Strategic Aid: International Political Economy, Public Choice, and Donor Interest at Multilateral Development Banks

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Abstract

The literature on multilateral aid allocation unconsciously makes the realist assumption that IOs are epiphenomenal to states' interests. Multilateral development banks are rarely presented as having interests independent of their member states. Drawing on principal-agent theory, public choice theory and international political economy, we argue that internal and external factors unique to the banks, rather than their member nations will bias multilateral lending away from poor countries. Particularly, we examine development bank staff and board members as economic agents making decisions constrained by formal institutions. Executive board members will lobby for bigger loan amounts, and pivotal players who can make or break voting coalitions will succeed. Staff members get promoted for producing bigger loans, and target them to highly indebted countries, where demand is higher. Additionally, managers pursue incrementalism, pushing the size of their budgets upwards, so loans go to countries that received more money the year before rather than the countries that need them. Furthermore, organizations want to keep growing so as to show their continued importance, and staff contribute to this goal. We test these hypotheses using annual allocations for the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA), taken from the Project-Level Aid Database on foreign aid.

The 1998 World Bank report *Assessing Aid* (World Bank 1998) claims that multilateral foreign aid is significantly more pro-poor than foreign aid given by bilateral donors. Despite a few dissenters (Lumsdaine 1993, Noel and Therien 1995), the consensus is that bilateral foreign aid is driven by donor countries' strategic interest (Maizels and Nissanke 1984, Burnside and Dollar 2000, Neumayer 2003). These models 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. However, although this approach even provides a solid foundation for analyzing multilateral aid allocations, much of the literature that addresses multilateral allocation either fails to include donor interest-type variables or simply assumes that a simple aggregation of the controlling states' interests amounts to accounting for donor interest.

This approach fails on several counts. First, it ignores institutions' formal decision-making rules. Second, it assumes that international institutions are good agents, without some set of preferences independent of its member states which may in fact represent what we call "strategic multilateral behavior." Public choice and political economy approaches provide important starting points for analyzing how and why a bureaucracy's preferences may diverge from those of its principals. We use these approaches to develop a more realistic set of multilateral donor interests.

We argue that studies that ignore bureaucratically-rooted donor interest at the multilateral level will lead to omitted variable bias. It may be that multilaterals are not as pro-poor as studies indicate, principally because of this bias. By performing data analyses in which public choice

and political economy variables remain in the error term, we suspect that researchers in this field obtain biased estimates of multilateral aid allocation.

We proceed by examining some general critiques of the World Bank's performance in order to show potential "strategic multilateral behavior" at work in aid allocation. Next, we review the aid allocation literature. Using principal-agent theory and public choice analysis, we examine various incentives both within and without multilateral development banks (MDBs) that bias aid lending. After discussing data and methods, we analyze a dataset of annual aid allocations from the main lending arms of the World Bank, the International Bank for Reconstruction and Development and the International Development Association using ordinary least squares[1].

Critiques of World Bank aid allocation

The Meltzer Commission report of 2000 notes that "At the entrance to the World Bank's headquarters in Washington, a large sign reads: 'Our dream is a world without poverty,'" a testament to the mission of the Bank today. Poverty alleviation was never a part of the Bank's original mission and was added as the IDA came into existence and Robert McNamara pushed the idea home during his tenure as president of the organization (Gilbert and Vines 2000, Finnemore 1996). Addressing critiques of development banks, specifically the World Bank, is important to filling the holes left in the development aid literature surrounding "strategic multilateral behavior" and its relationship to pro-poor aid as it has developed over time. These critiques, especially where they connect to the effects of bureaucracy on aid allocation, institutional growth, the role of the Executive Board, and the makeup of staff, indicate that multilateral development aid is not as pro-poor as many studies currently indicate

[1] In future iterations we intend to use a two-step (also known as Cragg, or double-hurdle) model, following Nuemayer 2003b.

The 2000 Meltzer Commission report identified a number of shortcomings at the World Bank which potentially support strategic multilateral allocation. Specifically, while the Bank proclaims to aid those nations most impoverished and most lacking access to private funds, 70% of Bank money finds its way to eleven countries which have access to private aid (Meltzer 2000). Furthermore, the report notes that the "patterns of lending over the past 3 years are very similar: to the same countries for the same purposes" and that sustainability, an important factor for progress in the developing world, is only given a 5% weight in evaluating project success (Meltzer 2000). There seems to be an internal tendency to continue distributing money in a fashion which is tried and true and contains little of the risk associated with battling poverty. In the aggregate, the majority of World Bank loans have gone to states receiving an international bond rating of B or better and between 1993 and 1999 the share of unrated recipients of IBRD support fell from 40% to under 1% (Meltzer 2000).

In a related issue, conventional wisdom suggests that many of the poorest countries are also the most corrupt and thus will receive the less aid due to the "good governance" aid allocation policy found at the World Bank. However, existing literature suggests that neither bilateral donors *nor* multilateral donors penalize their aid recipients for corruption at the state level (Alesina and Weder 2002). This in effect means aid money *could* flow to any state regardless of its government's tendencies; however, the Meltzer report clearly shows this is not the case.

A growth imperative found at the World Bank may also contribute to strategic multilateral behavior. Miller-Adams (1999) notes that organizations strive to ensure organizational survival and better its bargaining power with others through steady growth. The Bank has continued to introduce new field offices in regions specifically covered by other development banks despite the potential for duplication of duties and conflict in those regions

(Meltzer 2000). Looking at growth in terms of aid allocation and adjusting for inflation, the organization has doubled in size over a 30 year period (Barnett and Finnemore 2004). In general literature describing IO behavior, it is suggested that IOs, as bureaucracies, conceptualize and form the problems of the world in terms which require their expansion and growth (Barnett and Finnemore 2004). This type of growth may even threaten the success of organizations like the Bank. Barnett and Finnemore (2004) note that shortcomings in definitions of issues and set operating procedures have caused the World Bank, even as it grows, to miss conditions in recipient countries. This has negatively affected the aid allocation of the organization with respect to recipient need.

The fact remains that the World Bank's established practices, now rooted in the bureaucracy, may indeed be working against the declared efforts of the Bank to reduce poverty. Better understanding the aid allocation nature of the Bank may shed some light on the nature of these practices and bring forward strategic multilateral behavior.

Aid allocation literature and multilateral donor interest

Studies of multilateral aid allocation often fail to specify the donor interest portion of the DI-RN model. Neumayer (2003) reviews 43 analyses of aid allocation. Sixteen of these either focus on or include multilateral allocation in their analyses of aid allocation.[2] Four studies focus exclusively on EC/EU[3] 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)[4], Weck-Hannemann and Schneider (1991) and Vaubel (1996).

[2] These include Alesina and Weder 2002; Anyadike-Danes and Anyadike-Danes 1992; Bowles 1989; Davenport 1971; Dowling and Hiemenz 1985; Frey and Schneider 1986; Grilli and Riess 1992; Isenman 1976; Maizels and Nissanke 1984; Neumayer 2003a, 2003b, 2003c; Svensson 2000; Trumbull and Wall 1994; Tsoutsoplides 1991 and Wall 1995.

[3] 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.

[4] Henceforth, LNT.

Many of these studies use the donor interest-recipient need model pioneered by McKinlay and Little (1977).

Donor interest is often specified in a set of variables indicating political, commercial, or other strategic interests, operationalized 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), 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. Several scholars supplement donor interest-recipient need (DI-RN) models with variables such as corruption (Alesina and Weder 2002; Neumayer 2003a, 2003b; Svensson 2000), human rights and political freedom (Neumayer 2003a, 2003b; Trumbull and Wall 1994; Wall 1995), and democracy (Alesina and Weder 2002).

This sample consists entirely of multilateral studies and demonstrates two types of misspecification of donor interest. First, when they account for and operationalize donor interest, the authors often assume that multilateral interests are equivalent to US interests or the aggregated interests of the most powerful member states. 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 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 analyze sectoral (environmental and social aid allocation, respectively) rather than overall allocation, they are the exceptions. All of the other studies in our sample are guilty of this error.

Second, most of these studies (excepting Bowles 1989, Vaubel 1996, Weck-Hannemann and Schneider 1986) ignore the possibility of bureaucratic interest biasing properly specified donor interest. That is, multilateral donors may have an interest independent of their member state principals. Neither of these assumptions and the misspecifications they engender has foundation in economic theory. In international relations theory, however, these assumptions are equivalent to realist analysis of international organizations (IOs): Any IO preferences are assumed away, and only powerful state preferences matter (Nielson and Tierney 2003, 2005; LNT). We use principal agent theory and public choice to demonstrate that by assuming that international organizations unproblematically adopt the preferences of powerful member states, scholars have missed an important difference in the "interests" of international organizations and their member states. Bureaucracies, institutions and individual-level behavior matter for multilateral agencies' allocation.

Principal-agent theory and public choice perspectives on aid allocation

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. Indeed, this raises the question of why states bother with multilateral aid at all (Rodrik 1996, Milner 2006). We ignore this question, preferring to elucidate the difference that channeling aid through a multilateral agency makes for aid allocations relative to donor nation preferences.

Following Nielson and Tierney (2003) we prefer to focus on formal institutions to see how effectively they explain the IO behavior. As they point out, if this approach fails to explain significant levels of variance then we should begin exploring informal power at IOs. Principal-agent (P-A) theory relies on the 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 grant of authority to an agent. This grant must be renegotiable (Hawkins et al. 2006, 7). In the case of multilateral delegation, P-A theory must be extended to account for collective and multiple principals. In the first case, delegation (or its renegotiation) cannot occur without the decision of a group authorized to make such decisions. In the second, the authority to delegate may be located among separate principals, each with independent authority to renegotiate the delegation contract (Nielson and Tierney 2003, LNT, Hawkins et al 2006).

P-A theory generates insights about the success of delegation—relative to the principal's preferences—based on the degree of divergence between the principal and the agent. In the case of MDBs, a state delegates decision-making authority to the bank's Board of Directors. Formal

institutions distribute voting power to the various member states (principals) who must make decisions about the bank's actions as a collective principal. Following formal institutions implies that unless a single state (or a group of states with sufficiently identical preferences) receives the entirety of the votes, modeling influence as such will lead to incorrect conclusions about outcomes. If formal institutions fail to adequately explain outcomes, then we should emphasize the role of informal institutions and power. In such a case we should supplement accurate models of formal institutions, rather than replace them with informal ones.

Vote distributions constitute an obvious measure of power at MDBs. However, this distribution does not simply allocate power directly to the member with the most votes. We assume that voting occurs on a unidimensional policy space, and that in spite of MDB's insistence that decision-making occurs by consensus, in practice these decisions occur by constructing minimum connected winning coalitions—the smallest possible coalition of states adjacent to each other on a unidimensional policy space (Nielson and Tierney 2003, LNT). In a general model of aid allocation, however, we need to construct minimum winning coalitions—the smallest coalition of states, regardless of their adjacency on a policy scale. Their empirical analogue is a Banzhaf power index, in which the power of each member is similarly a matter of "pivotal players." When voting, power accrues not only to those who hold large blocs of votes, but also to those pivotal players with the ability to break coalitions by defecting from them. 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). Following LNT, we argue that states may matter for decision making in important ways, and those smaller states can use their voting power to bias aid allocation in their favor.

Public choice theory[5] applies the insights of neoclassical economic theory to government actors. Bureaucrats and politicians are no longer considered altruistic, or even as focusing on

[5] In political science, public choice is known as rational choice. We use the terms interchangeably.

their specific policy preferences, but on their interest: primarily increasing their salaries, keeping their jobs, getting re-elected, and increasing their prestige among relevant reference groups (Frey and Scheider 1986, Weck-Hannemann and Schneider 1991, Vaubel 1996, Milner 1996). In making rational choice arguments for bureaucratic behavior at MDBs, we argue that various institutional factors will be reinforced on the individual level. Aid agency bureaucrats maximize their budgets, incomes, and prestige within their organization and the international aid community, and, accordingly minimize behavior that will lead to censure or getting fired. We argue that behavior that violates the financial and institutional exigencies of development finance will be punished. The World Bank, for example, focuses on projects and overall disbursements as a measure of institutional effectiveness (World Bank 1998, 51). We assume that MDB bureaucrats at all levels act with an awareness of these various institutional and financial factors[6].

Several authors argue that World Bank staff members (but not those at other international financial institutions) will restrict lending to credit-worthy states for the sake of prestige in the international banking community (Vaubel 1991, Frey 1986, Weck-Hannemann and Schneider 1991). We dissent, expecting the adage "When you owe the bank $100, you have a problem, but when you owe the bank $1 million, the bank has a problem" to guide allocation decisions. The World Bank engages in what it calls "defensive lending," in which it provides loans for debtor countries to pay back previous loans. Birdsall, Claessens and Diwan (2003) find evidence for the practice, at least in Africa. We argue that as a country's level of indebtedness to a specific MDB increases, defensive lending will also increase.

Additionally, most MDBs have concessional funds or organizational windows which depend on regular replenishments rather than capital subscriptions and capital markets. Not only do these windows provide member countries with leverage for pushing various institutional reforms (Nielson and Tierney 2003), but they also create a time horizon within which MDBs

[6] Various sources, including Kanbur 2000, Four Corners 2002, Thomson 2004, support this assumption.

must attempt to demonstrate effectiveness (Vaubel 1991, 1996). Bureaucracies often rely on the size of their budget to demonstrate effectiveness. At the World Bank this has been attributed as one of the causes of the "approval culture" in which large loans have become a condition for promotion (World Bank 1992). At the same time, demonstrating effectiveness via portfolio size in the lead-up to replenishments leads to "hurry-up" lending (Vaubel 1996). We have no theoretical intuition for how this may affect allocation, but we include it to test the default. Further, during non-replenishment years basic bureaucratic impulses will take over—in particular, we expect MDB allocation by country to be incremental (Wildavsky 1964). That is, aside from exogenous shocks, aid allocation will be highly correlated with previous years (Weck-Hanemann and Scheider 1991).

Last, we expect the World Bank's Strategic Compact and similar policies and institutional reforms to affect biases against recipient needs in aid allocation. An important aspect of the Strategic Compact was to increase client responsiveness through the decentralization of Bank offices and procedures. Nearly one-third of World Bank staff were to be relocated to country offices. Additionally, authority was moved from headquarters to field offices and country directors, who would be moved to the field (Nielson, Tierney and Weaver 2006, 123). Country programs were to be closer to recipient governments, thus altering the relationship between the Bank and recipients. Nielson, Tierney and Weaver (2006) argue that decentralization was one of the strongest successes of the Strategic Compact. Decentralization and other reforms designed to improve the relationship between recipient governments and MDBs will reduce the amount of allocative bias.[7] We present the hypotheses we have derived below.

[7] An interesting follow-up to this question concerns sectoral allocations. Needy countries may receive more aid, but this aid may still not be of the types that will promote development among broad sectors of the countries' population because of corruption, cronyism, authoritarian governments and aid fungibility.

Hypotheses:

H1: Pivotal players get more aid.

H2: Highly indebted countries get more aid.

H3a: The volume of aid increases as replenishments come due, but aid allocation by country will be unbiased.

H3b: In non-replenishment years overall aid volume across countries will be highly correlated with previous years.

H4: Reforms designed to improve MDB responsiveness to recipient needs will reduce the amount of allocative bias against poor countries.

Data and methods

We test our hypotheses using data on multilateral aid allocation from the Project Level Aid Database (PLAID)[8]. We begin using ordinary least squares regression, recognizing the likely problems of such an approach. We control for heteroskedasticity using robust standard errors and cluster standard errors by country, to account for variation across countries. Future iterations will approach our econometric analysis with more sophistication, including two-step models, panel corrected standard errors and tests for autocorrelation. We use PLAID over OECD data on aid allocations primarily because data from OECD's Development Assistance Committee underreports multilateral aid allocation. Multilateral data from the OECD emphasizes grant-like aid over loans, and therefore favors IDA over IBRD projects. We include both grants and loans because whatever the concessionality of the loans, we assume that all aid from the World Bank is ostensibly given for development purposes. Initially our data spanned the period from 1980 to 2000, but the use of lags on all of our independent variables reduces the period to 1982 to 2000. We draw independent variables from our review of the literature, above. Table 1 presents descriptive statistics for all of our variables.

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

As our dependent variable, annual aid allocation, we take the total amount of aid allocated by the IBRD and IDA in a given year (*aid*). We analyze both pooled and separate samples. Our primary independent variables include Banzhaf indices calculated for each country in a given year at a given organization, the amount a country owes to the IBRD and IDA (Joint External Debt Hub 2007), dummy variables to indicate the years when IDA replenishments are scheduled, interaction terms of the IDA replenishment dummies and recipient need indicators,

Table 1: Summary statistics

Variable	Mean	Std. Dev.	Minimum	Maximum	*N*
Aid*	221	396.11	.2	5,000	1,821
Private capital flows (% GDP)	9.12	19.66	.0022	360.05	1,177
Arms Imports*	148	421	0	38.8	734
Exports to recipient*	7,900	17,200	0	163,000	1,286
Savings Rate (%GDP)	13.88	13.12	-77.99	50.98	1,237
FDI (%GDP)	1.89	3.29	0	39.81	1,180
Portfolio Investment*	195	933	-1,240	11,500	1,251
Colony Dummy**	.50	.50	0	1	1,821
GDP per cap. ($)	1,373.69	1,694.15	74.74	15,946.33	1,253
GDP growth per cap. (%)	1.40	5.83	-31.34	79.71	1,243
Literacy Rate	63.58	25.17	7.95	99.80	1,110
Inflation	52.83	296.93	-13.06	4962.22	1,131
Current Account Balance*	-805	3670	-33800	37000	1,198
Budget Surplus (%GDP)	-2.25	3.24	-15.16	7.62	267
Terms of Trade*	303,000	2,730,000	-6,730,000	45,300,000	1,153
External Debt*	17,500	308	12.9	241,000	1,251
Democracy-Autocracy Scale	-.23	6.86	-10	10	1,266
Corruption	2.86	.99	0	5	803
Population (Millions)	75.3	217	100,000	1,240	1,296
Voteshare Weighted Exports (IBRD)*	42,400	103,000	0	1,400,000	1,286
Voteshare Weighted Exports (IDA)*	43,700	104,000	0	1,400,000	1,286
Voteshares (IBRD)	.73	.11	.56	1.34	1,286
Voteshares (IDA)	.81	.12	.63	1.46	1,286
Banzhaf Index (IBRD)	.0073	.0012	.0056	.014	1,286
Banzhaf Index (IDA)	.0082	.0012	.0064	.015	1,286
IBRD & IDA Loans*	1,930	3,950	0	28,800	1,253
Total $IBRD_{t-3}$ (Dollars)	14,065.99	3,063.22	7,395.2	20,779.4	806
Total IDA_{t-3} (Dollars)	4,931.92		2,533	7583.5	847

All variables lagged two years, unless otherwise noted.
*Millions of $US
**Unlagged

and a dummy variable to indicate if lending was allocated under the World Bank's Strategic Compact, as well as the dependent variable, which we lag and sum for all recipient countries in a given year and organization. As mentioned above, the Banzhaf power index measures the ratio of the number of times a country is a critical defector from a coalition to the number of times all

of the countries were critical defectors.[9] We use this to measure how institutional power diverges from de facto vote allocations. The IDA replenishment dummies and interaction terms allow us to test the effect of bias against recipient country need as replenishments approach. The Strategic Compact dummies proxy for the increase in decentralization. Lastly, the lagged, summed dependent variable measures the effect of bureaucratic incrementalism. We expect the signs on the Banzhaf indices, debt to the IBRD and IDA, Strategic Compact dummies and lagged and summed dependent variable to be positive. As the IDA replenishment dummies approach the replenishment year we expect the sign on the dummies to be positive, with the interaction terms to be negative.

We contrast our approach to previous efforts to elucidate multilateral aid allocation by including other donor interest and recipient need measures as well as other variables that influence allocation. These consist of private capital flows, arms imports (World Bank 2005), the exports to recipient countries weighted by a donor's voting share in the IBRD or IDA (IMF 2006), the savings rate, FDI and portfolio flows to aid recipients, inflation (World Bank 2005), and dummies for colonial past (broken out by colonial power)[10]. If a country was a colony during the twentieth century, before and after World War I and World War II, we coded it as such. All of these indicate the military, strategic, or economic importance of the recipient countries. We do not include all of the donor interest (or, for that matter, recipient need or other influential factors) but aim to capture some of the most important variables in previous studies. We also include exports weighted by countries' Banzhaf index, as another alternative to the effect of voting power.

[9] We calculate a normalized Banzhaf index using the algorithm found at http://www.warwick.ac.uk/cgi-vpi/ipgenf.cgi. The values of a normalized Banzhaf index sum to one.
[10] Compiled from www.worldstatesman.org/colonies.html.

To capture recipient need we use GDP per capita, GDP growth, adult literacy rates,[11] inflation, balance of payments, budget surplus, terms of trade, and external debt levels. Again, all of these have been used in various studies to indicate recipient need. We expect, generally, to see the traditional donor interest and recipient need variables to fall from significance with the inclusion of our primary independent variables. We also include population, to account for the small-country bias in aid allocation (Isenman 1976, Neumayer 2003). Following several more recent studies we include a democracy variable (polity) (Neumayer 2003) and corruption (Alesina and Weder 2003, Svensson 2000).

To be more specific, we test several econometric models. We lay out our specifications here, primarily for clarity's sake. In our base specifications, we attempt to replicate previous DI-RN studies. Our general model is:

$$\begin{aligned}\ln(aid) &= \beta_0 + \beta_1 privatecapitalflows_{i,t-2} + \beta_2 \ln(armsimports_{i,t-2}) + \beta_3 \ln(\exp orts_{it-2}) \\ &+ \beta_4 savingsrate_{i,t-2} + \beta_5 FDI_{i,t-2} + \beta_6 portfolioinvestment_{i,t-2} + \delta_1 colony_i + \beta_7 GDPpercap_{i,t-2} \\ &+ \beta_8 GDPgrowthpercap_{i,t-2} + \beta_9 literacyrate_{i,t-2} + \beta_{10} \inf lation_{i,t-2} + \beta_{11} currentaccountbalance_{i,t-2} \\ &+ \beta_{12} budgetsurplus_{i,t-2} + \beta_{13} termsoftrade_{i,t-2} + \beta_{14} \ln(externaldebt_{i,t-2}) + \beta_{15} democracyscore_{i,t-2} \\ &+ \beta_{16} corruption_{i,t-2} + \beta_{17} \ln(population_{i,t-2})\end{aligned}$$

We specify it differently by testing it on the full dataset (IBRD and IDA) and by analyzing the IBRD and IDA separately. Additionally, we vary the export variable, using both an unweighted sum of exports to a recipient country as well as a voteshare weighted sum of exports.

In our next set of general specifications, we begin testing our hypotheses. The model we test is:

$$\ln(aid) = (previous \operatorname{var} s) + \beta_{18} Banzhafindex_{i,t-2} + \beta_{19} \ln(ibrdidaloans_{i,t-2}) + \beta_{20} totalloans_{t-3}$$

[11] We prefer the physical quality of life index (PQLI), following Neumayer (2003), Trumbull and Wall (1994) and Wall (1995), which is a weighted index of infant mortality, life expectancy and literacy rates. Unlike the human development index, the PQLI does not include GDP. From Neumayer's (2003, 45) standpoint, this is a positive, since it allows one to include GDP as a separate regressor. However, in our sample both infant mortality and life expectancy have such high levels of missing values that generating the PQLI only gives us 82 observations. In future iterations we plan to resolve missing data problems using multiple imputation, which will allow us to calculate a full PQLI, with appropriate standard errors.

The nature of our dataset requires that we test these by institutions. As above, we include different specifications of exports (weighted, unweighted) and alternately include the third year lag of total loans. This allows us to test H1 (pivotal players), H2 (indebted countries), and first cut for H3b (incrementalism). We expect positive coefficients for *Banzhafindex*, ln(*ibrdidaloans*) and *totalloans*. To test our remaining hypotheses we require a set of interaction terms. To test H3a ("hurry-up lending") we include year dummies for the year of a replenishment (*replenish*) and the years leading up to it, for up to three years (*replenish-1*, *replenish-2* and *replenish-3*) as well as interaction terms for the recipient need variables, to indicate how MDB allocation by need varies with the years leading up to a replenishment. We test H4 by including a dummy (*StratComp*) for the years 1997-2000, when the Strategic Compact was underway. As with H3a, we include interaction terms for the recipient need variables.

Analysis/Results

We present our results in Tables 2 and 3, below. The results of the regressions that included the Strategic Compact and replenishment year effects were unspectacular and not included in this analysis. Almost none of them were significant, and when they were, it was with minute practical effects. Consequently, H3a and H4 cannot be accurately evaluated in this study.

In all regressions GDP per capita is insignificant and moving in the wrong direction. Additionally, although literacy rate has a small effect when significant, it is not robust across specifications. In our base analysis we focus on determinates of donor interest and recipient need, including a democracy-autocracy scale and population as non-DI or –RN determinants.

Table 2: Base specifications—No bureaucracy variables

Ln(Aid)	(1) IBRD & IDA	(2) IBRD only	(3) IDA only	(4) IBRD , VS Exps	(5) IDA , VS Exps
Private Capital Flows†	0.0162	0.0159	0.172	0.0168	0.111
	(0.010)	(0.011)	(0.14)	(0.012)	(0.18)
Ln(Arms Imports)	0.0235	-0.00663	-0.0943	-0.0133	-0.0194
	(0.085)	(0.10)	(0.28)	(0.11)	(0.26)
Ln(Exports to recipient)	0.0559	0.115	-1.794		
	(0.23)	(0.23)	(1.43)		
Savings Rate	0.0355*	0.0390*	-0.0417	0.0400**	-0.0362
	(0.018)	(0.021)	(0.074)	(0.019)	(0.045)
FDI	-0.0967	-0.120*	-0.577	-0.108	-0.504
	(0.059)	(0.069)	(0.49)	(0.073)	(0.65)
Portfolio Investment	0	0	-4.53e-10	5.46e-11	-2.66e-10
	(0)	(0)	(2.47e-10)	(0)	(4.04e-10)
Colony Dummy	0.493*	0.296	-0.679	0.280	0.299
	(0.26)	(0.28)	(1.28)	(0.26)	(0.95)
GDP per capita	0.000169	0.0000411	0.00566	0.0000526	0.00369
	(0.00013)	(0.00013)	(0.0039)	(0.00014)	(0.0037)
GDP growth per capita	0.0145	0.0211	-0.152	0.0223	-0.0905
	(0.028)	(0.032)	(0.12)	(0.032)	(0.23)
Literacy Rate	0.0120*	0.0183**	-0.0713	0.0177**	-0.0269
	(0.0068)	(0.0069)	(0.092)	(0.0069)	(0.047)
Inflation	0.000500**	0.000394*	-0.0164	0.000363	-0.0140
	(0.00023)	(0.00022)	(0.037)	(0.00023)	(0.026)
Current Account Balance	-0**	-0**	-2.71e-10	-0**	-1.45e-10
	(0)	(0)	(2.18e-10)	(0)	(1.95e-10)
Budget Surplus	-0.0747*	-0.0833	-0.172	-0.0835	-0.102
	(0.038)	(0.056)	(0.089)	(0.055)	(0.063)
Terms of Trade	0	-0	0	-0	0
	(0)	(0)	(0)	(0)	(0)
Ln(External Debt)	-0.0329	0.0951	0.282	0.188	0.0132
	(0.31)	(0.31)	(1.95)	(0.33)	(2.57)
Democracy-Autocracy Scale	-0.0710**	-0.0662**	0.321	-0.0641**	0.0827
	(0.028)	(0.032)	(0.44)	(0.030)	(0.19)
Corruption	-0.206	-0.167	0.477	-0.171	0.260
	(0.17)	(0.22)	(0.36)	(0.22)	(0.43)
Ln(Population)	0.464**	0.331	1.699**	0.364	1.580
	(0.21)	(0.23)	(0.67)	(0.23)	(1.43)
Ln(Voteshare Weighted Exports (IBRD))				-0.0635	
				(0.22)	
Ln(Voteshare Weighted Exports (IDA))					-1.180
					(1.24)
Constant	8.484**	6.652	22.21**	8.160**	17.02
	(3.72)	(4.17)	(8.98)	(3.83)	(11.0)
Observations	145	118	27	118	27
R-squared	0.60	0.57	0.96	0.57	0.96

Robust standard errors in parentheses
**** p<0.01, ** p<0.05, * p<0.1*
All variables lagged two years except Colony Dummy

Savings rate, FDI, literacy rate, and the democracy-autocracy variables are significant. In table 3

Table 3: Specifications with Banzhaf indices, lagged aid, and IBRD/IDA loans outstanding

	(1)	(2)	(3)	(4)	(5)	(6)
Ln(Aid)	IBRD1	IDA1	IBRD2	IDA2	IBRD3	IDA3
Savings Rate	0.0370*	-0.0487	0.0389**	-0.0174	0.0394**	-0.0422
	(0.021)	(0.12)	(0.018)	(0.069)	(0.018)	(0.032)
FDI	-0.0972	-0.541	-0.0859	-0.612	-0.0911	-0.549*
	(0.062)	(0.53)	(0.065)	(0.64)	(0.068)	(0.23)
Literacy Rate	0.0220***	-0.0563	0.0209**	-0.0228	0.0214**	-0.00201
	(0.0074)	(0.17)	(0.0074)	(0.088)	(0.0076)	(0.14)
Inflation	0.000394*	-0.0115	0.000362	-0.0209	0.000371	0.00185
	(0.00023)	(0.032)	(0.00023)	(0.038)	(0.00023)	(0.068)
Democracy-Autocracy Scale	-0.0621*	0.236	-0.0592*	-0.0283	-0.0607*	-0.0802
	(0.035)	(1.13)	(0.033)	(0.64)	(0.032)	(0.91)
Ln(Population)	0.281	1.574***	0.320	1.486***	0.329	1.631
	(0.27)	(0.35)	(0.28)	(0.32)	(0.27)	(1.82)
Ln(IBRD/IDA Loans Outstanding)	0.184	0.434	0.174	0.967	0.180	1.204
	(0.17)	(3.91)	(0.17)	(3.81)	(0.17)	(4.80)
Banzhaf Power Index (IBRD)	296.2		260.2		275.8	
	(272)		(293)		(301)	
Banzhaf Power Index (IDA)		-87.31		381.5		747.4
		(913)		(364)		(891)
Ln(Voteshare Weighted Exports (IBRD))			-0.0479		-0.0463	
			(0.21)		(0.21)	
Ln(Voteshare Weighted Exports (IDA))				-1.038		-0.878
				(1.85)		(1.49)
Lagged Aid (IBRD) (3 year lag)					-0.0000446	
					(0.000071)	
Lagged Aid (IDA) (3 year lag)						0.000354
						(0.00024)
Constant	2.795	19.84	5.180	9.459	5.727	-5.427
	(4.43)	(37.5)	(4.05)	(23.9)	(3.72)	(59.0)
Observations	118	27	118	27	118	27
R-squared	0.58	0.97	0.58	0.96	0.58	0.97

Robust standard errors in parentheses
**** p<0.01, ** p<0.05, * p<0.1*
All variables lagged two years except Colony Dummy and institutional lagged aid variables, which are lagged three years.
Only significant variables that were in the table 1 are kept for this table.

we include only the base variables that are significant in the new specification. All of our models demonstrate the small-country bias, although the relationship is inconsistently significant. In terms of testing H1, H2, and H3b, none of our variables has a significant effect. As mentioned above, the tests for H3a and H4 were either insignificant or impossible to run given our data problems and we do not include them here.

Our data analysis, to this point, is extremely suspect. This is a result of several factors, including model specification, the small dataset that results from casewise deletion, and the likely non-random process generating our missing data. First, we use OLS to test our hypotheses. This is likely because we ignore selection biases, especially when broken down by organization. MacGillivray (2003) argues that a Heckman model—what he refers to as a type II Tobit—is most appropriate given the selection bias issues inherent in aid allocation. However, the requirement that the model be identified makes the Heckman selection model appropriate, but difficult to get right. Neumayer (2003b) argues for a two-step, or Cragg (1971) model, in which the selection and level equations are solved simultaneously and the hurdle of identification need not be overcome. We intend to use a two-step model in future drafts.

Second, the large amount of missing data in our dataset is compounded by casewise deletion of observations with incomplete data. We have over 1800 observations on our dependent variable. However, our best model—in terms of observations—only includes 136 of those. When we examine that dataset by organization, we lose more observations. While the IBRD-only models have 118 observations in the best case and 109 in the worst, our IDA-only models have only 27 observations. The models we aimed to estimate swiftly devour the degrees of freedom we have remaining. In the case of our tests of H3a and H3b, which require the use of IDA data, our models are unimplementable. Our other analyses of IDA lending use up most of our degrees of freedom—at this point the model nearly perfectly fits the data and becomes almost meaningless. We attempt to solve these problems by dropping the variable with the most potentially limiting number of observations. This, however, solves few of our problems, and introduces certain bias.

One variable in particular seems to potentially driving a significant portion of our data problems. We only have 267 observations for *budgetsurplus*. This may be driving our small

sample size, although a lack of overlap along other variables may still contribute to the problem, thanks to casewise deletion. Our initial regressions have high variance inflation factors (VIFSs; mean VIF 4.17, with a maximum individual VIF of 17.72). When we drop *budgetsurplus* we get almost 300 observations on the combined (IBRD and IDA) regression, with 213 and 85 in the separate IBRD and IDA regressions, respectively. However, our VIFs remain high. By centering *externaldebt*, we attempt to resolve the problem, but Stata simply drops the variable. Naturally, our VIFs become more manageable as this occurs, but we also know that we are introducing bias into our estimates by introducing endogeneity. Of course, we likely have large amounts of bias as a result of the casewise deletion process even in this case. While our model is no longer on the verge of consuming all of our degrees of freedom, our estimators are still biased.

Third, missing data poses another significant problem in our analysis. Missing data can be of three types. Data that is missing completely at random (MCAR) poses no real problems except that it reduces the size of a dataset. It introduces no bias because the "missingness" of the data is a result of random processes. If the data are missing at random (MAR), then the missing values depend on some other value in the dataset. The last process, non-ignorable (NI), occurs when a values missingness depends on its own unobservable value and none others in the dataset. Missing data that results from MAR processes leads to biased, inefficient estimators (King et al 2001, 50). Because the missing data in our dataset likely depends on development levels, we expect our estimators to be biased. Fortunately several implementations of multiple imputation algorithms exist. We intend to find variables with broader coverage and to use multiple imputation algorithms to deal with the biases that missing data causes.

Conclusions

Unfortunately, no major conclusions regarding our hypotheses can be reached as yet given the analysis completed in this paper. Regressions run in this study have yet to show any significant relationships between the distribution of development aid and the variables operationalized to test our hypotheses surrounding strategic development behavior.

That being said, there is significant reason for future work in this area. Data issues experienced in this study can be cleaned up in significant ways. Specifically, future work can utilize a two-step model as suggested by Neumayer (2003b) for analysis as apposed to simple OLS tests. Furthermore, increased work to address missing data issues, partly caused by the casewise deletion needed to run the models in this study will undoubtedly yield more precise and accurate results in the future. Also, this paper only sought to address variables associated with World Bank lending. Expanding the dataset to include lending of regional development banks as well will provide for more observations and increasingly whole data. Furthermore, literature surrounding multilateral behavior in principal-agent theory, public choice theory and international political economy seems to suggest that there is more to multilateral donor behavior than has yet been isolated. Future work on strategic multilateral behavior should be continued to address this hole in the development aid literature.

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