. In Section 4, we study in a similar framework the aid allocation behaviours of the EC and multilaterals. In Section 5, we examine stylised facts that can be obtained

from an analysis of fixed effects of aid allocation equations. We conclude in Section 6.

1. Data and methodology

1.1. Data

For this paper we use a database already used in a couple of previous papers (Berthélemy and Tichit, 2004, and Berthélemy, 2006), where we have assembled data covering the 22 OECD (DAC) bilateral donors, the EC and multilateral donors (as defined in previous section), 137 recipient developing countries and about two decades from 1980 to 1999.² Our dependent variable is the commitment of aid from the various donors to the different recipients. Aid commitments are preferred to disbursements because they reflect, much better than the latter, the decisions made by the donors: disbursements are influenced by the capacity of the recipients to meet the donors' conditionalities. Such aid flows are deflated by an OECD price index and can therefore be considered as volumes of aid, at 1985 prices. They are also divided by population, and transformed in logarithms.

We restrict the analysis to the so-called "part I" countries of the OECD/DAC database, hence we exclude transition economies and relatively rich recipients. Data on "part II" countries are only available since 1993 and are very incomplete until 1995 since for many donors, the detailed allocation (within the Newly Independent States group, in particular) is missing in the first years of observation. This implies that before 1995, we cannot separate purely missing observations from nil observations for part II countries. Conversely, "part I" data constitute a much more homogeneous set of observations with respect to data availability. In addition, the only significant missing recipient in part I that could have been included is Israel, which is in "part II" since 1997, but which has continuously received large amounts of assistance over the whole period. However, more than 90 per cent of the assistance to Israel comes from the US, and adding Israel to the dataset would merely imply adding a "USA-Israel" bilateral dummy variable in our equations.³

² Precise definitions and sources of variables are provided in the Appendix.

³ It might be argued that aid allocation to part I countries is not independent from aid allocation to part II countries, because aid to part II countries could crowd out part I countries. However, this effect will be controlled in our regressions through

Since the seminal contributions of Dudley and Montmarquette (1976) and McKinley and Little (1977), there has been a long debate in the development finance literature on the question of the true motives of development assistance: do bilateral donors provide assistance in view of improving the development perspectives of recipients, or is this assistance driven by self-interest motives?

There is a growing consensus in the recent literature (see, e.g., Berthélemy, 2006; and, for a survey, Neumayer, 2003) saying that both types of variables contribute to explain the aid allocation decisions. Conversely, multilateral agencies are often viewed as exempt from self-interested behaviours—although their decisions could also be influenced by the self-interest of some of their individual members (see, e.g., Fleck and Kilby, 2006).

Donors may pursue several self-interested objectives. One of these is geopolitical. It is usually assumed that a donor provides assistance to recipients who are like-minded, or at any rate who are potential political allies. Alesina and Dollar (2000) use data on votes at the UN to measure such a political alliance effect. However, political alliance may be a result as well as a determinant of aid allocation.

Another possibility is to link such political alliances to historical and geographical factors, i.e. the colonial legacy and geographical proximity, which can be considered as exogenous variables. In this paper, we try to catch these effects through a combination of dummy variables for former colonial ties and other broad geopolitical interests of the donors:

- Bilateral dummy variables for former colonies of Belgium, France, Portugal, Spain and Great Britain.
- A dummy variable for the pair USA-Egypt, because Egypt has received large amounts of assistance from the US after the Camp David accord with Israel. If Israel were in our database, we would obviously need to introduce a similar dummy variable for its political alliance with the US.
- A dummy variable catching the close ties that exist between the US and Latin American countries.
- A dummy variable catching the geopolitical interest of Japan in assisting Asian developing economies.

the introduction, in the list of explanatory variables, of a variable defined as the total assistance provided by each bilateral donor to part I countries as a whole.

- A dummy variable catching the possible special relationship between ACP countries (Associated States from Africa, the Caribbean and the Pacific Ocean) and European Union members, which would parallel the special status granted by the European Commission to the ACP countries through the Lomé and Cotonou agreements.

Aid may also be used to deepen the commercial linkages with a recipient, and not only political alliances. Not all donors have strong geopolitical interests, but all of them have commercial interests. A donor country's foreign assistance policy based on its self-interest will typically be biased toward recipients that tend to have more trade linkages with this country. This is after all the clear motive of tied aid, which persists in spite of continuous multilateral efforts to reduce it. Therefore, we have also introduced commercial interest motives in the analysis of aid allocation, measured by the flow of exports to the recipient country, expressed as a percentage of the donor's GDP. There might be a simultaneity bias when aid is tied, since more tied aid implies more imports from the donor. However, the risk is limited since we are working on aid commitment flows, and aid disbursements usually lag behind commitments, particularly for project loans or grants, which require building new equipment. To be on the safe side, we have lagged this variable by one year.

The combination of the geopolitical dummies and the trade intensity variable just described will define what we call the "bilateralism effect" in our aid allocation equations.

Let us now turn to the developmental motives of aid. Such motives can be captured by the introduction of two different categories of variables: recipients' needs and merits.

The most straightforward indicator of beneficiary needs is income per capita, measured at international prices (in purchasing power parity terms). If aid is to be allocated on the basis of recipient needs, the poorest countries should receive more assistance, and the richest countries less.

In this category, we also introduce the influence of indebtedness of the recipient. In principle, such a variable could be considered as reflecting either recipient needs, or donor self-interests. The second interpretation is known in the debt crisis literature (Birdsall et al., 2003) as the "defensive lending" argument. Donors could be locked in a "debt game", in which they have to provide new resources to highly

indebted countries simply to avoid that these debtors fall in arrear. However, it is not possible to properly test this hypothesis, for two reasons: first, theoretically speaking, a donor country cannot protect its own financial interest alone through defensive lending, because refinancing and other financial relief mechanisms are usually subjected to burden-sharing rules, for instance under the auspices of the Paris Club; second, bilateral debt data are hardly accessible, when they exist. We are therefore left with an explanatory variable that is aggregated across donors, the ratio of net present value of the recipient country's debt over its exports, which we interpret below as a recipient need variable. This interpretation amounts to possibly underestimating the donor self-interest argument.

Recipients' merits may be reflected in the quality of their political governance, and in the quality of their policies and institutions. Concerning political governance, we have built a dummy variable that separates "democratic" and "non-democratic" regimes, based on the assessment provided by Freedom House. The term "democratic" is here used in a broad sense for simplification: it does not only refer to the political system of representation of citizens, but also to all dimensions of civil liberty and political freedom.⁴ In addition, we have introduced dummy variables for internal and interstate conflicts, based on the database built by PRIO (International Peace Research Institute of Oslo). The methodological aspects of construction of these governance-related variables are discussed in Berthélemy (2006).

The quality of policies and institutions is more difficult to measure. Initially, we tried several economic policy variables similar to those introduced by Burnside and Dollar, such as openness, government deficit and inflation. None of those variables was significant. Therefore, we do not include them in the list of explanatory variables. The absence of indicators of policy and institution quality might bias our results, if donors take account of the recipients' merits in their aid allocation decisions. To attempt to reduce this bias, we introduce the amount of assistance that is given by the multilaterals in the list of explanatory variables in the regressions for bilateral donors and for the EC.

⁴ Another possible source would be the Polity IV database, but it is more specialized on the assessment of democracy as a political system.

Finally, we introduce two auxiliary variables: population and the total aid budget of each bilateral donor. Both variables are entered here to control for scale effects and do not deserve much discussion.

1.2. Methodology

The econometrics of aid allocation is a technically debated topic because we have to deal with two particular characteristics that are relatively easily handled separately, but which create estimation problems that are difficult to tackle when combined.

First, the dependent variable is censored, given that it cannot be negative. Out of our sample of 28581, for which all explanatory variables are available,⁵ there are 8041 nil observations, i.e. 28 per cent of the sample. For this reason, using limited-dependent variable methods, either Tobit regressions, or Heckman procedures designed to correct sample selection bias, is advisable. A comparison of the Tobit approach (Berthélemy and Tichit, 2004) and the Heckman approach (Berthélemy, 2006) leads us to prefer the latter, which is much more tractable with a large database. Second, there are probably recipient fixed effects, notably because our set of explanatory variables is constrained by the limited availability of institutional variables on a time-series basis. Taking these two features into account together is difficult because introducing fixed effects in a limited dependent variable model creates consistency issues that cannot be eliminated in parametric models. This is known as the “incidental parameters problem”.⁶ Here, we follow the approach that we have developed in Berthélemy (2006), i.e., we simply concentrate, both for bilateral and for multilateral aid, on the allocation equations (estimated on strictly positive observations), estimated with a standard fixed-effect procedure.⁷ This choice is similar to that made in previous literature (e.g. Alesina and Dollar, 2000).

⁵ The total theoretical size of the sample is 63294, but there are missing observations for GDP per capita, debt and bilateral trade, notably for some very small countries.

⁶ See Berthélemy (2006) for a deeper discussion of this technical point.

⁷ In Berthélemy (2006), we have checked that there was no significant selection bias in the reported equations for bilateral flows, when they are estimated without fixed effects. For multilateral flows, there are few non-selected countries for both the EC's and the multilateral aid flows; for all practical purposes, this eliminates the risk of selection bias in our equations for EC and multilateral aid.

2. Bilateral aid equation

The estimated equation reported in this section is specified as follows:

$$\ln(\text{aid})_{ijt} = aX_{ijt} + bY_{it} + cZ_{jt} + d_i + u_{ijt},$$

where aid is aid per capita provided by donor j to recipient i in year t , and X , Y and Z are matrices of explanatory variables. The X variables are purely bilateral variables (the self-interest of donor variables), the Y variables are recipient specific and constant across donors (the recipients' needs and merits variables and population) and the Z variable is constant across recipients (total aid of donor), a , b and c are the corresponding vectors of parameters. In addition, d is a vector of recipient fixed effects and u stands for residuals.

In Table 1 below, we report the parameters obtained for the various explanatory variables. As in Berthélemy (2006), we have aggregated the two (internal and inter-state) conflict variables, which do not have significantly different parameters. All parameters are very precisely estimated, all (but the intercept) being significant at the 0.1 per cent level. To interpret their magnitude, we also report the standard deviation of the respective explanatory variables, and compute (last column of Table 1) the marginal effect of a one-standard deviation change in each explanatory variable. These values provide a better idea of the magnitude of effects of the different explanatory variables than the parameters themselves.

In addition (bold lines), we report the standard deviation of each aggregate of relevant explanatory variables grouped by broad category of explanation (recipients' needs, recipients' merits, and donors' self-interests), which measure in a normalized manner the magnitude of influences of these three motives of aid giving. Finally, for the sake of comparison, we also report the standard deviation of the fixed effects, and the standard deviation of the dependent variable.

The results in Table 1 suggest that all three categories of variables play a significant role, but with rather uneven magnitudes. The most important category is the self-interest of donors. Within this category, commercial interest plays a much bigger role than post-colonial linkages. Observing very large parameters for bilateral dummy variables might give the impression that geopolitical considerations matter more than everything else but, by definition, the influence of such

dummy variables is restricted to few observations, while trade linkages influence each and every bilateral aid flow.

Table 1. Parameters of the bilateral aid allocation equation

Explanatory variable	Estimated parameter		Standard deviation of variable	Effect of a one-standard deviation change
Recipient needs			0.59	
gdp per capita	-0.70 (0.10)	***	0.77	-0.54
debt ratio	0.15 (0.03)	***	0.82	0.16
Recipient merits			0.22	
democracy dummy	0.15 (0.04)	***	0.50	0.09
conflict dummy	-0.19 (0.04)	***	0.44	-0.09
aid multilaterals	0.13 (0.02)	***	1.58	0.25
Self interest of donor			1.03	
export ratio	0.39 (0.01)	***	2.30	0.91
former British colony	1.32 (0.08)	***	0.16	0.20
former French colony	1.99 (0.09)	***	0.14	0.26
former Spanish colony	2.76 (0.21)	***	0.04	0.11
former Portuguese colony	1.62 (0.32)	***	0.05	0.09
former Belgium colony	1.88 (0.30)	***	0.04	0.07
US-Egypt dummy	3.36 (0.39)	***	0.03	0.10
US-Latin America dummy	0.57 (0.10)	***	0.13	0.07
Japan-Asia dummy	1.24 (0.11)	***	0.11	0.13
EU-ACP dummy	-0.28 (0.03)	***	0.46	-0.12

Notes: ***(**, *) = significant at the 0.1 (1, 5) per cent level. Numbers between brackets are standard deviations of parameters.

Source: Author's estimates.

Table 1. Continued....

Explanatory variable	Estimated parameter		Standard deviation of variable	Effect of a one-standard deviation change
Control variables				
population	-0.73 (0.11)	***	1.70	-1.59
total aid donor	0.98 (0.01)	***	1.44	1.40
recipient fixed effect			0.71	
dependent variable			2.61	
number of observations	20540			
F test for fix effect	36.14			
Hausman test fix vs. random effects	60.10			
R ²	0.50			

Notes: ***(**, *) = significant at the 0.1 (1, 5) per cent level. Numbers between brackets are standard deviations of parameters.

Source: Author's estimates.

Given that the average recipient country (in the sample of regressions reported in Table 1) receives USD 1.8 per capita from the average donor, an increase of its donor's export ratio by one standard deviation would increase its assistance from this donor by USD 2.7 per capita.⁸ Conversely, a theoretical change in its bilateral dummy variables (post-colonial and regional dummies), once more weighted by the standard deviation of such variables,⁹ would increase its assistance from any donor by only USD 0.1 to USD 0.2 per capita. Hence, we may suspect that aid is biased in favour of economically successful countries, which are also significant trade partners, rather than in favour of former colonies.

Among the geopolitical dummies, the EU-ACP dummy has a negative parameter. This is somewhat puzzling. As we shall see in Section 5, the European Commission assistance policy is extremely biased in favour of ACP countries. The negative parameter observed here for the EU-ACP dummy might be interpreted as the result of a

⁸ $1.8 * (\exp(0.91) - 1) \approx 2.7$

⁹ This weighting normalizes the effect, to facilitate comparisons of the impact of the dummy variables and other explanatory variables.

substitution effect: EU members, which finance the EC budget, might consider that the EC aid budget takes care of ACP countries and, therefore, that they do not themselves need to give high priority to assistance to this group of countries.¹⁰

Recipients' needs are second in importance. However, they play a statistically significant role and the fact that donors take recipients' needs into consideration may contribute to reduce the bias in favour of successful developing countries in aid allocation budgets that is due to the influence of export ratios. A reduction of income per capita (in logarithm) of the average recipient country by one standard deviation would increase its assistance from the average donor by USD 1.3, assuming unchanged export ratios, but if imports were assumed to be proportional to income, the net result would be a reduction of assistance by about USD 1.4 per capita ($=2.7-1.3$).

Recipients' merits only come in third position. Although the governance variables are very significant, they have little quantitative influence on aid allocation, a point that had already been made by Alesina and Dollar (2000).

Finally, fixed effects play a major role. The magnitude of their standard deviation is comparable to that of the quantitative influence of the export ratio. Such fixed effects may result from the influence of policy and institution quality that would not be properly represented by our governance variables. This might give a higher role to recipient merits than directly estimated. However, the magnitude of fixed effects should not be over-interpreted: given that the population variable is a quasi-fixed factor, it is impossible to disentangle the effect of the population variable (which has a very large variance) from other determinants of fixed effects.

2.2. Diversity of parameters among donors

The conclusion that commercial interests play a major role in explaining bilateral aid allocation is very strong and suggests that bilateral aid motives are, to a large extent, egoistic rather than altruistic. This conclusion might be nuanced for some donors, however. In a previous paper (Berthélemy, 2006), we have actually shown that bilateral donors do not all behave similarly.

¹⁰ However, an attempt to directly test a substitution effect through the introduction of the aid allocation by the EC as explanatory variable does not give much support to this hypothesis: the associated parameter is insignificant.

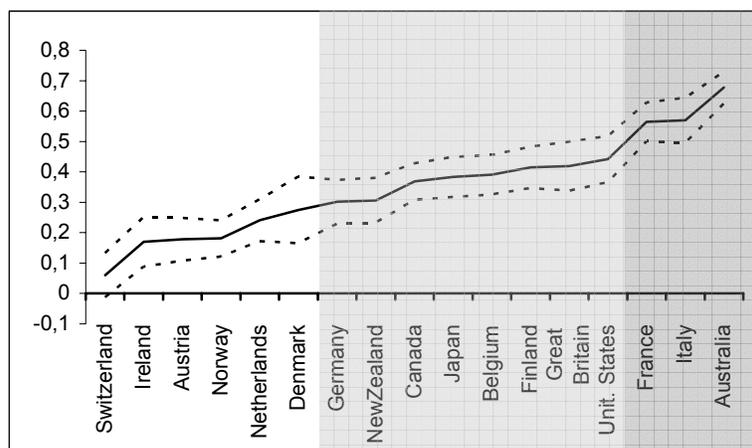
Apart from obvious differences resulting from bilateral political ties, as expressed by the post-colonial and other bilateral dummy variables, individual bilateral donors differ with respect to the weight they give to commercial interests in their aid allocation decisions.

This is shown in Figure 1, where we have reported estimation of parameters of the export intensity variable when donor-specific parameters are jointly estimated.¹¹ Some donor countries do not appear in Figure 1 because we did not have enough observations to produce a robust estimate for their individual parameters; these donors are Greece, Luxemburg, Portugal, Spain and Sweden. For Sweden, the difficulty comes from the fact that for large amounts of assistance, the recipients are reported as “unspecified” to the DAC. This concerns about 40 per cent of Swedish bilateral aid flows for the period of estimation. For countries for which we have obtained relevant estimates, the range of variation of estimates of the parameter of the export intensity variable varies from about 0.06 for Switzerland to 0.67 for Australia. In the same graph, we have also reported the 95 per cent confidence interval for such parameters—dotted lines). Switzerland is the only donor for which the trade variable is not significantly different from zero at the 5 per cent level.

We have also tested whether the parameter associated with the trade variable was significantly different, for each specific donor, from the rest of the donors. The result can be visualised in Figure 1, where countries with a significantly higher parameter are in the dark grey shaded area (France, Italy and Australia), and countries with a significantly lower parameter are in the un-shaded area (Switzerland, Norway, Austria, Ireland, the Netherlands and Denmark). As could be expected, all Nordic countries (save for Finland) are among those that are the least selfish in their aid allocation decisions.

¹¹ The joint estimation is produced by interacting each explanatory variable with individual donor dummy variables. This is a more efficient way of estimation than independent estimations for each donor, because here we keep the same recipient fixed effects for all donors.

Figure 1. Distribution of the parameter for export intensity among individual donors



Source: Author's estimates.

2.3. Structural change over time: Cold war times and after

In our framework, it is interesting to check whether the end of the cold war has changed donor attitudes. Changes that would be due to a reduction of total aid volumes to part I countries are taken into account through the total aid of donor variable. However, there might be also a change of structure, not only of levels. To check this, we test the stability of our parameters after the end of the cold war, through adding to our previous list of explanatory variables the same variables interacted with a dummy variable that is equal to 0 until 1989 and equal to 1 since 1990. The results are reported in Table 2. A Fisher test shows that the vectors of parameters in the cold-war period and the post-cold-war period are significantly different. However, this difference only concerns few parameters: the most significant changes concern the influence of the trade intensity variable, whose magnitude decreases in the second period (from 0.43 to 0.37), and the former British colony and EU-ACP dummy variables, whose magnitude increases (from 1.05 to 1.54 and from -0.12 to -0.40, respectively). Apart from the post-cold-war changes of attitudes, the last change might be due to the development of EC assistance to developing countries (principally members of the ACP group), which would have been

considered by EU members as a substitute to their own bilateral assistance.

Table 2. Test of differences of parameters between the 1980's and the 1990's

Explanatory variable	Estimated parameters			
	Years 1980's		Years 1990's-1980's	
Recipient needs				
gdp per capita	-0.80 (0.11)	***	0.00 (0.06)	
debt ratio	0.14 (0.03)	***	0.04 (0.04)	
Recipient merits				
democracy dummy	0.13 (0.05)	*	0.04 (0.06)	
conflict dummy	-0.23 (0.06)	***	0.06 (0.06)	
aid multilaterals	0.17 (0.02)	***	-0.06 (0.03)	*
Self interest of donor				
export ratio	0.43 (0.01)	***	-0.06 (0.02)	***
former British colony	1.05 (0.11)	***	0.49 (0.15)	***
former French colony	1.85 (0.13)	***	0.26 (0.17)	
former Spanish colony	2.74 (0.21)	***		
former Portuguese colony	1.73	***		
Former Belgium colony	1.78 (0.47)	***	0.19 (0.59)	
US-Egypt dummy	3.22 (0.56)	***	0.28 (0.76)	
US-Latin America dummy	0.85 (0.14)	***	-0.47 (0.19)	*
Japan-Asia dummy	1.04 (0.16)	***	0.38 (0.21)	
EU-ACP dummy	-0.12 (0.05)	*	-0.29 (0.06)	***

Note: All parameters estimated jointly. ***(**, *) = significant at the 0.1 (1, 5) per cent level. Numbers between brackets are standard deviations of parameters. F test for differences between 1980's and 1990's: 4.75.

Source: Author's estimates.

Table 2. Continued....

Explanatory variable	Estimated parameters		
	Years 1980's		Years 1990's-1980's
Control variables			
Population	-0.83 (0.18)	***	0.01 (0.03)
total aid donor	1.00 (0.01)	***	-0.04 (0.02) *
Number of observations	20540		
F test for fix effect	36.09		
Hausman test fix vs. random effects	84.51		
R²	0.50		

Note: All parameters estimated jointly. ***(**, *) = significant at the 0.1 (1, 5) per cent level. Numbers between brackets are standard deviations of parameters. F test for differences between 1980's and 1990's: 4.75.

Source: Author's estimates.

3. Stylised facts on bilateralism effect

The predominant role played by the export intensity variable in the bilateral donor allocation equation discussed in the previous section suggests that the bilateralism behaviour introduces large distortions in aid allocation decisions, and that such distortions are principally in favour of the major trade partners of the donors, instead of in favour of their former colonies. Notably, most former French and British colonies that are located in Africa are small trade partners, for all donors, and for this reason, receive relatively little assistance, when all other factors are controlled for. The objective of this section is to substantiate this conclusion through a quantitative assessment of the “bilateralism” effect. To do so, we attempt to infer from the parameters estimated in Section 2 some stylised facts about the magnitude of biases in bilateral aid allocation that are due to self-interested behaviours.

3.1. Methodology

Deriving precise consequences of the bilateralism bias on geographical aid distribution among developing countries from our equation is difficult for three reasons.

First, the log-linear specification of our equation does not permit a direct computation of the amount of assistance that could be considered as given for commercial purposes vs. for non-commercial purpose. Our parameters define multipliers that apply to aid allocation flows. “Netting-out” such multipliers, i.e. computing notional aid flows such as:

$$\ln(\text{aid})_{ijt} - 0.39 * \left[\ln(\text{export ratio})_{ijt} - \overline{\ln(\text{export ratio})_{i,t}} \right]$$

would lead to total notional aid flows vastly different for observed total aid flows.¹² In other words, such simulations of the allocation equation are relevant for studying the structure of distribution of aid flows, but not their absolute levels.

Second, if we were able to define estimates of amounts of aid that would be mechanically linked to bilateral preferences granted to some recipient countries, this would leave open the question of selection of the recipient countries: if the trade intensity variable (or any other donor self-interest variable) changed, this would also affect the probability of the various potential recipients to be actually selected by donors; only stochastic simulations, which would be quite heavy given the number of observations considered, would provide an accurate way of measuring (on average) the amount of assistance a country would receive in the absence of bilateralism.

Third, for some observations, we cannot estimate the bilateralism effect, due to absence of data (notably when the bilateral aid flow is nil, or when there is no bilateral trade flow)—and in such cases we can only assume that this effect is negligible.

With these caveats in mind, we only attempt to provide a crude approximation of the bilateralism effect, defined as follows.

The first step is to assess the aggregate influence of bilateral variables on the bilateral aid structure. It consists of computing the notional amount of aid that recipients would receive assuming that the trade intensity variable be equal to its average, and that the bilateral dummy variables be equal to zero.

¹² This is technically due to two main reasons: first, the geometric average of aid flows differs to a large extent from its arithmetic average; and second, the average of aid flows per capita weighted by population size differs to a large extent from its un-weighted average.

$$\ln(aid)_{ijt} - 0.39 * \left[\ln(export\ ratio)_{ijt} - \overline{\ln(export\ ratio)_{i,t}} \right] - \sum_j \alpha_j D_{ij},$$

where the D_{ij} are the bilateral post-colonial and regional dummy variables and α_j the parameters attached to such variables. This notional amount is equalized with the actual amount, when there is no observable bilateral aid or trade flow.

Then, we make the assumption that total aid flows should not be affected by the netting-out of bilateral variables. This simply amounts to multiplying all notional aid flows just defined by a scalar, determined so as to ensure that the total flow of aid net the bilateralism effect is equal to the actual total flow of aid commitments. The result is what we call the aid commitments that would be received in the absence of bilateralism.

The final step consists in computing the bilateralism effect as the difference between actual aid commitments and the commitments that would be received in absence of the bilateralism just defined.

3.2. Results

The results suggest that very large amounts of aid are linked to decisions based on purely bilateral criteria. Some countries would receive much more assistance in the absence of bilateralism, other would receive much less. The common received wisdom is that former colonies would receive less assistance. However, this is not the case, consistently with our previous findings, saying that trade linkages matter more than geopolitical linkages. The main trade partners of donors, instead of their former colonies, are, all in all, the biggest beneficiaries of bilateralist behaviours.

Consequently, as shown in Table 3, sub-Saharan Africa is the region that loses the most from bilateralism bias, while the biggest winners are Asia and the MENA region. In the absence of bilateralism, 40 African countries (out of 48) would receive more assistance than they do and the total bilateral aid allocation to Africa would be about doubled. Symmetrically, aggregated aid flows to Asia and the MENA region would be reduced by about fifty per cent. Although such figures are only raw approximations, they certainly suggest that the bilateralist behaviours play a major role in aid allocation.

Table 3. Approximation of the influence of the bilateralism effect on aid distribution (average 1981-1999, in 1985 USD billion)

	No. of count.	Aid actually received (USD b)	Aid net of bilateralism (USD b)	Balance (USD b)
Recipients with positive effect of bilateralism				
Africa	8	1.2	0.8	0.3
Asia	11	7.7	2.9	4.9
Latin America	16	2.1	1.2	0.5
MENA	10	3.5	1.2	2.3
Transition	1	0	0	0
Recipients with negative effect of bilateralism				
Africa	40	5.2	11.0	-5.6
Asia	17	0.8	2.1	-1.3
Latin America	16	0.8	1.2	-0.4
MENA	6	0.4	0.7	-0.3
Transition	12	0.3	0.7	-0.4
Total				
Africa	48	6.4	11.8	-5.3
Asia	28	8.5	5.0	3.6
Latin America	32	2.9	2.4	0.1
MENA	16	3.9	1.9	2.0
Transition	13	0.3	0.7	-0.4

Source: Author's estimates.

4. Aid allocation behaviour of the EC and multilaterals

4.1. Choice of dependent and explanatory variables

We have decided to treat the group of multilateral donors (save for the EC) as one single donor. Beyond the analytical reasons given in the introduction, this choice also has some practical advantage. It would be difficult to estimate proper aid allocation equations for individual multilateral donors, because we would not have enough strictly positive observations to estimate, within our methodological framework, equations that would be immune to sample-selection bias. Most of these donors, save for IDA, allocate relatively small amounts of

ODA, and are geographically specialized, which limits the number of recipients that can benefit from their assistance. Even the IDA, although not geographically specialized, is specialized on only financing poor income countries. As a consequence, the IDA aid allocation concerns a maximum of about 50 recipients per year. Conversely, almost all potential recipients (in the OECD/DAC list of developing countries) receive some assistance from at least one multilateral donor, which solves the sample selection problem when one considers the aggregate of multilateral flows, because there are then very few nil observations.

Apart from that choice of aggregation, the methodology is comparable to that used for bilateral aid in Section 2. We test the same recipients' needs and merits variables as in the bilateral aid equation, with the obvious exception of multilateral aid flow, which is here the dependent variable in the multilateral aid equation. Yet our aid allocation equation for the EC and the multilaterals necessarily differs from the bilateral equation, for two reasons.

First, since we work with a two-dimension (recipient, year) panel only, rather than with a three-dimension (donor, recipient, year) panel, we do not have any bilateral dummy explanatory variable. Consequently, the effects of geopolitical and historical characteristics of recipients cannot be separated from fixed effects.

Second, the commercial interest variable that we previously used has no equivalent in the EC and multilateral aid allocation equations. By definition, the commercial interest of the consolidated shareholder of multilateral aid agencies is a meaningless concept for a self-interest variable. We can test, however, whether specific influential shareholders of multilateral agencies have more say than others in decisions, through an analysis of the correlation of EC or multilateral aid allocations with the export intensity variables of their principal shareholders. We have done such tests for the biggest donor countries, whose weight in the decision processes could in some circumstances be considered high enough to influence the multilateral decisions. To do this, we have introduced in the list of possible explanatory variables the bilateral export intensity variable of France, Great Britain, Germany, Italy, Japan and US with aid recipients.

We have obtained relatively few results, in comparison with what we obtained for the bilateral aid allocation equation, but such results provide a reasonably clear image of what factors influence, or do not influence, the EC's and multilateral aid allocation decisions.

4.2. Equation for the EC's aid

The most striking result regarding the EC's aid is that neither recipient needs nor recipient merits play any significant role in explaining the EC's aid allocation decisions (Table 4). The GDP per capita variable has, as expected, a negative parameter, but it is small and non-significant. The only recipient merit variable that is significant, although only at the 5 per cent level, is the conflict dummy, which has, as in the bilateral aid equation, a negative sign.

What then, besides control variables (population, total EC's aid), explains aid allocation of the EC? Two variables seem relevant. First, fixed effects explain a large share of the variance of aid allocation. We may expect that such fixed effects catch the special relationship that has been built between the EU and the ACP countries since the 1970's. This will be further explored in the next section. Second, the EC's aid allocation is significantly and positively correlated with British commercial interests. This might suggest that, among the myriad of lobbyists who attempt to influence decision processes within the EC, those who defend British interests are more effective than others. We do not find any similar result for any of the other big players within the European Union. This observation might also be related to the relatively strong bargaining power held by Great Britain within the European Union (e.g. concerning its contribution to the EC's budget). When we introduce either simultaneously (as shown in first column) or separately trade interest variables for France, Germany or Italy, which are the other three major members of EC, we obtain insignificant parameters, even at the 10 per cent level (while the parameter for Great Britain remains significant), and with the wrong sign for France and Germany.

Table 4. Parameter estimated for the EC aid equation

Explanatory variable	Estimated parameter(1)		Estimated parameter(2)		Standard deviation of variable(3)	Effect of a change of variable of one-stand. deviation(3)
Recipient needs					-0.17	
GDP per capita	-0.18 (0.12)		-0.23 (0.27)		0.78	-0.18
Debt ratio	-0.05 (0.09)		-0.07 (0.08)		0.88	-0.06
Recipient merits					0.19	
democracy dummy	0.08 (0.10)		0.09 (0.10)		0.5	0.04
conflict dummy	-0.31 (0.12)	*	-0.32 (0.12)	*	0.42	-0.13
Aid of multilaterals	0.08 (0.04)		0.08 (0.04)		1.58	0.26
Self-interest of bilaterals					0.29	
Great Britain	0.16 (0.08)	*	0.15 (0.07)	*	1.89	0.29
France	-0.02 (0.06)					
Germany	-0.02 (0.05)					
Italy	0.06 (0.05)					
Control variables						
Population	-1.02 (0.38)	**	-1.00 (0.37)	**	1.73	-1.73
Total aid donor	1.29 (0.12)	***	1.30 (0.12)	***	0.36	0.47
Recipient fixed effect					1.22	
Dependent variable					2.07	
No. of observations	1481		1479			
F test for fix effect	10.76		8.52			
Hausman test	21.87		23.55			
R ²	0.10		0.10			

Notes: ***(**, *) = significant at the 0.1 (1, 5) per cent level. Numbers between brackets are standard deviations of parameters. (3) Computation based on equation reported in column (2).

Source: Author's estimates.

4.3. Equation for multilateral aid

Contrary to what we did for other aid flows, the multilateral aid flow is an aggregate of assistance provided by different donors, principally the concessional windows of the World Bank (IDA) and regional development banks. Therefore, the results reported in Table 5 should not be over-interpreted, particularly regarding negative results, which could be due to heterogeneity among multilaterals.

Recipient needs here play a major role, with significant parameters both for the GDP per capita and the debt ratio. Moreover, the parameters are very close to those estimated for bilateral donors and therefore, in this respect, there is a convergence of behaviours among bilaterals and multilaterals, which is consistent with our assumption that the multilateral donor decisions are essentially influenced by the choices made by their principal shareholders.

Recipient merits do not play any role in our estimation, however, which is certainly a limitation. If we had the CPIA data, we could attempt to check whether the multilateral aid allocation decisions are consistent with the World Bank's assessment of the quality of policies and institutions of the recipients.

The lack of significant results for the democracy and conflict dummy variables is puzzling. This might be due to heterogeneity. However, this finding might also be considered consistent with the common wisdom saying that multilateral agencies cannot interfere with internal political affairs of their recipient countries, which are also part of their membership. For instance, reducing the aid budget in reaction to signs of deterioration of political governance, such as political instability and reduced political freedom, may be considered as interference in domestic political affairs by governments in recipient countries ; the multilaterals therefore have less freedom than bilaterals to adapt their aid allocation decisions to the political situation in recipient countries.

Various attempts at testing the influence of commercial interests of the principal shareholders of the multilateral agencies have shown that multilateral aid allocation is significantly correlated with US commercial interests. This suggests that the US have a predominant decision power in multilateral agencies, which is consistent with findings by Fleck and Kilby (2006), who have found that US commercial interests significantly influence financial flows by the World Bank to developing countries.

**Table 5. Parameter estimated for the multilateral aid
aggregate equation**

Explanatory variable	estimated parameter (1)		estimated parameter(2)		standard deviation of variable(3)	effect of a change of variable of one-standard deviation (3)
Recipient needs					-0.7	
GDP per capita	-0.79 (0.17)	***	-0.79 (0.22)	***	0.8	-0.63
Debt ratio	0.16 (0.04)	***	0.17 (0.05)	***	0.88	0.15
Recipient merits					0.03	
Democracy dummy	0.04 (0.06)		0.04 (0.06)		0.5	0.02
Conflict dummy	-0.05 (0.07)		-0.05 (0.07)		0.42	-0.02
Self-interest of bilaterals					0.27	
USA	0.09 (0.03)	**	0.08 (0.03)	*	2.49	0.20
Japan	0.14 (0.04)	***	0.07 (0.03)	*	2.25	0.16
France	-0.14 (0.05)	**				
Germany	0.04 (0.04)					
Great Britain	0.04 (0.04)					
Italy	0.04 (0.04)					
Control variables						
Population	-1.13 (0.24)		-1.26 (0.22)	***	1.71	-2.15
Total aid of donor	1.46 (0.14)		1.48 (0.14)	***	0.18	0.27
Recipient fixed effect					1.60	

Notes: ***(**, *) = significant at the 0.1 (1, 5) per cent level. Numbers between brackets are standard deviations of parameters. (3) Computation based on equation reported in column (2)

Source: Author's estimates.

Table 5. Continued....

Explanatory variable	estimated parameter (1)	estimated parameter(2)	standard deviation of variable(3)	effect of a change of variable of one-standard deviation (3)
Dependent variable			1.58	
number of observations	1507	1510		
F test for fix effect	10.14	10.76		
Hausman test	46.06	33.90		
R ²	0.28	0.27		

Notes: ***(**, *) = significant at the 0.1 (1, 5) per cent level. Numbers between brackets are standard deviations of parameters. (3) Computation based on equation reported in column (2)

Source: Author's estimates.

We also find that multilateral aid is significantly influenced by Japanese commercial interests, although with a slightly smaller parameter than for the US. This result must be interpreted with caution, since it might be influenced by the fact that most multilaterals, notably the World Bank, insist on the necessity to assist good performers, which are mostly Asian countries.

Conversely, we find no significant positive influence of commercial interests of the other major developed countries (France, Germany, Italy and Great Britain). This is illustrated in the first column of Table 5.¹³

Finally, the recipient fixed effects play a major role here, similarly to what we have found for other donors.

5. Stylised facts on fixed effects

The bottom-line of our analysis in this final section is that if fixed effects can be considered as resulting from the influence of unobservable institutional factors on aid decisions, we should observe a corre-

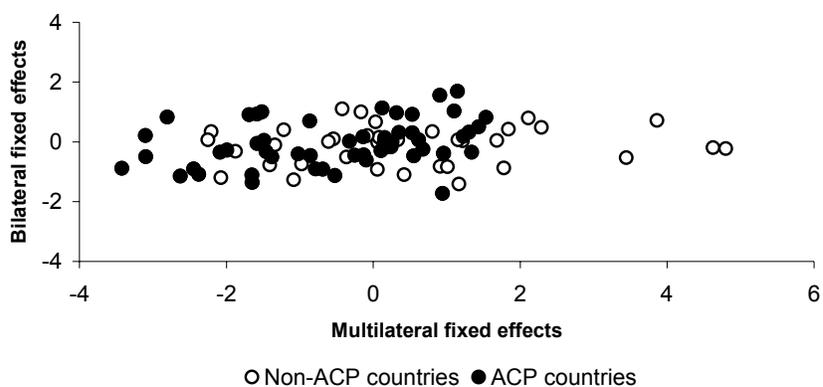
¹³ In Table 5, first column, we report a significantly negative parameter for France, but this result is not robust to changes of specification.

lation between fixed effects of the different categories of donors, assuming that all of them care about such factors.

Figure 2 suggests that bilateral aid fixed effects are only modestly correlated with multilateral aid fixed effects. Figure 3 shows a stronger correlation between multilateral and EC's aid allocation patterns. Moreover, Figure 3 shows that the ACP countries have much higher fixed effects than the other recipients in the EC aid allocation equation, which reflects the preference that the European Commission gives to ACP countries.

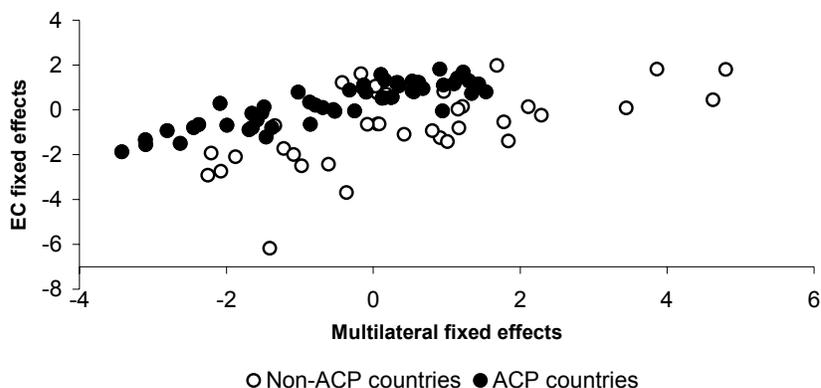
To study the relations that may exist between fixed effects of the various types of donors, we also need to take into account, as a control variable, the average population size of the recipients, given that fixed effects cannot be fully independent of population size (as already mentioned). Table 5 reports the corresponding equations.

Figure 2. Fixed effects of multilateral and bilateral allocation equations



Source: Author's estimates.

Figure 3. Fixed effects of multilateral and EC allocation equations



Source: Author's estimates.

Table 6 shows that fixed effects of the multilateral aid equation play a significant role for explaining both the fixed effects of the bilateral aid equation and the fixed effects of the EC aid equation. With respect to the EC fixed effect equation, we also obtain a very high and significant parameter associated with the ACP dummy variable. This is consistent with previous findings, e.g., Grilli and Riess (1992). The average aid allocation received by a typical ACP recipient from the European Commission is multiplied by close to 5 ($\approx e^{1.61}$) by the mere fact that it is a member of the ACP group. Conversely, neither the ACP dummy nor any other geographical dummy contributes to explain the fixed effects of the bilateral aid equation.

The fact that the ACP dummy variable is a major determinant of the fixed effects of the EC aid equation implies that EC's aid is geographically biased in favour of ACP countries. This partially compensates the negative bias previously observed against ACP countries (and against Africa through the influence of the commercial interest variable) in bilateral aid allocation. However, given that EC's aid is much smaller than total bilateral aid, this reverse bias does not reverse the bias against Africa in the overall geographical distribution of development assistance to recipient countries. This is illustrated in Table 7 below, where we have computed EC flows net of bilateral bias (i.e.,

net the influence of the ACP dummy and British commercial interests) with the same methodology as in Section 3.

Table 6. Equations of fixed effects of bilaterals and EC

Dependent variable	Fixed effect bilaterals	Fixed effect EC
Explanatory variable		
Fixed effect multilateral equation	0.37*** (0.11)	0.44** (0.14)
ACP dummy		1.61*** (0.23)
Population	-0.05 (0.08)	0.26* (0.11)
Intercept	0.62 (1.23)	-5.09*** (1.83)
number of observations	90	90
R²	0.25	0.51

Notes: ***(**, *) = significant at the 0.1 (1, 5) per cent level. Numbers between brackets are standard deviations of parameters.

Source: Author's estimates.

For the sake of completeness, we have performed the same exercise for multilateral aid (Table 8). In Table 8, the multilateral aid flow net of bilateralism is computed by netting-out the influence of the US and Japan's commercial interests on multilateral assistance decisions. Here, there are positive biases in favour of Asia and Latin America at the expense of Africa. Again, the magnitude of such bias is small compared to the bilateralism effects reported in Table 3.

Table 7. Approximation of the influence of the bilateralism effect on EC aid distribution (average 1981-1999, in 1985 USD billion)

	Number of countries	Aid actually received (USD b)	Aid net of bilateralism (USD b)	Balance (USD b)
<i>Recipients with positive effect of bilateralism</i>				
Africa	48	1.2	0.6	0.6
Asia	6	ε	ε	ε
Latin America	17	0.1	0.1	ε
MENA	0	0.0	0.0	0.0
Transition	1	ε	ε	ε
<i>Recipients with negative effect of bilateralism</i>				
Africa	0	0.0	0.0	0.0
Asia	22	0.3	0.5	-0.2
Latin America	15	0.1	0.2	-0.1
MENA	16	0.4	0.6	-0.2
Transition	13	0.1	0.2	-0.1
<i>Total</i>				
Africa	48	1.2	0.6	0.6
Asia	28	0.3	0.5	-0.2
Latin America	32	0.2	0.3	-0.1
MENA	16	0.4	0.6	-0.2
Transition	14	0.1	0.2	-0.1

Source: Author's estimate.

Table 8. Approximation of the influence of the bilateralism effect on EC aid distribution (average 1981-1999, in 1985 USD billion)

	Number of countries	Aid actually received (USD b)	Aid net of bilateralism (USD b)	Balance (USD b)
Recipients with positive effect of bilateralism				
Africa	9	0.4	0.2	0.2
Asia	12	3	2.3	0.7
Latin America	22	0.5	0.3	0.2
MENA	10	0.3	0.3	ε
Transition	1	ε	ε	ε
Recipients with negative effect of bilateralism				
Africa	39	2.7	3.5	-0.8
Asia	16	0.4	0.6	-0.2
Latin America	10	0.2	0.3	-0.1
MENA	6	0.2	0.3	ε
Transition	12	0.1	0.1	ε
Total				
Africa	48	3.1	3.7	-0.6
Asia	28	3.4	2.9	0.5
Latin America	32	0.7	0.6	0.1
MENA	16	0.5	0.6	ε
Transition	13	0.1	0.1	ε

Source: Author's estimate.

6. Conclusion

In this paper, we have shown that the “needs”, “merits” and “self-interest” factors have very different explanatory power in the analysis of aid allocation behaviours. Recipient merits play a minor role in all equations, although their influence is very significant in the bilateral aid equation. Bilateral aid is very sensitive to the self-interest of donors. A netting-out of the bilateralism effect, as reflected in our computation of bilateral aid flows that would be observed in the absence of bilateralism, would imply about a doubling of the assistance to Africa. This result, which is at odds with previous assessments saying that aid is principally influenced by colonial legacy, in favour of Af-

rica, reflects the very high component of commercial interests in the bilateralism effect. Of course, there are differences among donors, but when we allow each donor to have specific parameters, those that are significantly less influenced by commercial interests than the average are a minority of (principally Nordic) countries, whose weight in total aid flows is rather small: the big players (France, Japan, UK and US) all have quite high parameters for the trade intensity variable. Finally, the role of trade interests has accordingly declined in the 1990's, compared to the 1980's, but only by about 15 per cent.

EC's and multilateral aid allocations are not themselves immune to the influence of donor self-interest variables, since British commercial interests influence the former, and US commercial interests influence the latter. We also find a significant influence of Japanese commercial interests on multilateral aid flows.

Curiously, the EC aid allocation is apparently insensitive to recipient needs, at least when such needs are measured by income per capita and indebtedness. This contrasts strikingly with what we observe for bilateral aid, and for multilateral aid as well, which are very significantly influenced by these variables. The main factor influencing EC aid allocation is geopolitical: it reflects the preferential treatment granted by the EC to ACP countries. A counterpart to this is that European bilateral aid agencies allocate relatively less assistance to ACP countries (save for their former colonies in the cases of Belgium, France, Great Britain and Portugal).

Finally, in all aid allocation equations, the fixed effects play a significant role. The fact that such fixed effects for the different equations are correlated among themselves is consistent with the assumption that they capture the influence of some unobservable institutional characteristics of the recipients.

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Appendix 1. Sources and definitions

Variable	Definition	Source
aid	Real ODA (OA) Commitments divided by the population of the recipient country, using the OECD GDP deflator	OECD Development Aid Committee database (international development statistics) and OECD national account statistics
Total aid donor	Total real ODA of the donor (totalled over the 137 recipients)	Author's own calculation
Aid multilaterals	Real ODA (OA) Commitments of non-EC multilateral donors divided by the population of the recipient country, using the OECD GDP deflator	OECD Development Aid Committee database (international development statistics) and OECD national account statistics
gdp per cap	Real GDP Per Capita in constant dollars (international prices, base year 1985) of the recipient countries	Penn World Tables
Population	Population, total	World Bank's World Development Indicators
Export ratio	Bilateral exports to recipient in per cent of donor's GDP	OECD trade database
Democracy	Mean of civil liberties and political right indexes, ranging from 1 (most free countries) to 7 (less free countries)	Freedom House website. See Berthelemy (2006) for transformation in a dummy variable
Interstate conflict	Dummy variable for non-minor interstate conflict	International Peace Research Institute, Oslo
Internal conflict	Dummy variable for non-minor interstate conflict	International Peace Research Institute, Oslo
Debt ratio	Ratio of net present value of debt over export	Data provided by Bill Easterly – see Easterly (2001)

