Collective Delegation and World Bank Aid Allocation

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Paper prepared for the International Studies Association meetings, March 26 - March 29,

2008, San Francisco, CA

Abstract

Most studies of multilateral foreign aid allocation assume that only the United States, or, in the case of regional institutions where the US has no role, some regional great power has de facto control over the institution. Although it may well be the case, it has seldom been tested against the alternative: the institutionalized governance structures matter in a way that allow the preferences of multiple states to matter. As most multilateral aid allocation decisions occur as a matter of collective delegation, we correct this misspecification by exploring how the distribution of votes—both in raw form and in a priori power indexes—affects aid allocation. We use a non-equivalent dependent variables design with pattern-matching and non-equivalent groups to test how variance in the distribution of votes across the multilateral development banks influences several dimensions of foreign aid.

The 1998 World Bank report Assessing Aid (World Bank 1998) claims that multilateral foreign aid is significantly more pro-poor than bilateral aid. rather than objective need. Despite a few dissenters (Lumsdaine 1993, Noel and Therien 1995), studies indicate that donor countries' strategic interests drive bilateral aid allocation(Maizels and Nissanke 1984, Burnside and Dollar 2000, Neumayer 2003). These studies rely on the donor interest-recipient need (DI-RN) model pioneered by McKinlay and Little (1977), which provides a foundation for thinking about foreign aid allocation and the factors that might divert foreign aid away from where it is most needed. In bilateral aid models, it appears to be especially effective, as economic, political, other strategic and even normative factors (such as good governance (Neumayer 2003) or human rights (Nielsen 2006)) considered by the donor government. This approach offers a solid foundation for analyzing multilateral aid allocation; however, analysts tend to misspecify multilateral donor interest. Much of the literature that addresses multilateral allocation either fails to include variables measuring donor members' interests or simply assumes that a simple aggregation of the controlling states' interests accounts for multilateral donor interest. When this occurs it may be easy to conclude multilateral aid is more pro-poor than bilateral aid, as it fails to follow the interests of the most important donor. We argue that by aggregating the preferences of states in multilateral development banks (MDBs) organizations, the collective interests of MDB members direct aid allocation, reversing the common conclusion.

Failing to aggregate members' preferences at an institutional level ignores institutions' formal decision-making rules. In highly institutionalized settings, the preferences of small countries can influence aid allocation. As with Nielson and Tierney (2003) and Lyne, Nielson and Tierney (2006), we depart from traditional aid allocation models. They argue that collective delegation has led to a shift in environmental and social lending at the multilateral development

banks (MDBs). We argue that collective delegation also matter for overall allocation, not just specific aid sectors.

Aid studies have examined the role of economic and political strategic concerns. Bilateral studies demonstrate that both these factors strongly influence aid allocations. Essentially, a collective delegation approach to multilateral lending argues that economic or political preferences of all states need to be aggregated in modeling aid allocation, not just the most powerful states in an institution, however that may be measured. This suggests we should see that multilateral aid follows the aggregate interests of a majority of the organization's member states and not just the more narrow interests of the most powerful member states in an organization.

We proceed by examining the literature on multilateral allocation and its failure to address issues of collective delegation. Next, we discuss how institutional rules allocate power and aggregate preferences in the context of a principal-agent model of aid allocation and suggest a series of hypotheses based on realist and institutionalist theory. We review our research design, project limitations, data and methods and proceed to our empirical analysis. Following this, we compare a model of US preferences for World Bank aid allocation with a model of collective preferences for allocation using data from the Project Level Aid (PLAID) database from 1980-2000. Finally, we present our results, discuss them and conclude.

Aid allocation literature and multilateral donor interest

Studies of multilateral aid allocation often fail to properly specify donor interest portion of the DI-RN model. In a review of 43 analyses of aid allocation (Neumayer 2003), sixteen

either focus on or include multilateral allocation.¹ Four studies focus exclusively on EC/EU² aid and the remaining twelve examine aid from multilateral agencies that only give aid to their members. We also include Nielson and Tierney (2003, 2005), Lyne, Nielson and Tierney (2006)³, Weck-Hannemann and Schneider (1991) and Vaubel (1996). Many of these studies use the DI-RN model pioneered by McKinlay and Little (1977).

Donor interest is often specified as political, commercial, or other strategic interests. Analysts then operationalize DI as former colonial status or other security interests, production of strategic materials (Maizels and Nissanke 1984, Tsoutsoplides 1991), donor's exports to recipients (Bowles 1989, Frey and Schneider 1986, Grilli and Riess 1992) or the recipients exports of such materials (Svensson 2000), or arms transfers from donors to recipients (Mazels and Nissanke 1984, Neumayer 2003a, 2003b). Likewise, recipient need is specified using variables like the Human Development Index (Grilli and Riess 1992), a physical quality of life index (PQLI) (Neumayer 2003b, Trumbull and Wall 1994, Wall 1995), economic performance variables (Frey and Schneider 1986), external debt (Frey and Schneider 1986, Grilli and Riess 1992) or other variables indicating quality of life in the recipient country.

These studies demonstrate an important misspecification of donor interest. When analysts account for and operationalize donor interest, the authors often assume that multilateral interests are equivalent to US interests or the interests of the most powerful member state. While this may be a useful assumption, it has no theoretical motivation in economics—where many of these studies originate. An aggregation of interests that ignores institutional design or the role

¹ These include Alesina and Weder 2002; Anyadike-Danes and Anyadike-Danes 1992; Bowles 1989; Davenport 1970; Dowling and Hiemenz 1985; Frey and Schneider 1986; Grilli and Riess 1992; Isenman 1976; Maizels and Nissanke 1984; Neumayer 2003a, 2003b, 2003c; Svensson 2000; Tsoutsoplides 1991 and Wall 1995.

² Anyadike-Danes and Anyadike-Danes 1992, Bowles 1989; Grilli and Riess 1992; Tsoutsoplides 1991. The results of EC/EU studies demonstrate that the EC/EU more resembles bilateral lenders in its strategically driven aid allocation than multilateral lenders.

³ Henceforth, LNT.

that small nations can play in highly institutionalized international settings can lead to biased results (LNT). Although Nielson and Tierney (2003, 2005) and LNT do not situate themselves within the DI-RN model and instead analyze sectoral (environmental and social aid allocation, respectively) rather than overall allocation, they are the exceptions to this pattern.

Principal-agent theory and Multilateral Donor Interest

Recent work on principal-agent theory and international organizations undermines the realist assumption with respect to IOs, namely, that IOs are epiphenomenal to states' interests (Nielson and Tierney 2003). Many economic evaluations of multilateral aid allocation unconsciously share this assumption with realism through ad-hoc econometric analyses rather than relying on theoretical arguments about how and why certain states might dominate allocation decisions. This prevents a deeper analysis of how international organizations affect, influence and may even work against the interests of an IO's dominant members.

Our core theoretical insight draws on the distinction between bilateral and multilateral aid. When aid is given bilaterally, aid reflects a donor's strategic interests, including economic, political, normative (Alesina and Weder 2002, Neumayer 2003a), and bureaucratic concerns (Mosely 1985). That the US gives substantial amounts of foreign aid to Egypt, for example, is a reflection of the strategic importance that Egypt plays in US foreign policy in the Middle East. When aid is given multilaterally, it is a step removed from the interests of the donor. Instead, a series of donors with different individual strategic interests, collectively make decisions regarding the distribution of aid from a multilateral source. Individual donor interests alone cannot drive all aid allocation.

Voting Rules and Power

Following Nielson and Tierney (2003), we focus on voting institutions to see how effectively they explain IO behavior. We rely on principal-agent (P-A) theory and its insight that an actor may not have the capacity or the will to undertake certain tasks, so she delegates these tasks to others. In the context of international relations, delegation occurs when a principal makes a specific, renegotiable grant of authority to an agent (Hawkins et al. 2006, 7). However, delegation to IOs is an act of collective delegation. That is, member states must act together to produce new policy and make decisions about aid allocation (Nielson and Tierney 2003).

P-A theory generates insights about the success of delegation based on the degree of divergence between the principal and the agent. In the case of MDBs, member governments delegate decision-making authority to the bank's Board of Directors. Formal rules distribute voting power to the various member states (principals) who collectively make decisions about the bank's actions. Following formal institutions implies that unless a single state (or a group of states with sufficiently overlapping preferences) receives the entirety of the votes, modeling influence in this manner will lead to incorrect conclusions about outcomes. Vote distributions are only one measure of power at MDBs.

Studies of the U.S. Electoral College system (Banzhaf 1968) recognized that measuring power based on votes missed the coalitional implications of voting systems. Votes do not simply distribute power. For example, some states might have the ability to make or break winning coalition due to their relative influence in the coalition. Banzhaf formalized this idea arguing a state's power is a function not simply of its vote shares, but how important it is in terms of the votes it offers to potential coalitions. Banzhaf divided this by the total number of coalitions possible in the system, yielding a state's overall power or influence on decision-making. This formulation is referred to as the Banzhaf Power Index (BPI).

For example, table 1 presents five actors with different votes. If the decision rule is simple majority (50%+1), no actor is powerful enough to make policy on his or her own. If we measure power based on vote shares, A is clearly the most powerful. B appears to be next most powerful by vote shares, but the BPI equates it with C and D, both of whom have fifteen percent of the votes. The BPI gives E's power as much less than its votes would indicate, dropping from 0.1 by votes to 0.032 by BPI. In this case, the BPI appears to confirm the power indicated by A's votes, but point out that the others have even less than their votes indicate. However, it also suggests that the power across the mid-level actors B, C, and D, despite having different vote shares of .2 and .15, is essentially the same.

Table 1: Votes and the Banzhaf Power Index

| Actor | Vote Share | Times Pivotal | BPI* |
|-------|------------|---------------|-------|
| A | 0.4 | 13 | 0.42 |
| В | 0.2 | 3 | 0.097 |
| С | 0.15 | 3 | 0.097 |
| D | 0.15 | 3 | 0.097 |
| E | 0.1 | 1 | 0.032 |

^{*}Calculated with 31 possible coalitions

Although most MDBs insist that decision-making occurs by consensus, in practice these decisions occur under the shadow of voting. Analyses of the IMF and the World Bank provide evidence that institutional power differs from what might otherwise be expected (Vaubel 1991, Frey 1986, Dryer and Schotter 1980). Further

studies of the differences between a power index and vote shares imply that different results would occur if different measures of institutional power were used (Strand 1999, 2001, 2003a, 2003b), although they are not used in an empirical analysis. Although such a priori measures of voting power treat all coalitions as equally likely (Gelman et al. 2004), they offer a general approach to considering how voting rules might influence aid allocation.⁴

⁴ Gelman et al. (2004) address the problematic nature of voting indices more generally, but their analysis applies to using voting indices to assess the influence of an individual within the voting system, rather than the effect of the institutional actor that holds a bloc of votes, such as a nation-state in the MDBs or a state in the Electoral College.

Delegation and Aid Allocation

By considering the role of voting rules in collective delegation, we can return to our core question. To what degree does analyzing multilateral aid allocation without taking voting rules into account matter? More specifically, does a collective delegation approach to multilateral lending, which takes into account the preferences of all member states in an institution, more closely match the realities of multilateral aid allocation? To address these questions we use realism and institutionalism to develop competing hypotheses about the role of collective delegation in aid allocation

Realist theory suggests institutions act as perfect agents of the most powerful principle in their membership. The nature of institutions does not matter, nor does its membership or voting structure. Institutions are epiphenomenal to states and are thus good agents of their most powerful principles (Mearsheimer 1994) Institutionalist theory suggests institutions matter a great deal and reduce the transaction costs of multilateral action (Keohane 1984; Keohane and Martin 1995). Decisions are not simply dictated to the institution from its most powerful member; rather, decisions are the result of the institutional framework in which a series of states interact. In this view, institutions are not good agents of the most powerful principle in their membership. This does not mean that institutions cannot or do not follow the interests of the most powerful member at times, this may in fact be true when one accounts for voting rules, it is to stay that institutions are not simple extensions of a powerful state's interests.

The realist and institutionalist arguments presented assume self interested, egoist state behavior. However, it is important to note that if states are not simply self interested and instead are altruistic in nature, a hypothesis that works out based on the egoist assumption is not necessarily unique. Further research in this area is needed before the relationships in the hypotheses below can be solidified.

With these approaches in mind, we derive the following hypotheses.

Hypotheses:

Realism

H1a: As a MDB's most powerful member states' preferences for economic interaction with a potential multilateral aid recipient increase, aid to that country increases.

H1b: Changes in and MDB's collective preferences for economic interaction with a potential multilateral aid recipient will have no effect on aid allocations to that country.

Institutionalism

H2a: Changes in a MDB's most powerful member states' preferences for economic interaction with a potential aid recipient will have no effect on aid allocations to that country.

H2b: As a MDB's collective preferences for economic interaction with a potential aid recipient increase, aid to that country increases.

Data and Methods

We test our hypotheses on a dataset of over one-thousand country-year observations of aid recipiency. As our dependent variable, we use aid data from the Project-Level Aid (PLAID) database⁵. The PLAID database contains project level aid data for the World Bank aid commitments. We add one to each of our observations so as not to lose data when we log this value. We pool our data and use a lagged dependent variable to control for the effects of time (Beck and Katz 1995). For our core independent variables, we construct weighted values of US and World Bank exports to aid recipients. For the US value we simply multiply US exports to an aid recipient by the US voteshare or BPI in the year that aid was allocated. For the World Bank value we multiplied the value of the exports received by an aid recipient by the voteshare or BPI of the country sending the exports. Then we summed this value for a given year, giving us a

⁵ Funded by National Science Foundation grant SES-0454384 and jointly managed at Brigham Young University and the College of William and Mary.

collective measure of the economic importance of an aid recipient to the World Bank as a whole. We also included, in some models, either the voteshare or BPI of the recipient country, to control for the effect of a recipients' power at the World Bank mattered for allocation.

As general controls, we included a recipient country's savings rate, percent of FDI relative to GDP, an indicator for whether a recipient was a colony, the log of GDP per capita, the GDP growth rate, the literacy rate, the log of external debt, and the log of population. These are standard indicators of recipient country need.

Results & Analysis

Table 2 presents our results. We ran several models to see how United States and World Bank preferences for aid influenced aid allocation before we ran them together. Although we compared an unweighted measure of preferences for both the US and the IBRD, the coefficients across these models do not change across the models. In every case these coefficients fall within the confidence interval of the others.

| Table 2: Ef | fects of | US, | Collective I | Preferences | on Aid Allocation |
|-------------|----------|-----|--------------|-------------|-------------------|
|-------------|----------|-----|--------------|-------------|-------------------|

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--------------------------|----------|----------|-----------|-----------|---------------|-----------|
| COEFFICIENT | US, VS | US, BPI | IBRD, VS | IBRD, BPI | IBRD & US, II | BRD & US, |
| Log(Aid) | weighted | weighted | weighted | weighted | VS | BPI |
| Log(US exports, weighted | 0228 | | | | 048** | |
| by IBRD voteshare) | (.0192) | | | | (.0207) | |
| Log(US exports, weighted | ` / | 0238 | | | , | 0494*** |
| by BPI) | | (0107) | | | | (0104) |
| Log (IBRD exports, | | (.0187) | .054 | | .124 | (.0184) |
| weighted by voteshare) | | | (0 = =) | | (00 10) | |
| | | | (.077) | | (.0846) | |

| Log(IBRD exports, weighted by BPI) | | | | .031 | | .107 |
|------------------------------------|----------|----------|----------|----------|----------|----------|
| 5 , | | | | (.0733) | | (.0825) |
| Recipient's voteshare | 11*** | | 11*** | | 11.2*** | |
| • | (4.02) | | (4) | | (3.97) | |
| Recipients' BPI | | 3.36** | | 3.26** | | 3.33** |
| - | | (1.46) | | (1.47) | | (1.45) |
| Constant | -14.3*** | -12.9*** | -13.8*** | -12.5*** | -14.2*** | -12.8*** |
| | (1.94) | (1.73) | (1.95) | (1.78) | (1.94) | (1.77) |
| Observations | 1143 | 1143 | 1143 | 1143 | 1143 | 1143 |
| R-squared | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 |

Robust standard errors in parentheses, clustered by country *** p<0.01, ** p<0.05, * p<0.1

The coefficients do not vary across these models, even for the R-squared of each model. Our measure of US preferences, the voteshare- or BPI-weighted exports to the aid recipient country is only significant in the model that includes both the US and IBRD preferences. A one percent increase in either of these measures yields about a 0.48 percent decrease in aid. For example, a one million dollar increase in US exports to a given aid recipient reduces IBRD aid receipts by five hundred dollars. The voteshare – or BPI-weighted collective of exports – our indicator of collective preferences for delegation, is not significant in any model. In all models, the recipients' power at the IBRD, whether measured by voteshare or BPI, has a positive, significant effect on aid recipiency. A one percentage point increase in these measures leads to an eleven (when measured by voteshare) or three (when measured by BPI) percent increase in aid recipiency. For example, using the BPI, moving from a voteshare of 0.21 to 0.22 increases on initial aid allocation of one million dollars by about three thousand dollars.

We find that the log of per capita GDP, per capita GDP growth, and the log of population are also significant throughout these models, at least at the .05 level. Across models, a one percent increase in GDP yields about a 0.64 increase in aid, a one percent increase in population yields about a 0.62 increase in aid, and a one percentage point increase in GDP growth yields

about 0.025% increase in aid.

Our findings confirm at least one of our hypotheses, while our controls tell an interesting additional story. First, aid allocation appears to flow contrary to US economic preferences. Second, institutional power does appear to influence aid allocation. That is, as vote shares increase, so does the aid received by a country. We emphasize that the voteshares and BPI measures included in this dataset are strictly those of the countries receiving aid. Essentially, recipient countries with higher institutional power receive more aid. Last, our three significant control variables tell interesting stories about the direction of bias in aid allocation at the World Bank. Aid flows to countries with larger GDPs, higher levels of growth, and larger populations. These regressions indicate that although aid allocation does not follow US economic preferences, it does not appear to flow to countries with objective need. This may confirm the statements of the World Bank in 1998 report *Assessing Aid* regarding the pro-poor nature of World Bank lending.

There are important robustness checks which still need to be completed including analyses with country and year fixed effects as well as a Tobit model (since much of our data is left-censored at zero). Additionally, the fact that the R-squared does not change across models would seem to indicate that including both measures has no impact on the information in the last regression. As R-squared is notorious for increasing every time an analyst adds a new variable, the fact that ours does not change is cause for concern.

Yet, both measures add important nuance to the stories often told by econometric studies of aid allocation. These studies conclude that multilateral institutions allocate aid in a more propoor manner than bilateral aid donors. They find no evidence that strategic concerns of powerful states drive aid allocation and that recipient need indicators do drive aid allocation. This leads us

to suspect that institutional factors at the World Bank have an important effect on aid allocation. Although this hardly news to anyone familiar with the World Bank, the econometric evidence supports the often anecdotal and non-systematic accounts of bias in World Bank aid allocation.

Conclusions

While no final conclusions can be drawn from this study, it provides a solid foundation for future work on the importance of collective delegation at the World Bank and other multilateral aid organizations. While final conclusions are not possible, our analysis suggests H1a, that the most powerful member states of an MDB will act to disperse aid to states in their strategic economic interest, is false. Instead, aid allocation appears to flow against the economic preferences of the United States at the World Bank. This finding may suggest H2a, that change in the economic interests of the most powerful member states in an MDB will not affect aid allocations, is correct. Moreover, the finding that the institutional power of recipient states influences aid allocation suggests that further work is needed to successfully evaluate H1b and H2b; however, there may in fact be a relationship and it is worth investigating. Of particular worth from this study however, is that aid seems to flow to countries with objective need – a confirmation of nonsystematic studies and claims by MDBs.

Further work is needed to definitively test all of the hypotheses set forth in this paper. Addressing the invariance in our R-squared values as well as analysis with country and year fixed effects is important to tightening up this study. A Tobit model of the data used in this study is also an important step for the future. Enlarging the pool of MDBs studied to include more than just the World Bank would aid in generalizing our findings as well as provide for increased depth of study. Ultimately, this is a solid first step in better understanding collective delegation at

MDBs and empirically testing institutional factors at the World Bank which influence aid distributions.

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