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Why Donors of Foreign Aid Do Not Coordinate: The Role of Competition for Export Markets and Political Support*

Andreas Fuchs, Peter Nunnenkamp, and Hannes Öhler

Abstract:

Development assistance has been criticized for a lack of coordination between aid donors. This paper argues that competition for export markets and political support prevents donor countries from closer coordination of aid activities. To test these hypotheses, we perform logit and fractional logit estimations for a large sample of recipient countries and aid activities since the early 1970s. Our empirical results reveal that export competition between donors is a major impediment to aid coordination. Though less conclusive, we also find some evidence that donors' competition over political support prevents them from coordinating aid activities more closely.

Keywords: Development aid, donor coordination, trade interests, export similarity, UN voting

JEL classification: F35; F42; F53

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1. Introduction

Recent research suggests that the donor countries of the OECD's Development Assistance Committee (DAC) have failed to coordinate their aid activities. Aldasoro et al. (2010) provide descriptive statistics pointing to persistent aid duplication. Frot and Santiso (2011) find evidence for herding among donors by employing herding measures inspired by the financial literature. The regression analyses of Nunnenkamp et al. (2013) indicate that coordination among donors has even weakened since the Paris Declaration in March 2005. The OECD-DAC's own monitoring of donor behavior acknowledges that "little progress has been made among donors to implement common arrangements or procedures and conduct joint missions and analytical works" (OECD 2011: 16).

These findings tend to corroborate the verdict of Chandy (2011) that commitments are regularly professed but rarely fulfilled in international development cooperation. Donors promised in the Paris Declaration to render aid more effective by eliminating the duplication of activities, specializing according to comparative advantages, and agreeing on a division of labor (OECD 2005). The persistent failure to close the gap between words and deed causes "huge administrative costs for both recipients and donors from the duplication of donor efforts and their failure to coordinate their efforts with each other" (Easterly 2007: 639-640; see also Knack and Rahman 2007).

As noted by Easterly (2007), complaints about lacking donor coordination go back as far as the report of the Pearson Commission (1969). Regularly repeating calls for closer cooperation, such as in the recent report of the Commission for Africa (2005) and in the Accra Agenda for Action of 2008,¹ is unlikely to have much effect unless it is known why earlier

¹ The Accra Agenda for Action called on donors and recipients "to ensure the maximum coordination of development co-operation" (paragraph 17; <http://siteresources.worldbank.org/ACCRAEXT/Resources/4700790-1217425866038/AAA-4-SEPTEMBER-FINAL-16h00.pdf>, accessed: January 2013).

promises have been broken. All the more surprisingly, possible explanations for the lack of donor coordination have received only scant attention in the previous literature.²

To close this gap, this paper builds on the literature on the allocation of bilateral aid across recipient countries. Various contributions to this strand of the aid literature have shown that aid allocation is determined at least partly by commercial and political self-interests of particular donor countries. For instance, Berthélemy (2006) classifies major donors such as France, Japan and the United States to be egoistic donors as their aid allocation is influenced by trade-related interests.³ The earlier study of Alesina and Dollar (2000: 33) provided evidence that “the direction of foreign aid is dictated as much by political and strategic considerations, as by the economic needs and policy performance of the recipients.”⁴

The major contribution of this paper is that we assess empirically whether commercial and political self-interest has also worked against closer coordination among donor countries. We focus on the aid allocation behavior of the five major donors of the OECD-DAC – France, Germany, Japan, the United Kingdom and the United States – since the early 1970s. In particular, we test the hypothesis that closer donor coordination of aid activities is prevented by competition among donors for export markets and political influence on the recipient countries. In addition to the overall importance of recipient countries as export markets for pairs for donor countries, we consider the similarity of the donor pair’s export structure as an indicator of export competition. Political competition is captured by voting patterns in the United Nations General Assembly, as detailed in Section 3. We also account for various characteristics of recipient countries that may affect donor coordination.

² Frot and Santiso (2011) identify some determinants of herding, including the per-capita income of recipient countries, democratic transitions in these countries as well as natural disasters. However, Frot and Santiso do not consider the commercial and political self-interests of donor countries. Nunnenkamp et al. (2013) account for donor characteristics such as export orientation and political clout. However, Nunnenkamp et al. do not assess the determinants of donor coordination or, conversely, donor competition at the level of individual recipient countries. Roodman (2006) develops a theoretical model of competitive proliferation of aid projects. It is shown that, in particular, small donors who are imperfectly altruistic, in the sense of caring most of the success of their own projects, tend to proliferate and subdivide their aid budgets into smaller projects in order to attract local resources in the recipient country away from other donors.

³ Dreher et al. (2013) find that commercial motives matter for the allocation of German aid, too.

⁴ See also Kuziemko and Werker (2006).

Indeed, our empirical results reveal that export competition between donors is a major impediment to aid coordination. Though less conclusive, we also find some evidence that donors' competition over political support prevents them from coordinating aid activities more closely. We proceed as follows. Section 2 discusses ways to quantify donor coordination in a cross-country study. In Section 3, we present our hypotheses and introduce our explanatory variables. While Section 4 specifies our empirical estimation strategy and the datasets employed, Section 5 discusses our main results and robustness checks. Finally, we summarize our findings and conclude in Section 6.

2. Measures of donor coordination

The degree of donor coordination is difficult to measure. The OECD-DAC's own monitoring of the implementation of the Paris Declaration largely relies on qualitative survey results on indicators such as "strengthening capacity through coordinated technical support," "use of common arrangements and procedures," "joint missions," and "joint country analytical work."⁵ These survey results are not suitable for being used in the subsequent empirical analysis: they are available only for the most recent past; a limited number of recipient countries participated in the surveys; and the results are not differentiated between donor-recipient pairs.

The academic literature has employed two approaches to quantify the degree of donor coordination over a longer period of time. The first approach focuses on collective donor reactions to specific events in the recipient countries. Frot and Santiso (2011: 59) measure herding in aid allocation by the proportion of donors increasing their aid to a particular recipient country in a particular period: "the basic idea of the measure is that when there is no herding, aid increases and decreases are randomly distributed." A disadvantage is that the herding measure does not account for aid quantities, i.e., co-movements may involve large

⁵ See OECD (2011) for details and the complete list of indicators used in monitoring progress in implementing the Paris Declaration.

increases in aid from some donors and small increases in aid from other donors. Furthermore, the herding measure captures collective behavior, while it hardly reveals the degree of coordination between particular pairs of donors.⁶

The second approach compares the aid portfolios within pairs of donor countries and uses the similarity or overlap of portfolios as a proxy of donor coordination. More precisely, greater similarity or larger overlaps in the allocation of aid across recipient countries i in period t by a pair of donors $d1$ and $d2$ are assumed to reflect less coordination by this pair of donors.⁷ Donor coordination is, thus, meant to imply that donors specialize by concentrating on a smaller and diverse set of aid recipients. By doing so, they avoid duplication of aid efforts in the same set of recipient countries at a particular point in time and help reduce the bureaucratic burden of recipient countries.

We build on the second approach in the subsequent empirical analysis. We define donor coordination at the level of particular recipient countries, instead of providing a summary assessment across all recipient countries as in Nunnenkamp et al. (2013). Furthermore, we proceed in two steps and specify two alternative dependent variables supposed to capture donor coordination. In the first step, we consider a dummy variable which is set to one if both donors of a pair grant any aid to a particular recipient in a particular year. We take it as a signal of uncoordinated aid efforts if both donors are active and the dummy variable takes the value of one. In the second step, we take account of the amount of aid allocated by the pair of donors to recipient country i . Specifically, we define the aid ratio (AR) for the donor pair $d1$ and $d2$:

$$AR^{d1,d2,i,t} = \text{Min}(aid^{d1,i,t}; aid^{d2,i,t}) / \text{Max}(aid^{d1,i,t}; aid^{d2,i,t}) \quad (1)$$

⁶ Similarly, the aid accelerations identified by Brück and Xu (2012) are based on collective donor reactions to specific events in the recipient countries. However, Brück and Xu also show that the aid accelerations based on total aid flows mask “a diverse range of counteracting allocation rules” (p. 602).

⁷ For details, see Aldasoro et al. (2010) and Nunnenkamp et al. (2013). It should be noted that this approach fails to capture donor coordination through co-financing common baskets that are managed by one lead donor. However, progress with respect to pooling of donor resources and agreeing on lead donors and silent partners appears to be slow (Bigsten 2006; OECD 2011; Wood et al. 2011).

with $aid^{d1,i,t}$ ($aid^{d2,i,t}$) representing the share of aid to recipient i in donor country $d1$ ($d2$)’s overall aid budget in period t . AR ranges from zero to one. The measure takes the value of zero when at least one donor in a pair is not active in recipient country i at time t .⁸ Aid from two donors is considered to be perfectly coordinated when one donor is not active in the recipient country. At the other extreme, AR is one when both donors of a pair grant the same share of their overall aid budget to recipient country i at time t . In other words, both donors attach the same importance to a particular recipient country. Taken together, we suppose that higher values of AR reflect weaker coordination within a pair of donors. The example of the aid ratio of the United States and Japan, the 1971-2008 average of which is portrayed in Figure 1, indicates that AR varies considerably between recipient countries, even within regions such as Sub-Saharan Africa. As can be seen from Table 1, the top-5 aid recipients vary considerably between the major DAC donors. Twelve recipient countries appear on the list of just one donor; only two recipient countries (Egypt and India) belong to the top-5 for more than two donors.

3. Hypotheses

a. Economic and political competition within donor pairs

The literature on bilateral aid allocation has often assumed implicitly “that when a donor makes its ODA allocation it does not consider the ODA that recipients receive from other sources” (Trumbull and Wall 1994: 877). Trumbull and Wall continue and argue that donors take into account what other donors are doing, and donors “may actually act cooperatively.” Some recent studies have addressed this possibility by including aid from other donors among the determinants of bilateral aid allocation by particular donors.⁹ Berthélemy (2006) reports

⁸ More precisely, AR is undefined according to equation (1) in case both donors of a pair are not active in recipient country i at time t . To avoid the loss of observations, we set the indicator to zero in this case. Note that we exclude these observations in one of the robustness tests in order to assess whether this choice has a significant impact on the results (see Section 5).

⁹ Katada (1997) assesses the links between Japanese and US aid to Latin American countries.

ambiguous results for this variable: the sign on aid from other donors switches from positive to negative once recipient-country fixed effects are taken into account. According to the GMM regression results of Davies and Klasen (2011), aid from other donors tends to crowd in bilateral aid, even though the effect is quantitatively rather small. Likewise, Powell and Bobba (2006) find that bilateral aid is positively associated with the number of other donors being active in the recipient country.

Davies and Klasen (2011: 12-13) conclude that cartel-like donor behavior, joint interests and/or a general move toward aid selectivity are more relevant empirically than “free-riding in the provision of a global public good or true donor coordination.” The reasoning of Powell and Bobba (2006) and Barthel (n.d.) is more closely related to our analysis below. Powell and Bobba (2006: 8) explicitly refer to strategic behavior of donors and competition for favors from a recipient country in “the form of political support in international dealings or purchasing equipment or services from donor countries’ firms.”¹⁰ In contrast to Powell and Bobba (2006) and Barthel (n.d.), we attempt to capture competition among donors directly, by introducing specific variables proxying for political support and commercial interests.

Specifically, we hypothesize that commercial and political competition within pairs of donors results in overlapping aid activities and weak coordination at the level of recipient countries. As concerns commercial competition, the finding of Berthélemy (2006) and various other studies that major donors allocate aid preferably to where they have trade interests does not necessarily imply that donors have competing interests in all recipient countries. Arguably, the likelihood that the competition of donors for export markets undermines the coordination of aid efforts at the level of recipient countries depends on two major factors: the regional distribution of the donor’s exports and the sectoral structure of the donor’s exports.

¹⁰ Barthel (n.d.) argues that the degree to which the allocation behavior of one donor influences that of another donor may depend on economic, political and military ties between the two particular donors and the recipient countries. Hence, Barthel constructs alternative weighting matrices to account for different channels through which spatial dependence may work.

The regional distribution of exports differs considerably between the major donor countries. Table 2 shows that the top-5 export destinations of all five major DAC donors comprise 17 different recipient countries. Twelve of these recipient countries appear on just one list, and only China and Turkey belong to the top-5 export destinations for more than two donors.

Against this backdrop, our first indicator of export competition between a pair of donors $d1$ and $d2$ in recipient country i at time t is defined as $\text{Min}(X^{d1,i,t}; X^{d2,i,t}) / \text{Max}(X^{d1,i,t}; X^{d2,i,t})$, with X representing the share of exports to recipient i in donor country d 's overall exports. A larger value of this ratio reflects more similar export interests in a recipient country.¹¹ Figure 2 portrays this ratio across recipient countries by taking the pair of the United States and Japan as an example. The export ratios for this pair tend to be higher in large parts of Africa and South Asia than in Latin America as well as East and Southeast Asia. We hypothesize:

H1: Pairs of donors are unlikely to coordinate their aid efforts in recipient countries which are of similar importance to exporting firms based in the two donor countries.

Similar to the regional distribution of exports, there are considerable differences between the major donors in terms of the sectoral specialization of their exports. We calculate an export similarity index by following the seminal contribution of Finger and Kreinin (1979). Specifically, our second indicator of export competition between a pair of donors $d1$ and $d2$

in recipient country i at time t captures the similarity of the sectoral export structure: $\sum_{s=1}^n \text{Min}(X_s^{d1,i,t}; X_s^{d2,i,t})$, with X_s representing donor d 's exports to recipient country i in the product division s as a share of the donor's total exports to recipient country i in period t . Note that s

¹¹ A high value of this ratio may also reflect that both countries are equally disinterested in a particular recipient country. We control for this possibility by adding the average share of a recipient's exports in a donor's total exports to our regression analysis below.

indicates 2-digit codes of the Standard International Trade Classification (SITC Rev. 1). The index ranges from zero to one, with higher values indicating more similar export structures.

Table 3 shows the export similarity index for a pair of donors with the rest of the world. With an index value of 81.6 percent, the export patterns of France and Germany are the most similar over the 1971-2008 period. The export structures of Japan and the United Kingdom are most dissimilar (66 percent). In Figure 3, we once again consider the United States and Japan as an example and compare the similarity in the sectoral structure of both donors' exports across recipient countries. As can be seen, the export structure of the United States closely resembles that of Japan in large parts of Latin America as well as in various South and East Asian countries (including China and India). By contrast, the similarity is much weaker in most African countries. Against this backdrop, we hypothesize:

H2: Pairs of donors are unlikely to coordinate their aid efforts in recipient countries where the sectoral export structure is similar for both donors.

Turning to political competition, it is widely accepted in the literature that individual donors allocate aid in order to buy political support from recipient countries. According to Alesina and Dollar (2000), "UN friends" of major donor countries, in terms of voting compliance in the UN General Assembly, received significantly more bilateral aid. Kuziemko and Werker (2006) find that US aid increases by almost 60 percent once a recipient country joins the UN Security Council as non-permanent member. Dreher et al. (2008) show that US aid has been "effective" in buying votes in the UN General Assembly. In an earlier study, Katana (1997) argued that Japan provided aid to small Latin American countries to improve its chances of joining the UN Security Council as a permanent member.

The existing literature typically ignores that donors may compete with each other for political support by the recipient countries. UN voting patterns are widely considered to proxy for political support in international affairs. Importantly, however, it is likely to depend on a recipient country's voting behavior relative to both donors of a pair whether these donors use

aid as a means to compete for political support by this recipient. Cutrone (2010) argues that competition for political support by a particular aid recipient can be expected when the political preferences, reflected in UN voting patterns, deviate more strongly within a pair of donors than between the recipient country and the two donors.¹² Coordinated aid efforts are then unlikely as each donor would try to divert the recipient's political support from the other donor. By contrast, donors who are positioned on the same side of the policy space, reflected in UN voting patterns relative to the recipient, are more likely to coordinate their aid efforts in this particular recipient country.¹³

Cutrone (2010) finds support for this view by classifying donors as competing or cooperating with the United States and then assessing how bilateral US aid reacts to aid from other (competing or cooperating) donors. However, she does not consider the variable on political competition as a distinct determinant of aid by a pair of donors, as we do in the subsequent analysis.¹⁴ We introduce a dummy variable that takes a value of one if the recipient country is positioned between the two donors of a pair in terms of UN voting. It is set equal to one if the voting coincidences in the UN General Assembly between each of the two donors and the recipient are both larger than the voting coincidence between the two donors themselves. On the other hand, it is set to zero if the voting coincidence between at least one of the two donors and the recipient is smaller than the voting coincidence between the two donors. Table 4 shows the number of recipient countries that are situated between a donor pair per three-year period. While there has been a relatively strong voting alignment between the United States and Western Europe during the Cold War, the transatlantic partners

¹² For instance, a closer inspection of UN voting patterns reveals that the political preferences of transition countries after the regime change in Central and Eastern Europe have frequently been located between the political preferences of the two donors of a pair (see also Table 4 below).

¹³ Zimbabwe may provide a case in point here: UN voting patterns suggest that none of the major donors competed for political support by this recipient country in the recent past.

¹⁴ Nor does she consider any other aid determinant, except for aid from other sources. In particular, she does not account for other aspects of competition among donors. In contrast to Cutrone (2010), we do not concentrate on the United States in the subsequent analysis as our dependent variable relates to pair-wise aid from five major DAC donors.

have moved away from one another since then (see Voeten 2000 for a discussion). We hypothesize:

H3: Pairs of donors are unlikely to coordinate their aid efforts in recipient countries where they compete for political support as reflected in UN voting patterns.

b. Recipient characteristics and donor coordination

In addition to the aforementioned indicators of competition within donor pairs, we consider recipient country characteristics that vary over time, though not across donor pairs. Two of these characteristics can most reasonably be expected to affect the coordination of aid by donor pairs: the endowment of recipient countries with natural resources (proxied by the log of mineral and energy depletion as given by the World Bank) and temporary membership of a recipient country in the UN Security Council.

It is not hard to conceive that the discovery of raw materials in recipient countries and a higher rate of depletion of energy and minerals may undermine the coordination of aid activities. Donor countries interested in getting access to raw materials have incentives to engage where energy and mineral become more easily available. Temporary membership of recipient countries in the UN Security Council offers an attraction to donors with political and strategic self-interests, as the aid allocation literature has shown (e.g., Kuziemko and Werker 2006). At the same time, the coordination of aid activities is likely to weaken, notably when both donors of a pair start aid operations in recipient countries once they join the UN Security Council.

Furthermore, we account for several economic and institutional characteristics of the recipient countries that have been widely used in the literature on aid allocation. This set of variables includes the log of the recipient country's population size, the log of its GDP per capita, the total number of people affected by disasters (in logs), a dummy variable that

indicates whether the recipient country qualifies as a democracy, and its openness to trade (exports plus imports in percent of GDP).¹⁵

Pairs of donors may react uniformly to increased need in a recipient country. For instance, we account for the possibility that both donors of a pair become active in a country once it was hit by a serious natural or man-made disaster. Indeed, Frot and Santiso (2011) have shown that the severity of natural disasters is positively associated with herding of donors. Frot and Santiso use the term “beneficial herding” in this context. In other words, including the disaster variable is required to distinguish collective reactions of donors to increased recipient need in the aftermath of disasters from the effects of competition among self-interested.

We also control for changes in need that may be related to increasing population and rising per-capita incomes in the recipient countries. We have no strong priors, however, on how the coordination of aid would be affected by donors’ reactions to such changes. For example, coordination as given by *AR* may remain unaffected if both donors of a pair increase their aid shares to recipients with a rising population. The effect of rising per-capita incomes on *AR* could be negative if both donors of a pair had similarly high aid shares there before and just one donor country reacts to less pressing need by reducing its activities there. On the other hand, the effect could be positive if the donor country reducing its activities had a higher aid share there than the other donor of the pair.

Donors may not only react collectively to changes in recipient need but also to changes in merit. More precisely, one could expect that pairs of donors are more likely to be present in, and grant higher aid shares to, recipient countries which democratize and become more open to trade if donors generally honored improved governance and economic policies that are widely perceived to render aid more effective (e.g., Burnside and Dollar 2000). Previous findings on the allocation of bilateral aid are mixed. Various studies failed to find a

¹⁵ Democratic institutions and openness to trade have often been used to reflect the merit of recipient countries for aid.

clear link between merit and bilateral aid allocation (e.g., Hoeffler and Outram 2011). According to Claessens et al. (2009), however, bilateral aid has responded more strongly to the quality of the policy and institutional environment since the 1990s. Consequently, we control for democracy and openness to trade.

4. Method and data

As noted above, we proceed in two steps in assessing the determinants of donor coordination. We estimate logit models in the first step where the dependent variable is a dummy (*DUM*) set equal to one for recipient countries in which both donors of a pair are active in period t . We estimate fractional logit models in the second step where the dependent variable is based on the aid shares a recipient receives from a pair of donors (*AR*). The estimation equations can be written as

$$E(DUM_{d1d2,i,t}) = \Lambda(a_0 + a_1\mathbf{P}_{d1d2,i,t} + a_2\mathbf{R}_{d1d2} + a_3\mathbf{Z}_{d1d2,i,t} + \gamma_{d1d2} + \delta_i + \theta_t) \quad (2)$$

$$E(AR_{d1d2,i,t}) = \Lambda(a_0 + a_1\mathbf{P}_{d1d2,i,t} + a_2\mathbf{R}_{d1d2} + a_3\mathbf{Z}_{d1d2,i,t} + \gamma_{d1d2} + \delta_i + \theta_t) \quad (3)$$

where $\Lambda(\cdot)$ is the logistic cumulative distribution function; \mathbf{P} stands for the set of indicators of commercial and political competition within pairs of donors as discussed in Section 3.a; \mathbf{R} stands for the set of recipient country characteristics introduced in Section 3.b, including the recipient country's endowment of raw materials and its temporary membership in the UN Security Council. \mathbf{Z} represents (other) control variables, namely the average UN voting coincidence between the recipient country and the two donors in a pair and the average share of the recipient country in total exports of the two donors in a pair. In all estimations, we account for donor pair fixed effects, γ_{d1d2} , recipient country fixed effects, δ_i , and time fixed effects, θ_t . Standard errors are clustered by recipient country.

Major data sources are as follows (see Appendix for details and descriptive statistics): Trade data to compute export shares and our indicators of commercial competition come from

UN Comtrade.¹⁶ The average UN voting alignment measure and our dummy variable on political competition are based on Kilby's (2009) revised version of the UN voting data of Voeten and Merdzanovic (2009). Information on country membership in the UN Security Council has been obtained from Dreher et al. (2009). The disasters variable is from EM-DAT (2010), and the indicator of regime type is from Cheibub et al. (2010). Recipient countries' per capita GDP has been taken from the Penn World Tables (Heston et al. 2011). All remaining recipient country characteristics (population size, the sum of exports and imports as a share of GDP, and the sum of mineral and energy depletion) come from the World Development Indicators (World Bank 2012).

In our empirical analysis, we focus on the five major DAC donor countries: France, Germany, Japan, United Kingdom, and the United States. This results in ten pairs of donors which enter our pooled logit and fractional logit models. We also run additional regressions on sub-sets of donor pairs, namely the four pairs including one of the five major donors listed above. The logit estimations cover the 1971-2008 period, while we lose the two initial years of this period in the fractional logit estimations as we calculate 3-year averages to smooth the volatility of *AR*.

5. Results

a. Logit estimations

In the first step of our empirical analysis, we perform logit estimations of a dummy variable that takes a value of one if the donors of a particular donor pair are both active in a recipient country in a given year.¹⁷ As discussed before, we regard the simultaneous presence of both donors in a particular recipient country as a first indication of uncoordinated aid activities. The results are presented in Table 5. In column (1) we pool all ten pair-wise combinations of

¹⁶ Data have been retrieved through the World Bank's World Integrated Trade Solution (WITS) webpage at <http://wits.worldbank.org/wits/> (accessed: 18 April 2012).

¹⁷ The logit estimations are based on yearly data. Because of the high volatility in the export variables, in particular in the export similarity index, we took three-year averages over t , $t-1$ and $t-2$ for these variables.

the five major donors under consideration. In columns (2)-(6) we consider only the four pairs of one particular donor with any other donor of our sample. By doing so, we want to analyze whether the aid coordination behavior revealed in column (1) is homogeneous across all donor pairs or is to be attributed to the pairs with one particular donor.

The results in Table 5 show that various recipient country characteristics have at best a weak impact on whether both donors of a pair are active in a particular country. We do not find evidence that simultaneous aid activities are more likely where a more intense depletion of minerals and energy may have increased the recipient's attraction for donors. There is no evidence either that duplication of aid efforts is more likely when recipient countries are temporary members of the UN Security Council, i.e., at times when political support from these recipients may be particularly valuable for competing donors. The coefficient on *UNSC* proves to be insignificant at conventional levels independently of whether we pool all ten donor pairs (column 1) or just the four pairs involving one particular donor in our sample (columns 2-6).

The remaining recipient country characteristics provide ambiguous evidence on whether the joint presence of a pair of donors depends on changes in need and merit in recipient countries. Similar to Frot and Santiso (2011: 58), duplication of aid efforts could be coined "beneficial herding" if various donors engaged where recipient need and merit call for collective donor efforts. The insignificant coefficient on *Log per capita GDP* does not support the view that donor pairs have redirected aid to where the development of average incomes indicated greater need. On the other hand, greater need for aid as a consequence of natural and man-made disasters did induce "beneficial herding" for most pairs of donors. A similar ambiguity prevails with regard to merit: *Trade/GDP* has no significant impact on the joint presence of donors, even though greater openness to trade is widely perceived to reflect local policy conditions that render aid more effective (Burnside and Dollar 2000). By contrast, both

donors of a pair typically rewarded merit by engaging jointly where democratization indicated better governance.¹⁸

We now turn to the variables reflecting the commercial relations between donors and recipients and, notably, the competition within donor pairs for export markets. While our control variable for the average importance of the recipient country as an export market for the donor pair (*Export share (average)*) does not show a significant effect at conventional levels, we find fairly strong evidence for export competition inducing simultaneous aid activities by both donors of a pair and, thus, working against stronger coordination of aid activities at the level of recipient countries.

Our first indicator of export competition, *Export ratio*, proves to be significantly positive at the ten percent level when pooling all ten donor pairs in columns (1) of Table 5. In quantitative terms, an increase in the export ratio by one standard deviation leads to an increase in the likelihood of two donors being active in a recipient country by 0.6 percent.¹⁹ Referring back to Section 3, this finding supports hypothesis *H1*. However, the impact of *Export ratio* varies across the major donors in our sample (see columns 2-6). More precisely, *Export ratio* turns out to be significant at the five percent level for pairs involving the United States, Japan and France; but it appears to be irrelevant for duplication of aid efforts in pairs involving the United Kingdom and Germany.

The evidence on our second indicator of export competition, *Export similarity index*, is even stronger. More similar export structures of a donor pair render it more likely, at least at the five percent level of significance, that both donors grant aid to a recipient country. This applies to the estimation with all ten donor pairs in column (1) and also to all estimations in which we consider only the four pairs with one major donor in columns (2)-(6). According to

¹⁸ It may be surprising that the coefficient on *Log population* enters significantly negative in almost all columns of Table 5. However, with the cross-country variation captured by recipient country fixed effects, it does not imply that the joint presence of a pair of donors is generally less likely in larger recipient countries. Rather, it means that donor pairs are less likely to be present jointly in recipient countries which have grown larger in terms of population.

¹⁹ The marginal effects throughout this paper have been estimated at the mean of the independent variables.

the marginal effect based on column (1), an increase in the similarity index by one standard deviation causes an increase in the likelihood of two donors being active in a recipient country by 2.9 percent. This supports hypothesis *H2*.

UN voting patterns are strongly associated with the duplication of aid efforts according to the logit estimations reported in Table 5. A higher average voting compliance of the recipient country with the two donors of a pair, *UN voting (average)*, significantly increases the likelihood that both donors engage with aid in the recipient country. More interestingly in the context of donor competition for political support, the likelihood that both donors are simultaneously active in a recipient country increases when UN voting patterns suggest that the recipient country is positioned in the policy space in-between the two donors of a pair. As discussed above, *Political competition* is a dummy variable set equal to one when two donors trying to buy political support would have to pull the recipient into opposite directions. Hypothesis *H3* is supported at the five percent level of significance when pooling all ten donor pairs. Quantitatively, competition for political support increases the likelihood of two donors being active in a recipient country by 6.7 percent.

The positive impact of political competition on duplication of aid activities also holds for the sub-set of pairs with France, Japan and the United Kingdom, at least at the five percent level of significance. The sub-sets of pairs with Germany or the United States respectively provide two exceptions. With respect to the insignificance of the dummy variable in column (6), one potential explanation may be that other donors avoid challenging the United States by using aid as means to pull recipient countries away from the US position in the political space. For instance, Katada (1997: 931) argued that Japan treads a fine line in its aid to Latin American countries. Japan tended to support “US maintenance of power and dominance in the region,” even though it had own political interests in getting support from Latin American countries for its quest for a permanent seat on the UN Security Council.

b. Fractional logit estimations

We perform fractional logit estimations in the second step of our empirical analysis. We now take the ratio of the aid shares of a particular recipient country in total aid budgets of the two donors in a pair (*AR*) as the dependent variable. Furthermore, we now define the dependent variable *AR* (and the independent variables) as the average over three years in order to smooth the volatility of annual aid flows.²⁰ As discussed before, we regard a higher ratio of the aid shares in a particular recipient country as the second indication of uncoordinated aid activities. The results are presented in Table 6. As before, we pool all ten pair-wise combinations of the five major donors under consideration in column (1). In columns (2)-(6) we again consider only the four pairs of one particular donor with any other donor of our sample.

Starting again with the results on recipient country characteristics, the results in Table 6 deviate in several respects from those in Table 5. While larger depletion of minerals and energy was not associated with a higher probability of both donors being simultaneously present in the recipient country, *Log mineral and energy depletion* has a significant impact on the aid ratio, at the five percent level of significance. Quantitatively, an increase in *Log mineral and energy depletion* by one standard deviation (corresponding to 9.1 percent) leads to an increase in the aid ratio by 0.12 standard deviations (0.027). This suggests that the attraction of recipient countries in terms of better access to raw materials valued by self-interested donors tends to undermine coordinated aid efforts. This result holds not only when pooling all ten donor pairs in column (1), but also for most sub-sets of pairs with one of the donors in columns (2)-(6).²¹ We also find some evidence supporting the view that temporary membership of recipient countries in the UN Security Council weakens donor coordination. *UNSC* enters significantly positive at the five percent level with all ten donor pairs pooled in

²⁰ As a result of taking three-year averages, we lose the two initial years underlying the logit estimations and the period of observation is now 1973-2008.

²¹ An exception is the sub-set of pairs with the United States where *Log mineral and energy depletion* loses its significance.

column (1). Quantitatively, recipient countries with a membership in the UN Security Council of two years have, on average, a 0.07 standard deviations (0.016) higher *AR* than non-members. However, the effect loses significance at conventional levels in most of the regressions on the sub-sets of pairs with one particular donor.²²

The effects of the other recipient country characteristics in Table 6 provide ambiguous evidence on whether donor coordination is affected by changes in need and merit in recipient countries. While democratization in recipient countries led to simultaneous presence according to Table 5, democratization did not result in both donors of a pair spending similarly high shares of their aid budgets in these recipient countries. *Democracy* proves to be insignificant at conventional levels independent of whether we pool all ten donor pairs or only the four pairs with one major donor. This is not really surprising recalling the finding of studies on bilateral aid allocation that selectivity in terms of rewarding aid recipients with improved governance has remained weak (e.g., Hoeffler and Outram 2011).

The effect of less pressing need in recipient countries, in terms of an increase in *Log per capita GDP*, on *AR* proves to be significantly negative.²³ As noted in Section 3.b, this is plausible if just one donor of a pair reacts by reducing her aid share to rising per capita income in recipient countries where both donors traditionally had similarly high aid shares. In contrast to the logit estimations in Table 5, we do not find evidence for weaker donor coordination reflected in higher aid ratios in recipient countries hit by disasters. This does not rule out “beneficial herding” at the second stage as both donors may have increased their aid shares, though from different starting levels.

Turning to hypotheses *H1-H3*, the results in Table 6 underscore the previous finding that commercial competition among donors tends to undermine coordinated aid efforts. The

²² The sub-set of four pairs with Germany is an exception. Apart from Japan, Germany is the only major donor in our sample without a permanent seat on the UN Security Council. This could have strengthened the incentive to use aid as an indirect means of wielding political influence, which could have worked against aid coordination. Dreher et al. (2013) find that Germany granted more aid to temporary members of the UN Security Council, independent of the political color of the German government.

²³ The sub-sets of pairs with the United Kingdom and Japan provide exceptions.

dependent variable, *AR*, increases with *Export ratio* and *Export similarity index* pointing to competition within the pair of donors for export markets in recipient countries. According to column (1), both coefficients are statistically significant at the one percent level. Calculating the marginal effects, an increase in the export ratio by one standard deviation (corresponding to 0.263) leads to an increase in the aid ratio by 0.14 standard deviations (0.030). Smaller in magnitude, an increase in the export similarity index by one standard deviation (0.166) causes an increase in the aid ratio by 0.08 standard deviations (0.018). As can be seen from the results of the regressions on the sub-sets of pairs with one particular donor in columns (2)-(6), at least one of the two measures of export competition is positive and highly significant for all five donors under analysis.

In contrast to hypotheses *H1* and *H2*, there is little support for *H3* in Table 6. This is even though a higher average voting compliance of the recipient country with the two donors of a pair, *UN voting (average)*, significantly increases the aid ratio according to all columns of Table 6. Except for the two sub-sets of donor pairs with France and the United Kingdom in columns (2) and (3), donor pairs do not appear to have used aid amounts to compete for political support. In other words, UN voting patterns suggesting that the recipient country is positioned in the policy space in-between the two donors of a pair did not undermine donor coordination as reflected in *AR*. Arguably, our sample of major DAC donors occupies a relatively narrow range in the political space on international topics addressed in the United Nations. The major cleavages in the United Nations have been between the Western countries around the United States on one side of the policy space and the communist countries around the Soviet Union during the Cold War or a “counterhegemonic voting bloc” that includes China and India after the Cold War on the other side of the spectrum (Voeten 2000). Consequently, there are relatively few instances where both donors in pairs of major DAC members may spend larger shares of their aid budgets to pull recipient countries toward their own political position and away from the position of the other donor (see again Table 4). We

return to this issue when discussing possible implications for future research in the concluding section.

c. Robustness tests

Table 7 presents a set of robustness tests of the logit and fractional logit estimations discussed so far.²⁴ Specifically, we re-estimate the fractional logit model by including only those observations for which the aid share of donor 1 and/or the aid share of donor 2, $aid^{d1,i,t}$ and $aid^{d2,i,t}$, is > 0 in column (1), and for which the aid ratio, AR , is > 0 in column (2). Next, we modify the calculation of AR in column (3), by taking three-year averages of the aid shares $aid^{d1,i,t}$ and $aid^{d2,i,t}$ in the first step and calculating the aid ratio AR based on these averages in the second step. Finally, we restrict the logit and fractional logit models in columns (4) and (5) to observations for recipient countries with a population of at least half a million.

As can be seen from Table 7, our results prove to be fairly robust to these modifications. The robustness tests shown in columns (1) and (2) address the concern that the unrestricted AR measure might incorrectly indicate the highest degree of coordinated aid efforts within a pair of donors once the aid share of at least one of the donors of the pair, $aid^{d1,i,t}$ and $aid^{d2,i,t}$, equals zero. However, excluding observations with $aid^{d1,i,t}=0$ and/or $aid^{d2,i,t}=0$ hardly affects our results. All variables that were significant in column (1) of Table 6 remain significant, typically at the same level, in columns (1) and (2) of Table 7. Also the size of most of the marginal effects closely resembles previous findings (not shown); only when restricting the observations to $AR>0$ in column (2), the size of the marginal effects of some variables decreases somewhat, including that of *Export similarity index*.

The same holds for the two indicators of commercial competition when modifying the calculation of AR in column (3) of Table 7. In contrast to Table 6, the dummy variable on

²⁴ Note that we report only the results corresponding to columns (1) of Tables 1 and 2 with all ten donor pairs.

political competition now enters significantly positive, though only at the ten percent level, for the pooled sample with all ten donor pairs. However, the regressions on the sub-sets of pairs with one particular donor (not shown) reveal a significant effect only for the pairs with France, at the one percent level. It should also be noted that average incomes in the recipient country, *Log per capita GDP*, as well as its endowment with raw materials, *Log mineral and energy depletion*, are no longer significant in column (3).

Finally, the exclusion of recipient countries with a population of less than half a million accounts for the possibility that previous results on our indicators of commercial competition might be distorted by the marginal importance of some export markets. On the other hand, our results on political competition might be biased as small countries may offer political support at a lower price of aid, notably under “one country, one vote” conditions as in the UN General Assembly. The exclusion of particularly small countries weakens some of the previous logit results. Most notably, our first indicator of export competition, *Export ratio*, is no longer significant at conventional levels in column (4) of Table 7. Furthermore, we no longer find that the presence of both donors of a pair is positively related to democratization of recipients or more pressing need in the aftermath of natural disasters. In contrast, the exclusion of recipient countries with a population of less than half a million does not affect the previous fractional logit results. In particular, the findings on all variables related to commercial and political competition within pairs of donors carry over to the reduced sample of recipient countries.

5. Summary and conclusion

Our analysis departed from two observations made in different strands of the empirical literature on foreign aid. First, it is widely agreed in the aid allocation literature that donors are not purely altruistic but also pursue self-interests by using aid as a means to promote exports and gain political support from recipient countries. Second, there is mounting

evidence that the effectiveness of aid is impaired by at best weak coordination of aid activities between donors. In this study we argued that both phenomena may be closely related to each other. In particular, we raised the hypothesis that commercial and political self-interest not only weakens a need- and merit-based allocation of aid by a particular donor but also undermines a closer coordination of aid activities between donors. We focused on pairs of the five most important DAC donors, assessing their competition for export markets and political support and its effects on the coordination of their aid activities.

We considered two indicators of weak or absent donor coordination: joint presence of a donor pair in a particular recipient country, and a similarly strong engagement of the pair (in terms of aid shares) in a particular recipient country. Apart from standard variables that aim to capture recipient characteristics, we constructed several indicators of competition within a donor pair for export markets in, and political support by recipient countries. Performing logit and fractional logit models based on the aid activities of the major DAC donors since the early 1970s, we found evidence that competition for export markets and political support undermined the coordination of aid.

Our results strongly suggest that coordinated aid activities are less likely in recipient countries constituting similarly important export markets for both donors in a pair and where both donors exhibit a similar sectoral export structure. This finding holds at both stages of deciding on (i) the presence in a recipient country and (ii) the share of aid granted to this country. Furthermore, the result holds not only when pooling all donor pairs of major DAC donors but also in almost all estimations in which we consider only the four pairs with one particular donor. This more or less uniform pattern implies that there are at best remote chances for other donor countries, i.e., smaller DAC donors or non-DAC donors, to overcome the lack of coordination by re-directing their aid and providing a counterbalance to the ‘Big 5.’ This could be particularly difficult in resource-abundant recipient countries as

coordination among the largest donors (in terms of aid shares) weakens further when a more intense depletion of energy and minerals makes a recipient more attractive to donors.

Nevertheless, it clearly deserves more attention in future research whether smaller DAC donors, non-DAC donors less involved in power politics, or multilateral institutions could contribute to a closer coordination of aid by taking trade-related interests of the big players into account and using their own aid allocation as a counterbalance. When elephants fight, smaller donors may be tempted to retreat. One might also expect an offsetting aid allocation by multilateral donors, even though the largest bilateral donors in their function as major shareholders of institutions such as the World Bank affect decision-making to a certain degree. On the other hand, commercial competition with large non-DAC donors such as China or India is likely to further undermine the coordination of aid.

We also found some evidence that competition for political support undermined coordinated aid activities of large DAC donors. This was largely confirmed in our estimation of simultaneous aid presence of donor countries. At the second stage of deciding on aid shares, however, political competition rarely had a significant impact on the coordination of aid activities. Again, deeper insights might be gained if comparable aid data were provided by ‘new’ donors such as China and India. Arguably, political competition is likely to be a greater threat to the coordination of aid by a larger sample of politically more diverse donor countries.

Finally, future research is clearly warranted to assess whether commercial and political competition among donors affects the coordination of aid activities not only at the level of recipient countries but also within recipient countries, either regionally or at the sector level. Data constraints render this task difficult. The data on sector-specific aid suffered from serious underreporting until recently, and the regional mapping of aid activities has just begun. However, these constraints are increasingly relaxed with better data collection, for instance by the OECD and the AidData Center for Development Policy, offering interesting

avenues of more disaggregated analyses on the links between political and commercial competition among donors and the coordination of their aid efforts.

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Table 1: Most important aid recipients by donor country (1971-2008 average)

France	Germany	Japan	UK	United States
Morocco	India	Indonesia	India	Egypt
Côte d'Ivoire	Indonesia	China	Bangladesh	Iraq
Egypt	Egypt	Philippines	Tanzania	India
Tunisia	China	India	Kenya	Pakistan
Cameroon	Turkey	Thailand	Nigeria	Bangladesh

Note: List based on the average of each recipient's share in a donor's aid portfolio over the 1971-2008 period.
Source: Authors' calculations based on aid data from OECD DAC.

Table 2: Most important export destinations by donor country (1971-2008 average)

France	Germany	Japan	UK	United States
1. Algeria	1. China	1. China	1. South Africa	1. Mexico
2. Morocco	2. Turkey	2. Thailand	2. India	2. China
3. China	3. South Africa	3. Malaysia	3. Nigeria	3. Brazil
4. Tunisia	4. Yugoslavia/Serbia	4. Indonesia	4. Turkey	4. Venezuela
5. Turkey	5. Iran	5. Philippines	5. Iran	5. Malaysia

Note: List based on the average of each recipient's share in a donor's total exports over the 1971-2008 period.
Source: Authors' calculations based on trade data from UN Comtrade.

Table 3: Export similarity index for trade with rest of the world (in %, 1971-2008 average)

	Germany	France	UK	Japan	United States
Germany		81.6	79.2	74.7	79.3
France	81.6		75.9	66.5	75.6
UK	79.2	75.9		66.0	74.3
Japan	74.7	66.5	66.0		68.9
United States	79.3	75.6	74.3	68.9	

Source: Authors' calculations based on trade data from UN Comtrade.

Table 4: UN voting: Number of recipient countries between two donors in the policy space

Time period	GER FRA	GER GBR	GER JPN	GER USA	FRA JPN	FRA USA	FRA GBR	GBR JPN	GBR USA	JPN USA
1973-75	0	0	1	0	0	0	0	1	0	9
1976-78	0	0	0	0	0	0	0	0	0	0
1979-81	0	0	0	0	0	0	0	0	0	0
1982-84	0	0	0	0	0	0	0	0	0	0
1985-87	0	0	0	0	0	0	0	0	0	0
1988-90	0	0	0	0	0	0	0	0	0	0
1991-93	0	0	0	1	0	2	0	2	0	18
1994-96	0	1	0	6	2	1	0	3	0	8
1997-99	0	0	0	7	6	5	0	6	3	32
2000-02	1	0	3	19	9	10	0	9	6	49
2003-05	5	0	3	15	11	11	0	11	6	34
2006-08	3	6	1	27	22	9	0	21	9	37

Table 5: Logit regressions (1971-2008, yearly observations)

	(1)	(2)	(3)	(4)	(5)	(6)
	All major donor pairs	FRA	GBR	GER	Other major donors vs. JPN	USA
<i>Economic and political competition within donor pairs</i>						
Export share (average)	20.833 (21.898)	30.613 (44.126)	24.905 (29.310)	21.499 (31.286)	32.465 (36.540)	26.704 (34.678)
Export ratio	0.294* (0.168)	0.502** (0.207)	0.291 (0.219)	-0.307 (0.265)	0.750** (0.293)	0.561** (0.260)
Export similarity index	2.510*** (0.514)	1.973*** (0.607)	2.422*** (0.661)	3.038*** (0.673)	2.035*** (0.683)	1.779** (0.785)
UN voting (average)	6.314*** (1.185)	3.816*** (1.333)	6.077*** (1.354)	8.265*** (1.429)	7.253*** (1.503)	5.661** (2.721)
Political competition	0.978** (0.410)	1.892** (0.859)	2.678*** (0.720)	0.684 (0.506)	1.358** (0.591)	0.046 (0.330)
<i>Recipient characteristics</i>						
Log mineral and energy depletion	0.004 (0.018)	-0.023 (0.025)	0.006 (0.020)	0.018 (0.025)	0.015 (0.019)	0.011 (0.025)
UNSC	0.021 (0.164)	0.213 (0.214)	0.117 (0.244)	-0.041 (0.186)	0.081 (0.201)	-0.207 (0.214)
Log population	-2.296* (1.284)	-4.728*** (1.637)	-3.053* (1.804)	-2.327* (1.351)	-1.218 (1.318)	-3.994** (1.782)
Log per capita GDP	-0.255 (0.410)	-0.403 (0.540)	-0.494 (0.480)	-0.351 (0.397)	0.227 (0.510)	-0.327 (0.628)
Log people affected by disasters	0.025*** (0.009)	0.015 (0.012)	0.019 (0.013)	0.039*** (0.011)	0.022* (0.012)	0.036*** (0.014)
Democracy	0.628** (0.305)	1.067*** (0.380)	0.238 (0.354)	0.658* (0.348)	0.646** (0.324)	0.643* (0.368)
Trade / GDP	0.002 (0.004)	0.003 (0.005)	-0.003 (0.005)	0.007 (0.005)	0.004 (0.005)	0.004 (0.007)
Number of observations	31,614	12,653	12,683	12,385	12,723	12,536
Number of recipient countries	107	106	107	106	107	106

Notes: Dummy variable equal to one if both donors of a pair are present in a recipient country as the dependent variable; donor pair, recipient country and year dummies included; standard errors clustered by recipient country; *** p<0.01, ** p<0.05, * p<0.1.

Table 6: Fractional logit regressions (1973-2008, three year averages)

	(1)	(2)	(3)	(4)	(5)	(6)
	All major donor pairs	FRA	Other major donors vs.			USA
			GBR	GER	JPN	
<i>Economic and political competition within donor pairs</i>						
Export share (average)	0.605 (6.511)	10.067 (12.065)	-5.784 (6.794)	4.604 (6.013)	3.168 (3.557)	-3.049 (15.906)
Export ratio	0.662*** (0.080)	0.874*** (0.127)	0.798*** (0.118)	0.110 (0.122)	0.821*** (0.125)	0.642*** (0.116)
Export similarity index	0.622*** (0.154)	0.465** (0.219)	0.799*** (0.281)	0.635*** (0.215)	0.571*** (0.190)	0.330 (0.271)
UN voting (average)	2.112*** (0.476)	1.315** (0.642)	1.847*** (0.648)	2.662*** (0.586)	2.790*** (0.669)	3.311*** (1.281)
Political competition	0.220 (0.185)	0.612** (0.270)	0.665** (0.302)	0.410 (0.400)	0.225 (0.251)	-0.143 (0.221)
<i>Recipient characteristics</i>						
Log mineral and energy depletion	0.017** (0.008)	0.024** (0.012)	0.020** (0.010)	0.014* (0.007)	0.016* (0.009)	0.015 (0.009)
UNSC	0.139** (0.070)	0.187 (0.129)	0.119 (0.105)	0.139* (0.071)	0.110 (0.094)	0.141 (0.101)
Log population	-0.623 (0.396)	-1.364** (0.532)	-0.861* (0.497)	-0.508 (0.382)	0.153 (0.440)	-0.703 (0.467)
Log per capita GDP	-0.283** (0.134)	-0.386** (0.170)	-0.250 (0.195)	-0.281** (0.114)	-0.149 (0.198)	-0.332* (0.171)
Log people affected by disasters	0.006 (0.005)	0.012* (0.006)	-0.000 (0.007)	0.009* (0.005)	0.007 (0.006)	0.004 (0.006)
Democracy	0.054 (0.072)	0.161 (0.104)	0.013 (0.117)	0.026 (0.077)	-0.004 (0.089)	0.073 (0.093)
Trade / GDP	-0.0004 (0.001)	-0.001 (0.002)	-0.003* (0.002)	0.002* (0.001)	-0.0002 (0.002)	-0.001 (0.002)
Number of observations	11,877	4,765	4,751	4,762	4,767	4,709
Number of recipient countries	122	122	122	122	122	122

Notes: Aid ratio (AR) as the dependent variable; donor pair, recipient country and period dummies included; standard errors clustered by recipient country; *** p<0.01, ** p<0.05, * p<0.1.

Table 7: Robustness tests

	(1)	(2)	(3)	(4)	(5)
	Fract. logit	Fract. logit	Fract. logit	Logit	Fract. logit
<i>Economic and political competition within donor pairs</i>					
Export share (average)	0.069 (6.652)	-0.631 (6.974)	-0.256 (9.555)	14.998 (23.503)	-0.239 (6.593)
Export ratio	0.647*** (0.080)	0.604*** (0.080)	0.811*** (0.095)	0.259 (0.218)	0.642*** (0.085)
Export similarity index	0.567*** (0.151)	0.422*** (0.142)	0.516*** (0.169)	3.054*** (0.593)	0.663*** (0.155)
UN voting (average)	1.741*** (0.407)	0.985*** (0.370)	1.841*** (0.542)	7.983*** (1.482)	2.255*** (0.497)
Political competition	0.050 (0.183)	0.009 (0.171)	0.384* (0.207)	1.763*** (0.588)	0.197 (0.169)
<i>Recipient characteristics</i>					
Log mineral and energy depletion	0.015** (0.007)	0.017** (0.007)	0.012 (0.009)	-0.006 (0.018)	0.017** (0.008)
UNSC	0.138** (0.066)	0.127** (0.058)	0.101 (0.084)	0.006 (0.172)	0.132* (0.071)
Log population	-0.265 (0.353)	0.145 (0.275)	-0.589 (0.444)	-2.967* (1.789)	-0.660 (0.429)
Log per capita GDP	-0.259** (0.118)	-0.189** (0.094)	-0.230 (0.153)	-0.064 (0.493)	-0.277** (0.138)
Log people affected by disasters	0.004 (0.004)	0.001 (0.004)	0.007 (0.006)	0.014 (0.011)	0.008 (0.005)
Democracy	0.052 (0.065)	0.019 (0.057)	0.079 (0.080)	0.417 (0.333)	0.047 (0.074)
Trade / GDP	-0.001 (0.001)	-0.0004 (0.001)	-0.001 (0.001)	-0.0004 (0.006)	0.0001 (0.001)
Number of observations	11,624	10,651	11,877	27,815	10,536
Number of recipient countries	122	122	122	93	107

Notes: Donor pair, recipient country and year/period dummies included; standard errors clustered by recipient country; *** p<0.01, ** p<0.05, * p<0.1.

Figure 1: Aid ratio of the United States and Japan (1971-2008 average)

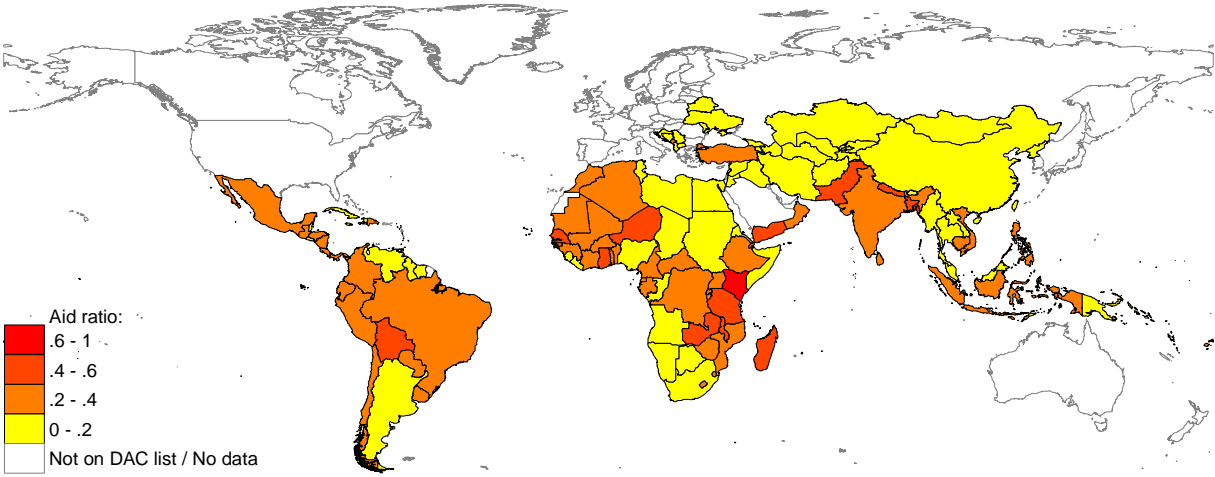


Figure 2: Export ratio of the United States and Japan (1971-2008 average)

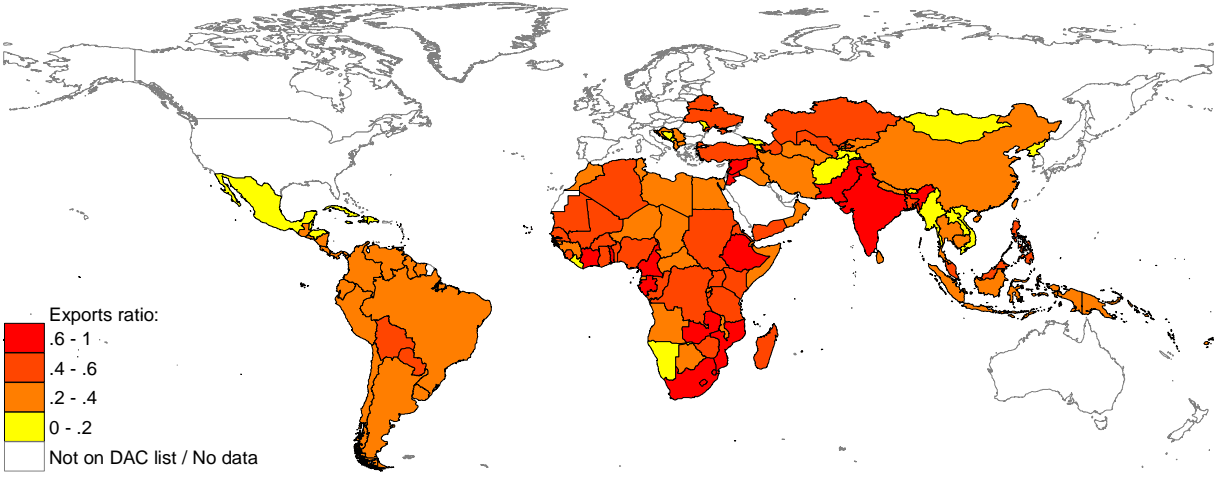
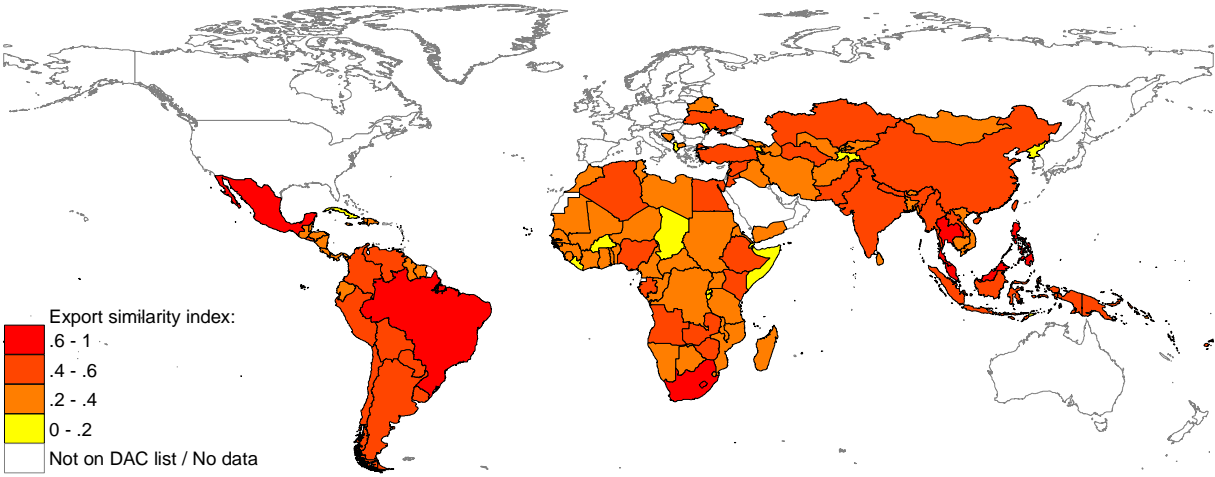


Figure 3: Export similarity index of the United States and Japan (1971-2008 average)



Appendix 1: Data sources and definitions

Variable	Definition	Source
DUM	Dummy variable that takes a value of one if the donors of a particular donor pair are both active in a recipient country in a given year	OECD DAC
AR	$\text{Min}(aid^{d1,i,t}; aid^{d2,i,t})/\text{Max}(aid^{d1,i,t}; aid^{d2,i,t})$, with $aid^{d1,i,t}$ ($aid^{d2,i,t}$) representing the share of aid to recipient i in donor country $d1$ ($d2$)'s overall aid budget in period t	OECD DAC
Export share (average)	[(Donor 1's exports to recipient as a share of her total exports)+(Donor 2's exports to recipient as a share of her total exports)]/2	UN Comtrade
Export ratio	$\text{Min}(X^{d1,i,t}; X^{d2,i,t})/\text{Max}(X^{d1,i,t}; X^{d2,i,t})$, with X representing the share of exports to recipient i in donor country d 's overall exports	UN Comtrade
Export similarity index	Indicator of similarity of the export patterns of donor 1 and donor 2 in the recipient country (calculated at the 2-digit SITC code level)	UN Comtrade
UN voting (average)	[(UN voting alignment between donor 1 and recipient)+(UN voting alignment between donor 2 and recipient)]/2	Voeten and Merdzanovic (2009)
Political competition	Dummy variable that takes a value of one if the recipient country is positioned in the policy space in-between the two donors of a pair	Voeten and Merdzanovic (2009)
Log mineral and energy depletion	Log of the sum of mineral and energy depletion (in US\$, at 2000 constant prices) by recipient country	World Bank (2012)
UNSC	Dummy variable that takes a value of one if recipient country is member of the United Nations Security Council	Dreher et al. (2009)
Log population	Total population size of recipient country	World Bank (2012)
Log per capita GDP	Per capita GDP (PPP, at 2005 I\$) of recipient country	Heston et al. (2011)
Log people affected by disasters	Total number of people affected by natural and man-made disasters in recipient country	EM-DAT (2010)
Democracy	Dummy variable that takes a value of one if the recipient country's regime qualifies as democratic	Cheibub et al. (2010)
Trade / GDP	Openness of recipient country (sum of exports and imports of goods and services measured as a share of gross domestic product; in percent)	World Bank (2012)

Appendix 2: Descriptive statistics

	Obs	Mean	Std. Dev.	Min	Max
DUM	57,130	0.66	0.48	0	1
AR	57,130	0.19	0.26	0.00	1.00
Export share (average)	47,710	0.0015	0.0045	0.0000	0.1096
Export ratio	47,710	0.40	0.29	0.00	1.00
Export similarity index	43,166	0.43	0.19	0.00	1.00
UN voting (average)	44,750	0.57	0.10	0.29	0.89
Political competition	45,950	0.01	0.10	0	1
Mineral and energy depletion	4,295	2,290,000,000	7,940,000,000	0	235,000,000,000
UNSC	4,671	0.06	0.24	0	1
Population	5,371	28,800,000	120,000,000	7,379	1,320,000,000
Per capita GDP	4,787	3,991	4,023	118	31,725
People affected by disasters	5,627	1,027,772	11,800,000	0	342,000,000
Democracy	4,738	0.35	0.48	0	1
Trade / GDP	4,233	74.7	40.8	0.2	375.4