Kiel
Working Papers

Kiel Institute
for the World Economy

Why Aid is Unpredictable: An Empirical Analysis of the Gap between Actual and Planned Aid Flows

Gustavo Javier Canavire-Bacarreza
Eric Neumayer
Peter Nunnenkamp

No. 1933 | June 2014

Web: www.ifw-kiel.de

Kiel Working Paper No. 1933 | June 2014

Why Aid is Unpredictable: An Empirical Analysis of the Gap between Actual and Planned Aid Flows*

Gustavo Javier Canavire-Bacarreza, Eric Neumayer, and Peter Nunnenkamp

Abstract:
Aid flows continue to be volatile and unpredictable, even though it is widely accepted that this erodes the effectiveness of foreign aid. We argue that fragmented donor-recipient relationships, notably the large number of minor aid relations that tend to be associated with donors' desire to have 'fly their flag' around the world, increase aid unpredictability. Our empirical analysis of the determinants of aid unpredictability suggests that aid becomes less predictable with more fragmented donor-recipient relationships. Specifically, the effect of fragmentation on overshooting previous spending plans is statistically highly significant and substantively important. In contrast, fragmented donor-recipient relationships have no effect on the shortfall of actual aid compared to donors' spending plans.

Keywords: aid predictability, donor fragmentation, forward spending plans.

JEL classification: F35

Gustavo Javier Canavire-Bacarreza
Centro de Investigaciones Económicas y Financieras - CIEF
Universidad EAFIT
Medellín, Colombia
Email:
gcanavir@eafit.edu.co

Eric Neumayer
London School of Economics and Political Science
London, United Kingdom
Email:
e.neumayer@lse.ac.uk

Peter Nunnenkamp
Kiel Institute for the World Economy
D-24105 Kiel, Germany
Email:
peter.nunnenkamp@ifw-kiel.de

* We are most grateful to Michaela Rank and Camila Uribe for excellent research assistance.

1. Introduction

It is widely accepted among scholars that volatile and unpredictable aid flows impair the effectiveness of foreign aid in promoting the economic and social development of recipient countries. Kharas (2008) estimates the deadweight loss associated with aid volatility to be between 15 and 20 percent of the total value of aid. Lensink and Morrissey (2000) find that uncertainty of aid receipts reduces the growth effects of aid. Kodama (2012: 266) concurs showing that unpredictability "significantly damages aid's growth-enhancing effect." Kodoma (2012) also underscores the point made earlier by Celasun and Walliser (2008) that both aid shortfalls and windfalls tend to undermine macroeconomic management in the recipient countries.[1] Mokoro (2011: 9) concludes from detailed country studies that "the characteristic unpredictability of aid has serious costs at all levels of public finance management and therefore for development results." Bulir and Hamann (2008) argue that it is mainly in poor, aid-dependent recipient countries that volatile aid has adverse macroeconomic effects. However, this claim is disputed by Hudson and Mosley (2008).

The donors have principally accepted that predictability in aid relationships is important.[2] In the so-called Paris Declaration of 2005, donors committed "to provide reliable indicative commitments of aid over a multi-year framework and disburse aid in a timely and predictable fashion according to agreed schedules" (paragraph 26).[3] The subsequent Accra Agenda for Action in 2008 strengthened this commitment: "Beginning now, donors will provide developing countries with regular and timely information on their rolling three- to five-year forward expenditure and/or implementation plans, with at least indicative resource allocations that

[1] Celasun and Walliser (2008) find that aid shortfalls are associated with debt accumulation and reduced investment, while aid windfalls are associated with higher government consumption and debt reduction. Taken together, unpredictable aid involves a shift from public investment to public consumption.

[2] For details, see e.g. OECD (2011a: chapter 5).

[3] For details on the Paris Declaration and the Accra Agenda for Action see: http://www.oecd.org/dac/effectiveness/34428351.pdf (accessed: June 2014).

developing countries can integrate in their medium-term planning and macroeconomic frameworks" (paragraph 26). Nevertheless, aid flows continue to be unpredictable from the perspective of various recipient countries. Assessing the progress in implementing the Paris Declaration, the OECD (2011a: 75) noted that some recipient countries (e.g., Angola and El Salvador) received only half of what donors indicated three years earlier, while some other recipient countries (e.g., the Central African Republic and Nigeria) received more than twice as much as indicated before.

This raises the question of *why* aid relationships continue to be unpredictable. We explore this question by analyzing the determinants of aid predictability, which to the best of our knowledge has not been done so far and represents our first contribution to the literature. To do so, we analyze the effect of various factors that may result in deviations between actual and planned aid flows, including changing conditions in the recipient countries, donor characteristics, and strategic and trade-related aid motives. As our second contribution, we focus on one particular factor that has received significant attention in the literature on the effectiveness of aid. Specifically, we explore whether and, if so, why fragmented donor-recipient relationships have an impact on deviations between actual and planned aid flows in both upward and downward direction. We hypothesize that the large number of quantitatively minor aid relations that tend to be associated with donors' desire to 'fly their flag' around the world, instead of coordinating their aid allocation more closely, exacerbates aid unpredictability. We find that aid indeed becomes less predictable under conditions of fragmented donor-recipient relationships. Strikingly, however, the effect is contingent on whether actual aid exceeds or falls short of previous spending plans. Specifically, the effect of fragmentation on overshooting previous spending plans is statistically highly significant and substantively important whilst the effect on shortfalls of

actual aid compared to spending plans is statistically indistinguishable from zero and diminishingly small in size.

Some donors (particularly Greece, Japan and the United States) do not release detailed forward spending plans.[4] Nevertheless, it is feasible to assess the determinants of the gaps between actual aid flows and the forward spending plans across recipient countries by drawing on data for the group of all donors as released by the OECD's Development Assistance Committee (DAC) in its recent Reports on Aid Predictability (OECD [a]).[5] We describe these data in more detail in Section 3, after specifying our hypothesis on fragmented donor-recipient relationships in Section 2. Section 4 presents our results. Section 5 summarizes and concludes.

2. The role of fragmented donor-recipient relations

Donors may have good reasons for revising earlier spending plans, notably when the need of recipients for aid is higher or lower than expected. On the one hand, earlier spending plans may be revised upwards for recipient countries which have an unexpectedly high need for aid, e.g., due to natural disasters. On the other hand, spending plans may be revised downwards for recipient countries whose economic situation develops better than expected. Holding the need for aid constant, recipient countries may 'deserve' more aid than originally planned, e.g., when local governance conditions improve. Donors favoring democratic regimes are likely to increase aid allocations after countries move toward a more democratic regime. By contrast, countries may deserve less aid than anticipated when local conditions for making effective use of planned aid

[4] According to the 2012 DAC Report on Aid Predictability, 15 out of 23 DAC members agreed to publish detailed spending plans (OECD [a], 2012 9). Only ten DAC donor countries participated in the assessment of aid predictability by Mokoro Ltd. (2011). As acknowledged in Mokoro's report, "there is a self-selection bias as the donors have chosen whether to participate or not in this exercise" (page 17). See Appendix 3 for the list of donors not releasing any spending plans in particular years.

[5] For the list of available reports, see: http://www.oecd.org/development/effectiveness/aidpredictability.htm (accessed: June 2014).

volumes deteriorate.[6] In particular, donors may cut planned aid after military coups and regressions to autocracy.

Apart from needs- and merit-related reasons to revise earlier spending plans, we hypothesize that the predictability of aid flows is impaired by the presence of various donors with uncoordinated aid activities in a particular recipient country. It is widely acknowledged in the relevant literature that fragmented donor-recipient relations tend to undermine the effectiveness of aid. For instance, Acharya et al. (2006: 1) argue that successful aid experiences after World War II – notably US support to Western Europe under the Marshal Plan and to South Korea and Taiwan – have proved difficult to repeat since "the number of sources and channels of aid have increased faster than the actual volume of aid." Today, "aid often underperforms because it flows through too many institutional channels" (ibid: 6).[7] The proliferation of donors and the fragmentation of aid relations render aid less effective not only by increasing transaction costs but also by weakening each single donor's incentive to assume responsibility for the overall development impact of total aid transfers. Competing donors are suspected to 'fly the flag' and care mainly about the visibility of their own projects rather than about the effectiveness of aid.[8]

Among the transmission mechanisms through which fragmented donor-recipient relations could impair the effectiveness of aid, previous studies have paid particular attention to adverse effects on bureaucratic quality in the recipient countries. According to Acharya et al. (2006: 6), indirect transaction costs "take the form of the dysfunctional bureaucratic and political behaviour that is stimulated by aid proliferation." Knack and Rahman (2007: 193) present a formal model and empirical evidence "suggesting that competitive donor practices, where there are many small donors and no dominant donor, erode administrative capacity in recipient country governments."

[6] Merit is widely regarded as a critical element of a poverty efficient allocation of aid since Burnside and Dollar (2000) argued that the effectiveness of aid depends on local conditions in the recipient country.
[7] For a similar line of reasoning, see Knack and Rahman (2007).
[8] Chun et al. (2010: 788) argue: "Every donor wants visibility. This largely comes from a domestic public demand to 'fly the flag' or 'show face' through its aid assistance."

Other transmission channels have been largely neglected so far. Our analysis therefore aims to complement the existing literature by identifying another important transmission mechanism and testing the hypothesis that fragmented donor-recipient relations lead to volatile and unpredictable aid flows, thereby undermining the recipients' macroeconomic management.

From the recipients' perspective it becomes increasingly difficult to predict expected aid flows in a reliable way if they have to negotiate with various donors and to consider distinct aid channels. Recipient countries in Asia and Africa had to deal with an average number of 26 and 24 (bilateral and multilateral) official donors, respectively, in 2009 (OECD 2011b). The OECD report also observed that the problem of "too little aid from too many donors" was most common in low-income countries with the least institutional capacity to manage complex relations with an "increasing number of financially less-significant actors" (ibid: 8). Furthermore, it appears that the fragmentation problem originates to a large extent from bilateral sources of aid. Hence, our empirical analysis focuses on 23 bilateral donors from the OECD's Development Assistance Committee (DAC).

The outcome of negotiations with various donors is especially difficult to predict when donors do not coordinate their activities or even compete for attractive projects in recipient countries. In contrast to repeated official DAC declarations such as the Paris Declaration of 2005 and the Accra Agenda for Action of 2008, the available empirical evidence suggests that uncoordinated aid activities and the failure of donors, including those with only marginal contributions to overall aid, to agree on a clearer division of labor at the recipient country level continue to impede aid predictability. For instance, 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 market literature. The regression analyses of Nunnenkamp et al. (2013) indicate that coordination among donors has

even weakened since the Paris Declaration. The OECD-DAC's own monitoring of donor behavior acknowledges that little progress has been made among donors to implement the Paris Declaration (OECD 2011a).

Fragmented aid relations, in combination with persistent lack of coordination and herding among donors, can be expected to result in deviations from predicted and planned aid in both directions. However, the unpredictability of aid flows is not necessarily symmetric in the sense that overshooting and undershooting the recipients' expectations are equally likely. Frot and Santiso (2011) find evidence for asymmetric herding in the donors' response to political transitions in recipient countries. More closely related to fragmented aid relations, one may wonder why "recipient governments also contribute to proliferation-fragmentation, above all perhaps by taking few initiatives to overcome these problems" (Acharya et al. 2006: 14). Recipients may realistically be concerned that they would have less bargaining power when being confronted by a dominant donor or a small group of coordinating donors. By contrast, recipients gain leverage to extract extra funds over and above planned aid by playing off various donors against each other under conditions of fragmented aid relations. In a similar vein, Knack and Rahman (2007) argue that recipient governments have weak incentives to avoid competitive donor practices by limiting the number of active donors and discontinuing non-significant aid relations. For instance, line ministries in the recipient country may exploit the duplication of donor efforts at the sector level to gain access to extra aid funds, including from quantitatively minor donors attempting to fly their flag and improve visibility.

Incentive structures on the part of donors render it also more likely that forward spending plans are overshot rather than undershot. Aid agencies are typically assumed to have the objective of maximizing aid budgets (e.g., Knack and Rahman 2007). A convenient means to achieve this objective is to convince key domestic constituencies in parliament and central government that

current funds are insufficient; overshooting spending plans could help by indicating that the agency is currently underfunded, while spending less than planned would clearly be counter-productive from the agency's perspective. This reasoning may apply especially to the aid agencies of relatively small donors whose "aid agency officials derive prestige and influence from maintaining a global presence on par with the larger bilateral and multilateral agencies" (Knack and Rahman 2007: 195). Furthermore, as noted by Acharya et al. (2006: 7), competition among donors is not only for attractive projects but also "for the time and attention of senior policymakers, for the attention of good public servants, or for influence over the policies of the recipient government." Topping up planned aid in negotiations with the recipient government offers a promising way to win the competition among donors.

Against this backdrop, we expect fragmented donor-recipient relations to impair the predictability of aid, in particular by creating incentives to overshoot forward spending plans:

Hypothesis: More fragmented donor-recipient relations result in greater aid unpredictability, but the effect on overshooting of actual aid compared to spending plans is larger than the effect on undershooting.

3. Data and approach

As noted before, we follow the DAC Reports on Aid Predictability (OECD [a]) in considering CPA as the basis for calculating gaps between actual and planned aid as our dependent variable. As stressed by the DAC (see, e.g., OECD [a] 2009: 10), CPA captures the contributions of donors to 'core' development programs; it "is subjected to multi-year planning at country/regional level and reflects the amount of aid that can be programmed at those levels." CPA is defined through exclusion, by subtracting from overall aid those items that (i) are

unpredictable by nature (humanitarian aid and debt relief); (ii) do not involve cross-border flows (e.g., administrative costs); (iii) are not part of cooperation agreements between governments (e.g., food aid); and (iv) cannot be programmed at the country level (e.g., core funding of NGOs). Again in line with DAC practice, we use gross disbursements of CPA in the following.

We draw on the annual DAC Reports on Aid Predictability (available since 2008) to calculate the deviations between actual and planned disbursements in constant 2011 US$ during the 2008-2011 period. Specifically, we compare actual CPA disbursements with CPA disbursements as planned one, two, or three years earlier.[9] Given that planned CPA is available since 2008 the data allows for nine comparisons for each recipient country: four comparisons of actual CPA with plans in the preceding year, three comparisons of actual CPA with plans two years earlier, and two comparisons of actual CPA with plans three years earlier. In our empirical analysis of the determinants of deviations between actual and planned aid, we pool all nine observations of the dependent variable for each recipient country. Considering that deviations between actual and planned aid may be larger when the comparison refers to earlier plans, we include 'deviation-specific' fixed effects accounting for the number of years between the release of planned aid for a particular year and actual aid in that particular year.

Importantly, we observe positive and negative deviations between actual and planned aid. In about 55 percent of observations in our sample we observe positive (upward) deviations from spending plans. We do not wish to impose the assumption that the factors that result in positive deviations are the same and affect aid predictability in the same strength as negative deviations. Hence, we interact each right-hand-side variable with a dummy variable set to one (*Neg_dev*) whenever the dependent variable refers to a negative deviation, i.e., whenever actual aid is lower than planned aid for a particular recipient-year combination. This gives us two coefficients for

[9] The 2012 report was the first with extended forward spending plans of four years, instead of three years.

each variable in the estimations, one for positive and one for negative deviations. Doing so also allows us to estimate elasticities in log-log models where we log the dependent variable and all non-categorical explanatory variables.

As discussed in Section 2, fragmented donor-recipient relationships represent our explanatory variable of major interest. Following the official OECD-DAC definition, we calculate two fragmentation ratios reflecting the relative importance of 'non-significant' aid relations for each recipient country *j* in year *t* (OECD 2009; OECD 2011b). The ratio *Fragmentation_1* considers aid relations to be non-significant if donor *i* provides a lower share of aid to recipient country *j* than the donor *i*'s overall share in aid to all recipient countries. The number of non-significant aid relations is then related to the number of all aid relations of recipient country *j* in year *t*. Importantly, the number of all aid relations excludes those donors among the 23 DAC donor countries in our sample not providing any aid to recipient country *j* in year *t*. The ratio *Fragmentation_2* considers all aid relations to be non-significant if donor *i* is not among the largest donors that cumulatively provide at least 90 percent of aid from all 23 DAC donors to recipient country *j* in year *t*. Again, the number of non-significant aid relations is then related to the number of all aid relations of recipient country *j* in year *t*. Hence, lower values of both *Fragmentation_1* and *Fragmentation_2* indicate less fragmented aid programs in a particular recipient country at a particular point in time.

As noted in OECD (2011b), *Fragmentation_1* may be biased towards significant aid relations with smaller donors. Smaller donors are usually involved in fewer recipient countries, which makes it easier for them to exceed their global aid share at the country level. In contrast, *Fragmentation_2* may be biased towards significant aid relations with larger donors, for which it is easier to be among the top donors that cumulatively reach the 90 percent threshold at the country level.

This is why we prefer a third fragmentation measure which combines the two criteria underlying *Fragmentation_1* and *Fragmentation_2*. Specifically, *Fragmentation_3* considers only those aid relations to be non-significant if donor *i* provides a lower share of aid to recipient country *j* than donor *i*'s overall aid share and if donor *i* is not among the largest donors that cumulatively provide at least 90 percent of aid.[10]

As will be shown in Section 4, the choice between the three alternative measures of fragmented donor-recipient relations hardly matters for our empirical results. The three measures are highly correlated with each other; throughout the period of observation (2007-2011), the correlation coefficients range from 0.85 to 0.92. It may also be noted that the average fragmentation ratios across recipient countries were slightly higher at the end of our period of observation, compared to the first year.[11] This is in striking contrast to repeated donor commitments to reduce the fragmentation of aid.

The list of other potential determinants of aid predictability follows the standard aid allocation literature.[12] In our baseline specification, we therefore include recipient countries' GDP per capita (*GDPpc (ln)*) as the most widely used indicator of the recipients' need for aid. Furthermore, we draw on the Polity IV dataset to account for the recipient countries' merit of aid. We use the combined polity score (*Polity2*), which ranges from -10 (most autocratic) to 10 (most democratic). We also control for the recipient countries' population (*Population (ln)*) in the baseline specification. On the one hand, absolute deviations between actual and planned aid tend to be larger for the major aid recipients, compared to less populated recipients where both actual and planned aid volumes are relatively small. On the other hand, deviations may be relatively

[10] By applying these two criteria to significant aid relations, the OECD introduces a 'narrow' definition of concentration "where the recipient is a significant partner country both from the donor's perspective and from the recipient's perspective" (OECD 2009: 11). Likewise, combining the donor's and the recipient's perspective with regard to non-significant relations results in a 'narrow' definition of fragmentation.

[11] *Fragmentation_1* increased from 0.661 to 0.693; *Fragmentation_2* increased from 0.630 to 0.664; *Fragmentation_3* increased from 0.559 to 0.604.

[12] See Appendix 1 on detailed definitions and data sources. Appendix 2 provides summary statistics.

large for minor recipient countries as disbursements related to just a few projects could be associated with considerable deviations from planned aid.

We include the lagged dependent variable to control for temporal dynamics. The lagged dependent variable should have a negative sign if donors aspire to correct for previous (positive or negative) deviations. By contrast, a positive sign of the lagged dependent variable would indicate that there is inertia in (positive and negative) deviations over time. We also account for the possibility that deviations between actual and planned aid could be smaller for forward spending plans released in more recent years (independent of whether they are looking forward by one, two, or three years) – assuming that an increasing number of donors paid heed to repeated calls for predictable aid relationships and engaged in better planning. Consequently, we include report-specific fixed effects capturing whether data on planned aid are taken from reports published in 2009, 2010 and 2011, respectively.[13] In addition, we include year dummies accounting for the possibility that deviations of actual aid in particular years from previous plans (independent of when these plans were released) are systematically larger or smaller for all recipient countries due to general cyclical aid fluctuations. Standard errors are clustered on the recipient countries.

In additional estimations, we extend the baseline model specification by including further potential determinants of aid unpredictability. Specifically, we include a variable measuring change in the *Polity2* variable, which allows us to test whether it is not just the level of democracy that has an effect, but also a move toward democracy. We construct the variable *Deviation from growth path* to capture donor reactions to unexpected changes in the recipient countries' GDP per capita. Specifically, we calculate the deviation in the growth rate of GDP per capita from the average growth rate in the three previous years. Further, we consider the (logged)

[13] The 2008 report represents the benchmark. Note that we cannot use data on planned CPA from the 2012 report as actual CPA was not yet available.

number of people affected by natural disasters (*Disasters*) as an additional indicator of unexpectedly large need for aid. Also related to need, we enter two dummy variables accounting for so-called aid orphans and aid darlings. The first dummy variable (*Orphan*) is set to one for all recipient-year combinations for which actual aid is below the 'normal pattern' by at least one percent of the recipient country's GDP. The second dummy variable (*Darling*) is set to one for all recipient-year combinations for which actual aid is above the 'normal pattern' by at least one percent of the recipient country's GDP. In both cases, the 'normal pattern' is estimated by regressing disbursements of CPA (in constant 2011 US$) to all recipient countries in years 2007-2011 on the recipient countries' GDP per capita, their population and their score with regard to the World Bank's governance indicator "voice and accountability." If donors (re-) allocated aid in favor of identified orphans and away from identified darlings, the former dummy should be associated with smaller negative and/or larger positive deviations between actual and planned aid, while the latter dummy should be associated with smaller positive and/or larger negative deviations between actual and planned aid.

In another set of extended estimations, we account for two donor characteristics: (i) whether or not donors released aid spending plans and (ii) whether donors belong to the group of donors classified as egoistic by Berthélemy (2006).[14] Specifically, we include the share of aid coming from donors without forward aid spending plans issued in a particular year (*No_spplan*) and the share of aid coming from egoistic donors (*Egoistic*) in total aid received from all DAC donors by each recipient in year *t*. One may suspect that deviations between actual and planned aid are generally larger (in both directions) when a larger share of aid comes from donors not releasing forward spending plans or classified as egoistic.

[14] The group of egoistic donors includes Australia, France, Italy, Japan, and the United States. Appendix 3 provides the list of donors not releasing spending plans in particular years.

We also consider specific egoistic motives of granting aid which could be associated with larger deviations between actual and planned aid. To capture political motives we include a dummy variable set to one whenever a recipient country was a member of the UN Security Council (UNSC). We expect that positive deviations between actual and planned aid are larger at times of UNSC membership when donors have stronger incentives to buy votes by granting more aid. However, this would only be the case to the extent that politically motivated donors could not anticipate which recipient countries were likely to be elected as temporary UNSC members and did not plan aid disbursements accordingly.[15] Moreover, political motivations could also be associated with larger negative deviations if donors observe UNSC votes first and use aid to punish non-compliant and aid-dependent members by cutting planned aid.[16]

To capture trade-related aid motives, we construct a measure of export competition. Following Fuchs et al. (2014), export competition between a dyad of donors *d1* and *d2* with aid activities 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 total exports. A larger value of this ratio is supposed to indicate stronger competition within donor dyads with more similar export interests in a recipient country.[17] We then take the average of all dyadic ratios, with higher average ratios indicating stronger competition among all donors with aid activities in the recipient country. While actual aid may exceed planned aid where donors compete for relevant markets, competition for relevant export markets should be rather persistent and be reflected in forward spending plans already.

[15] According to Dreher et al. (2014), it is often known well in advance which country will be the next representative of a certain region. However, it is not unusual that more than one country competes for this position. In these cases, it will only be clear by October of a certain year, the month the election takes place, which country will enter the UNSC on January 1 the following year.

[16] See Vreeland and Dreher (2014) for a detailed analysis of donor attitudes in the UNSC.

[17] 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 including the average share of a recipient's exports in a donor's total exports (*Exp_ave*).

4. Results

In Table 1, we present our baseline estimations to assess the effects on deviations between actual and planned aid of the three alternative fragmentation measures introduced in Section 3, together with the core set of variables accounting for the recipient countries' merit and need for aid. Recall that we report two coefficients for each explanatory variable: the first line shows the effect of the explanatory variable on positive deviations between actual and planned aid, while the second line (where each explanatory variable is interacted with *Neg_dev*) shows the effect on negative deviations between actual and planned aid. Positive coefficients on an explanatory variable in both lines thus imply that it is associated with larger deviations in both directions.

Before we come to our variables of principal interest, we briefly describe results on the other explanatory variables. As can be seen, the lagged dependent variable is statistically significant and positive in all three estimations, and independently of whether we consider positive or negative deviations between actual and planned aid. In other words, donors do not 'correct' an earlier over- or undershooting of spending plans by subsequent moves in the opposite direction. Rather, there is inertia in upward and downward deviations over time. Note as well, however, that the estimated degree of temporal dependence is rather low. A one percent increase in the (positive or negative) deviation observed in the previous year is predicted to be followed by an increase in the same direction by about 0.20-0.24 percent.

Deviations between actual and planned aid are statistically significantly larger in both directions for recipient-year combinations with a larger population. Recalling that deviations are defined in absolute terms, the country-size effect clearly dominates the higher relative volatility of aid in small recipient countries with just a few aid projects. Higher GDP per capita in recipient countries goes along with smaller upward deviations. Per capita income also has a negative effect

on downward deviations that is not statistically significant, however. A more democratic regime is predicted to experience more upward deviation of aid with democracy having no statistically significant effect on downward deviations. A one point higher score on *Polity2* (on the 21 point scale from -10 to 10) would result in an around 4 percent increase in actual aid compared to planned aid.

Turning to our explanatory variables of principal interest, all three alternative measures of fragmented donor-recipient relations prove to be highly significant, at the one percent level, and positive when positive deviations between actual and planned aid represent the dependent variable. The consistency of results for the alternative measures of fragmentation was expected, recalling the high correlation between these measures. In quantitative terms, fragmented donor-recipient relations have a considerable impact on aid predictability as far as positive deviations from forward spending plans are concerned. An increase in *Fragmentation_3*, our preferred measure for conceptual reasons (see Section 3), by one standard deviation (0.13) is predicted to increase the positive deviation between actual and planned aid by about 21 percent – a sizeable if perhaps not very large effect. A move from the .05 to the .95 percentile in *Fragmentation_3* is predicted to increase upward aid deviation by 67 percent. The quantitative impact is similarly large for the other measures of donor fragmentation. In contrast to positive deviations, all fragmentation measures are statistically insignificant at conventional levels when negative deviations between actual and planned aid represent the dependent variable. They are also diminishingly small in size. Strikingly, we thus find the effect of fragmented donor-recipient relations not only to be smaller for downward deviations compared to upward deviations, but there is in fact no evidence at all for an effect on the shortfall of actual aid compared to previous spending plans.

In Table 2, we report results from extended specifications in which we include further potential determinants of aid unpredictability. In particular, we include additional indicators to better account for recipient countries' need and merit (column 1), we account for potentially relevant donor characteristics (column 2), and we add variables capturing selfish donor motives (column 3). Finally, we enter all these additional variables at the same time in column 4 of Table 2. For the sake of brevity, we restrict ourselves to *Fragmentation_3*, our preferred measure of fragmented donor-recipient relations.

The evidence on our core set of explanatory variables is essentially as before in Table 1, with one exception. In particular, the signs and significance levels of the coefficients on *Population* and *Polity2* are hardly affected when accounting for a longer list of potential determinants. The same applies to the lagged dependent variable, though the degree of estimated temporal dependence becomes even smaller. The one exception is that a higher per capita income now statistically significantly predicts also smaller downward deviations in aid, not just smaller upward deviations, in columns 1 and 3. One can interpret this finding as suggesting that relatively richer recipient countries manage to keep deviations in check by better capacity of bargaining aid delivery with donors and more efficient domestic aid administration. Conversely, this finding implies that mainly poor countries, which also tend to be more dependent on aid, are likely to suffer from less predictable aid.

The evidence on our additional indicators of need and merit is mixed. There is evidence that a move toward a more democratic regime is rewarded with the disbursement of more aid than originally planned. However, we find no statistically significant effects of changes in growth of GDP per capita and natural disaster severity on aid deviations. Surprisingly, donors did not react as one might have expected from a needs-based perspective to short-term deviations from the growth path in the three previous years. An unexpectedly high need for aid could also result

from serious natural disasters. Nevertheless, the insignificant coefficients on the *Disasters* variable are not implausible: Recall that we consider country programmable aid (CPA) as the basis for calculating gaps between planned and actual aid, while donors react to disasters mainly by increasing emergency relief. The significantly negative coefficients on *Orphan* for downward deviations suggest that donors reduced the bias against identified aid orphans (as reflected in negative deviations from planned aid), while the significantly positive coefficients on *Darling* suggest that positive deviations from planned aid were self-reinforcing for identified aid darlings.

We find no evidence that aid becomes less predictable for recipient countries whose aid is largely from donors not releasing forward spending plans. Likewise, we find no (column 4) or only weak (column 2) evidence that a larger share of aid from egoistic donors results in higher overshooting of planned aid. As concerns specific aid motives, it appears that UNSC membership increases deviations from planned aid in both directions. The significantly positive coefficients on *UNSC* with respect to overshooting planned aid were to be expected from donors granting aid to buy votes from UNSC members. At the same time, the significantly positive coefficients in *UNSC* with respect to undershooting planned aid may indicate that donors tend to cut planned aid after observing non-compliant UNSC votes. In contrast to the strong evidence on political aid motives, we do not find that export-related aid motives result in less predictable aid. The typically insignificant coefficients on *Exp_ratio* and *Exp_ave* are in line with the view that competition for relevant export markets should be rather persistent and reflected in forward spending plans already. More generally, recent studies have cast into doubt that trade-related donor interests are a major driving force of aid allocation.[18]

Importantly, the inclusion of additional explanatory variables in Table 2 does not affect our major result. As with the basic specification in Table 1, the coefficients on our preferred

[18] Barthel et al. (2014) provide an overview of the relevant literature.

measure of fragmented donor-recipient relations, *Fragmentation_3*, continue to be significantly positive with respect to overshooting planned aid. Comparing the quantitative impact of *Fragmentation_3*, it is of similar size in columns 1 and 3, but slightly weaker in columns 2 and 4 of Table 2 (16 percent) than in the corresponding column 3 of Table 1 (21 percent). Again, as before, we do not find significant effects of *Fragmentation_3* on negative deviations between actual and planned aid. The robustness of this finding could explain why recipient countries do not press harder for less fragmented donor-recipient relations, e.g., by unilaterally discontinuing non-significant aid relations. Not surprisingly, recipient countries are mainly concerned about negative deviations from planned aid, even though overshooting may also erode sound fiscal management.

In Table 3, we report results from specifications that test the robustness of our inferences to plausible extensions and changes to our model specification. In Table 3, we change the model specifications. In column 1, we include regional dummy variables, employing the World Bank's regional classification. All our estimations so far are based on data pooled across one, two and three year deviations from spending plans. In columns 2 to 4, we estimate the determinants for one, two and three year deviations separately.

We find in column 1 that the inclusion of regional dummy variables has practically no effect on our results. Compared to the pooled estimations, not surprisingly we find differences if we restrict our analysis to one, two or three year deviations between actual aid and scheduled aid plans, respectively. Most strikingly, we find that fragmented donor-recipient relations have a much stronger effect on longer term upward deviations than shorter term deviations. The effect on two year deviations is 40 per cent larger than the effect from the pooled estimation. The effect on three year deviations is three times larger than the effect from the pooled estimation. Naturally, this can only be consistent with our main estimations if the effect on one year

deviations is small or even negative. This is indeed what we find: a negative effect that is however small in size and statistically indistinguishable from zero.

5. Conclusion

Aid flows continue to be volatile and unpredictable, even though it is widely accepted that this erodes the effectiveness of foreign aid in promoting the economic and social development of recipient countries. The donors of the OECD's Development Assistance Committee (DAC) have principally accepted that predictability in aid relationships is important to enable sound economic management in the recipient countries. This invited the question of why there is little progress, if any, in rendering aid more predictable.

We hypothesized that deviations between actual and planned aid flows can be attributed to fragmented donor-recipient relationships, notably the large number of minor aid relations that tend to be associated with donors' 'flying their flag' around the world. We considered several measures of fragmentation. At the same time, we accounted for various other factors that may result in deviations of actual aid from previously released spending plans, including changing conditions in the recipient countries, donor characteristics, and strategic and trade-related aid motives. To allow for heterogeneous effects on positive and negative deviations between actual and planned aid, we estimated separate effects on overshooting and undershooting of actual aid compared to scheduled aid.

Accounting for temporal dynamics with the lagged dependent variable, we find inertia in upward and downward deviations over time. In other words, donors do not 'correct' an earlier over- or under-shooting of spending plans by subsequent moves in the opposite direction. A more democratic regime is predicted to experience more upward deviation of aid with democracy having no statistically significant effect on downward deviations. Moreover, a move toward a

more democratic regime is rewarded with the disbursement of more aid than originally planned. There is some evidence that richer recipient countries have better chances to keep deviations in check, while mainly poor countries, which also tend to be more dependent on aid, are likely to suffer from less predictable aid. The evidence on indicators capturing unexpected changes in need is surprisingly weak. Specifically, donors did not react to deviations in growth in GDP per capita from the recent past by adjusting aid spending plans. Our findings on donor characteristics and egoistic aid motives are inconclusive. While export-related interests do not appear to be responsible for unpredictable aid flows, UNSC membership of recipient countries is associated with higher (upward and downward) deviations of actual aid from previous spending plans.

Regarding our explanatory variables of principal interest, all measures of fragmented donor-recipient relations prove to be highly significantly positive and substantive in size when positive deviations between actual and planned aid represent the dependent variable. In contrast to positive deviations, all fragmentation measures are statistically insignificant and diminishingly small in size when negative deviations between actual and planned aid represent the dependent variable.

The strongly asymmetric effects of fragmented donor-recipient relations on overshooting and undershooting previously released aid plans may be surprising when considering "that over-disbursement (donors disbursing more than scheduled) can be as challenging for a partner government as under-disbursement (a donor disbursing less than the amount scheduled) as it hinders effective planning, budgeting and execution" (OECD 2011a: 74). However, these longer-term problems of unpredictable aid in general – independent of whether plans are over- or undershot – may be discounted by short-sighted actors on both sides of aid relations. Recipient countries may not press harder for less fragmented aid relations, e.g., by unilaterally discontinuing non-significant relations, as they are mainly concerned about unexpected cuts of

aid inflows , while taking the opportunity of playing competing donors off against each other and extract extra funds over and above planned aid. Donor agencies trying to maximize their budget may be willing to adhere in order to win the competition among donors and convince key constituencies at home that the agency's current funds are insufficient.

References

Acharya, A., A.T. Fuzzo de Lima and M. Moore (2006). Proliferation and fragmentation: Transactions costs and the value of aid. *Journal of Development Studies* 42(1): 1-21.

Aldasoro, I., P. Nunnenkamp and R. Thiele (2010). Less aid proliferation and more donor coordination? The wide gap between words and deeds. *Journal of International Development* 22(7): 920-940.

Barthel, F., E. Neumayer, P. Nunnenkamp and P. Selaya (2014). Competition for export markets and the allocation of foreign aid: The role of spatial dependence among donor countries. *World Development* (forthcoming).

Berthélemy, J.-C. (2006). Bilateral donors' interest v. recipients' development motives in aid allocation: Do all donors behave the same? *Review of Development Economics* 10(2): 179-194.

Bulír, A., and A.J. Hamann (2008). Volatility of development aid: From the frying pan into the fire? *World Development* 36(10): 2048-2066.

Burnside, C., and D. Dollar (2000). Aid, policies, and growth. *American Economic Review* 90(4): 847-868.

Celasun, O., and J. Walliser (2008). Predictability of aid: Do fickle donors undermine aid effectiveness? *Economic Policy* 23(55): 545-594.

Chun, H.-M., E.N. Munyi and H. Lee (2010). South Korea as an emerging donor: Challenges and changes on its entering OECD/DAC. *Journal of International Development* 22(6): 788-802.

Dreher, A., M. Gould, M. Rablen and J.R. Vreeland (2014). The determinants of election to the United Nations Security Council. *Public Choice* 158(1-2): 51-83.

Frot, E., and J. Santiso (2011). Herding in aid allocation. *Kyklos* 64(1): 54-74.

Fuchs, A., P. Nunnenkamp and H. Öhler (2014). Why donors of foreign aid do not coordinate: The role of competition for export markets and political support. *World Economy* (forthcoming).

Hudson, J., and P. Mosley (2008). Aid volatility, policy and development. *World Development* 36(10): 2082-2102.

Kharas, H. (2008). Measuring the cost of aid volatility. Wolfensohn Center for Development, Working Paper 3. Washington, DC: Brookings Institution.

Knack, S. and A. Rahman (2007). Donor fragmentation and bureaucratic quality in aid recipients. *Journal of Development Economics* 83(1): 176-197.

Kodama, M. (2012). Aid unpredictability and economic growth. *World Development* 40(2): 266-272.

Lensink, R., and O. Morrissey (2000). Aid instability as a measure of uncertainty and the positive impact of aid on growth. *Journal of Development Studies* 36(3): 31-49.

Mokoro Ltd. (2011). Aid predictability: Synthesis of findings and good practices. Prepared for the DAC Working Party on Aid Effectiveness – Task Team on Transparency and Predictability. Volume I. http://www.oecd.org/development/effectiveness/49066202.pdf (accessed: June 2014).

Nunnenkamp, P., H. Öhler and R. Thiele (2013). Donor coordination and specialization: Did the Paris Declaration make a difference? *Review of World Economics* 149(3): 537-563.

OECD (a; various issues). DAC report on aid predictability: Survey on donors' forward spending plans. Paris: OECD. http://www.oecd.org/development/effectiveness/aidpredictability.htm (accessed: June 2014).

OECD (2009). 2009 OECD report on division of labour: Addressing fragmentation and concentration of aid across countries. Paris: OECD.

OECD (2011a). Aid effectiveness 2005–10: Progress in implementing the Paris Declaration. Paris: OECD Publishing.

OECD (2011b). 2011 OECD report on division of labour: Addressing cross-country fragmentation of aid. Paris. http://www.oecd.org/dac/aid-architecture/49106391.pdf (accessed: June 2014).

Vreeland, J.R. and A, Dreher (2014). *The political economy of the United Nations Security Council: Money and influence.* Cambridge: Cambridge University Press.

Table 1 – Baseline results

	(1)	(2)	(3)
lagged DV (ln)	0.234***	0.238***	0.232***
	(0.0620)	(0.0647)	(0.0638)
lagged DV (ln) X neg_dev	0.209***	0.210***	0.209***
	(0.0734)	(0.0739)	(0.0731)
Population (ln)	0.293***	0.303***	0.306***
	(0.0507)	(0.0505)	(0.0510)
Population (ln) X neg_dev	0.345***	0.351***	0.345***
	(0.0550)	(0.0536)	(0.0536)
GDPpc (ln)	-0.155**	-0.181**	-0.176**
	(0.0731)	(0.0773)	(0.0749)
GDPpc (ln) X neg_dev	-0.0984	-0.0956	-0.102
	(0.0753)	(0.0797)	(0.0748)
Polity2	0.0421***	0.0425***	0.0436***
	(0.0132)	(0.0134)	(0.0132)
Polity2 X neg_dev	0.0211	0.0214	0.0214
	(0.0135)	(0.0135)	(0.0135)
Fragmentation_1	1.601***		
	(0.596)		
Fragmentation_1 X neg_dev	0.253		
	(0.693)		
Fragmentation_2		1.742**	
		(0.715)	
Fragmentation_2 X neg_dev		0.141	
		(0.773)	
Fragmentation_3			1.596***
			(0.538)
Fragmentation_3 X neg_dev			0.197
			(0.606)
Observations	631	631	631
R-squared	0.351	0.351	0.354

Note: Standard errors clustered on recipient country in parentheses. Estimations include year-, report- and deviation-specific fixed effects (coefficients not shown).
*** p<0.01, ** p<0.05, * p<0.1

Table 2 – Extended specifications

	(1)	(2)	(3)	(4)
lagged DV (ln)	0.156**	0.229***	0.226***	0.143**
	(0.0650)	(0.0608)	(0.0643)	(0.0640)
lagged DV (ln) X neg_dev	0.194**	0.201***	0.179**	0.167**
	(0.0753)	(0.0730)	(0.0735)	(0.0740)
Population (ln)	0.265***	0.295***	0.348***	0.302***
	(0.0602)	(0.0519)	(0.0880)	(0.0972)
Population (ln) X neg_dev	0.348***	0.325***	0.345***	0.327***
	(0.0658)	(0.0543)	(0.0841)	(0.101)
GDPpc (ln)	-0.204**	-0.205**	-0.182**	-0.230*
	(0.0915)	(0.0787)	(0.0855)	(0.116)
GDPpc (ln) X neg_dev	-0.199**	-0.106	-0.123	-0.221**
	(0.0849)	(0.0747)	(0.0905)	(0.108)
Polity2	0.0458***	0.0444***	0.0432***	0.0437***
	(0.0134)	(0.0133)	(0.0134)	(0.0142)
Polity2 X neg_dev	0.0224	0.0179	0.0211	0.0195
	(0.0144)	(0.0140)	(0.0152)	(0.0165)
Fragmentation_3	1.634***	1.276**	1.588***	1.291**
	(0.560)	(0.586)	(0.553)	(0.639)
Fragmentation_3 X neg_dev	0.166	0.465	0.338	0.681
	(0.607)	(0.741)	(0.627)	(0.744)
Change in polity2	0.122***			0.126***
	(0.0357)			(0.0361)
Change in polity2 X neg_dev	0.0112			0.00930
	(0.0421)			(0.0419)
Deviation from growth path	0.00606			0.0105
	(0.0186)			(0.0187)
Deviation from growth path X neg_dev	-0.000901			-0.00595
	(0.0155)			(0.0153)
Disasters (ln)	0.0271			0.0192
	(0.0176)			(0.0193)
Disasters (ln) X neg_dev	-0.000604			0.00528
	(0.0166)			(0.0173)
Orphan	-0.214			-0.205
	(0.204)			(0.224)
Orphan X neg_dev	-0.545**			-0.524**
	(0.220)			(0.254)
Darling	0.679***			0.729***
	(0.187)			(0.197)
Darling X neg_dev	-0.342			-0.323
	(0.334)			(0.365)

Table 2 – continued

	(1)	(2)	(3)	(4)
No_spplan		0.0910		0.809
		(0.507)		(0.621)
No_spplan X neg_dev		0.956		0.467
		(0.640)		(0.711)
Egoistic		0.860*		0.314
		(0.445)		(0.498)
Egoistic X neg_dev		-0.878		-0.817
		(0.618)		(0.635)
UNSC			0.629***	0.519**
			(0.226)	(0.226)
UNSC X neg_dev			0.637**	0.700**
			(0.249)	(0.302)
Exp_ratio			-1.168	-1.653
			(1.243)	(1.115)
Exp_ratio X neg_dev			0.840	0.452
			(1.259)	(1.398)
Exp_ave			-0.0431	0.0303
			(0.0619)	(0.0688)
Exp_ave X neg_dev			-0.0398*	-0.0394
			(0.0206)	(0.0257)
Observations	619	625	631	613
R-squared	0.384	0.365	0.367	0.408

Note: Column 1 includes further variables of recipient need and merit, column 2 variables of donor characteristics and column 3 variables of donor interest. Column 4 includes all additional control variables together. Standard errors clustered on recipient country in parentheses. Estimations include year-, report- and deviation-specific fixed effects (coefficients not shown).

*** p<0.01, ** p<0.05, * p<0.1

Table 3 –Robustness tests

	(1)	(2)	(3)	(4)
lagged DV (ln)	0.229***	0.218**	0.260***	0.229*
	(0.0656)	(0.0876)	(0.0725)	(0.116)
lagged DV (ln) X neg_dev	0.186***	0.139	0.168*	0.355***
	(0.0685)	(0.116)	(0.0916)	(0.112)
Population (ln)	0.313***	0.290***	0.309***	0.297***
	(0.0521)	(0.0615)	(0.0637)	(0.0785)
Population (ln) X neg_dev	0.361***	0.342***	0.428***	0.209**
	(0.0546)	(0.0691)	(0.0674)	(0.0923)
GDPpc (ln)	-0.158*	-0.133*	-0.143	-0.387**
	(0.0809)	(0.0729)	(0.104)	(0.177)
GDPpc (ln) X neg_dev	-0.0868	-0.220**	-0.126	0.203*
	(0.0752)	(0.0867)	(0.113)	(0.119)
Polity2	0.0537***	0.0424***	0.0592***	0.0260
	(0.0138)	(0.0155)	(0.0176)	(0.0167)
Polity2 X neg_dev	0.0315**	0.0182	0.0381*	-0.00911
	(0.0142)	(0.0151)	(0.0222)	(0.0273)
Fragmentation_3	1.496***	-0.186	2.310***	5.241***
	(0.536)	(0.648)	(0.741)	(1.502)
Fragmentation_3 X neg_dev	-0.0102	-0.0767	0.168	0.862
	(0.593)	(0.791)	(0.879)	(1.194)
Observations	625	316	211	104
R-squared	0.360	0.285	0.429	0.546

Note: Column 1 includes regional dummy variables; columns 2 to 4 present separate (instead of pooled) estimations for one, two and three year deviations from spending plans. Standard errors clustered on recipient country in parentheses. Estimations include year- and report--specific fixed effects; pooled estimations also include deviation-specific fixed effects (coefficients not shown).
*** p<0.01, ** p<0.05, * p<0.1

Appendix 1 – Definition of variables

Variable	Definition	Source
DV	Dependent variable: aid deviation, i.e., the difference between actual and planned (CPA); in absolute terms, constant 2011 US$, logged	DAC reports
Neg_dev	Dummy variable set to one for negative aid deviations	
Population (ln)	Total population of a recipient country in year t; logged and lagged by one year	World Bank, WDI
GDPpc (ln)	GDP per capita of a recipient country in year t; logged and lagged by one year	World Bank, WDI
Polity2	Revised combined polity score of a recipient country in year t; democracy score minus autocracy score; range from 10 (strongly democratic) to -10 (strongly autocratic); lagged by one year	Polity IV dataset
Fragmentation_1	First proxy of the relative importance of 'non-significant' aid relations for each recipient country in year t; aid relations are considered non-significant if a donor country provides a lower share of aid to a recipient country than the donor's overall share in aid to all recipient countries; the number of non-significant aid relations is then related to the number of all aid relations of a recipient country in year t; see text for details	Creditor Reporting System; own calculations
Fragmentation_2	Second proxy of the relative importance of 'non-significant' aid relations for each recipient country in year t; aid relations are considered non-significant if a donor country is not among the largest donors that cumulatively provide at least 90 percent of aid from all 23 DAC donors to a recipient country in year t; see text for details	Creditor Reporting System; own calculations
Fragmentation_3	Combination of Fragmentation_1 and Fragmentation_2; see text for details	Creditor Reporting System; own calculations
Deviation from growth path	Difference in the growth rate in GDP per capita (constant local currency) in year t from the average growth rate in the three previous years t-3, t-2, and t-1; lagged by one year	World Bank, WDI
Disasters (ln)	Number of people affected by natural disasters; logged and lagged by one year	International Disaster Database (http://www.emdat.be/)
Orphan	Dummy variable set to one for recipient countries and years when actual aid (CPA in constant US$) was lower than the 'normal pattern' by at least one percent of the recipient country's GDP in year t; the 'normal pattern' is estimated by regressing CPA in constant 2011 US$ on the recipient countries' GDP per capita, population and its score on 'voice and accountability' from the World Bank's Worldwide Governance Indicators (pooled across all recipient countries and the years 2007-2011); see text for details	DAC reports; World Bank; own calculations

Appendix 1 – continued

Variable	Definition	Source
Darling	Dummy variable set to one for recipient countries and years when actual aid (CPA in constant US$) was higher than the 'normal pattern' by at least one percent of the recipient country's GDP in year t; the 'normal pattern' is estimated by regressing CPA in constant 2011 US$ on the recipient countries' GDP per capita, population and its score on 'voice and accountability' from the World Bank's Worldwide Governance Indicators(pooled across all recipient countries and the years 2007-2011) ; see text for details	DAC reports; World Bank; own calculations
No_spplan	Share of donor countries not releasing forward aid spending plans in total aid commitments by all donors to a recipient country in year t; donors belonging to this group vary over time, with Japan and the United States being included throughout the period of observation	DAC reports; Creditor Reporting System; own calculations
Egoistic	Share of donors classified as egoistic by Berthélemy in total aid commitments by all donors to a recipient country in year t; including Australia, France, Italy, Japan, and the United States	Berthélemy (2006); Creditor Reporting System, own calculations
UNSC	Dummy variable set to one for recipient countries and years with membership in the UN Security Council; lagged by one year	United Nations
Exp_ratio	Proxy of export competition among donors granting aid to a recipient country in year t; for all dyads of active donors, we calculate the ratio of export shares by dividing the lower export share by the higher export share in the dyad of donors active in a recipient country in year t; we then take the average of all dyadic ratios, with higher average ratios indicating stronger competition among donors (see text for details); lagged by one year	COMTRADE; own calculations
Exp_ave	Proxy of the average importance of a recipient country in year t as an export market for donors granting aid; calculated as the average export share of all active donors in a recipient country in year t (see text for details) ; lagged by one year	COMTRADE; own calculations

Appendix 2 – Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Dep. Variable (pooled)	631	4.03	1.41	-2.66	7.55
One year deviation	316	3.84	1.41	-2.66	7.07
Two year deviation	211	4.11	1.40	-1.09	7.01
Three year deviation	104	4.45	1.35	-0.18	7.55
Population (ln)	631	16.21	1.61	13.09	20.99
GDPpc (ln)	631	7.31	1.11	4.98	9.63
Polity2	631	2.80	5.89	-9.00	10.00
Fragmentation_1	631	0.73	0.11	0.27	0.95
Fragmentation_2	631	0.69	0.10	0.27	0.91
Fragmentation_3	631	0.64	0.13	0.09	0.91
Change in polity2	628	0.05	1.42	-9.00	11.00
Deviation from growth path	631	-1.35	5.01	-25.63	13.58
Disasters (ln)	631	8.16	5.56	0.00	19.08
Orphan	622	0.22	0.41	0.00	1.00
Darling	622	0.14	0.34	0.00	1.00
No_spplan	625	0.25	0.17	-0.03	0.85
Egoistic	625	0.35	0.20	-0.03	0.91
UNSC	631	0.08	0.27	0.00	1.00
Exp_ratio	631	0.39	0.10	0.13	0.65
Exp_ave	631	0.91	2.50	0.00	23.81

Appendix 3 – Donors not releasing forward spending plans

DAC Reports on Aid Predictability from:				
2008	2009	2010	2011	2012
Japan	Greece	Greece	Greece	Greece
Korea	Japan	Japan	Japan	Japan
United States	United States	United States	United States	Norway
				United States