

Cooperation or Collusion: Explaining Bilateral and Multilateral Environmental  
Aid to Developing Countries

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Comments Welcome. This is a draft paper that uses a beta version of the PLAID database.  
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## **Cooperation or Collusion: Explaining Bilateral and Multilateral Environmental Aid to Developing Countries**

Why do donors provide environmental aid to developing countries? What are the effects of this particular type of development assistance? Since the Rio Earth Summit in 1992, scholars and policy analysts have spilled much ink over the causes and consequences of environmental assistance to developing countries. Yet the study of environmental assistance remains impressionistic and often based on qualitative case studies in small-*n* samples, thus limiting the prospects for a progressive accumulation of knowledge. One reason our collective knowledge about environmental aid remains limited follows from the lack of reliable project-level data that is necessary for testing many of the provocative hypotheses in the literature. We seek to rectify these shortcomings by collecting, coding, and analyzing a new database (PLAID) that covers thirty years of environmental aid data from 50 donors (bilateral and multilateral agencies) to more than 190 recipients. Specifically, we attempt to make sense of previously irreconcilable debates about bilateral and multilateral environmental aid and test a number of new hypotheses gleaned from the growing literature on delegation to international organizations (IOs).

The issue of environmental aid allocation is an important one because it speaks to a larger debate in the development literature on international public good (IPG) provision and aid effectiveness. Since the fall of the Berlin Wall, we have witnessed a dramatic shift in the rhetoric of bilateral and multilateral aid donors. From world leaders like George W. Bush, Tony Blair, and Kofi Annan, all the way down to paper-shuffling bureaucrats at USAID, DFID, and the World Bank, the aid community now enthusiastically embraces increased IPG provision and aid effectiveness. The International Financial Institution Advisory Commission, established by the

US Congress amidst heated debate in 2000 over \$18 billion of additional funding to the International Monetary Fund, urged multilateral development banks (MDBs) to redouble their IPG efforts. In particular, its authors argued for a sharper focus on the “treatment of tropical diseases and AIDS, rational protection of environmental resources, tropical climate agricultural programs, development of management and regulatory practices, and inter-country infrastructure.”<sup>1</sup> G-7 Finance Ministers also underscored the need for *ex ante* conditionality in 2000, calling upon “[MDBs to] emphasize a selective, quality-oriented approach rather than a quantity-oriented or profit-oriented one ... [and] place [a] high priority on good governance.”<sup>2</sup> Again, at the Genoa Summit in 2001, G-7 countries stressed that “[MDBs] main priorities ... should be to fight infectious diseases, promote environmental improvement, facilitate trade, and support financial stability.” They also endorsed the idea that every MDB should “define more explicitly its role in the provision of [IPGs] on the basis of its comparative advantages.”

Casual empiricism suggests that the meteoric rise of these two objectives is more than just talk. Western governments have created a Montreal Protocol Fund to protect the ozone layer, a Global Environmental Facility to deal with climate change, bio-diversity loss, the pollution of international waters, ozone depletion, persistent organic pollutants, and desertification, a Global Fund to fight AIDS, Tuberculosis, and Malaria, an Emergency Plan for AIDS relief, a Global Alliance for Vaccines and Immunization, and a Millennium Challenge Account which depoliticizes the aid allocation process by rewarding poor countries based on their adoption of “sound economic policies” and “good governance.” Talk may be cheap, but the construction of all these novel aid delivery mechanisms is not. In addition to these institutionalized mechanisms

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<sup>1</sup> The International Financial Institution Advisory Commission – more commonly known as the Meltzer Commission – also emphasized that “poverty is often most entrenched and widespread in countries where corrupt and inefficient governments undermine the ability to benefit from aid.”

<sup>2</sup>They also encouraged MDBs to “allocate their support increasingly on the basis of borrower performance. Experience has shown that aid is only effective in reducing poverty where governments are committed to sound policies” (G7 Finance Ministers 2000:27).

for IPG provision, aid is increasingly channeled to the developing world to prevent drug-trafficking, fight terrorism, resolve financial crises, foster democracy, and promote peace in war-torn regions. These seemingly “functional” interventions beg an important empirical question: Are donors *actually*, or *nominally*, concerned with international public good provision and aid effectiveness?

According to many scholars and citizen activists, aid agencies are the villains, rather than the heroes of development.<sup>3</sup> Aid packages are nominally designed for poverty reduction, environmental protection, and international financial stability, but when all is said and done, stated objectives are just that. They provide politically-convenient window dressing to obscure the donor’s actual purpose for giving aid. Donors’ shroud their real motivations for giving aid in secrecy because funds are primarily used to achieve geo-strategic and commercial aims.<sup>4</sup>

Marshaling evidence in support of this position is hardly difficult. In 2003, Turkey was promised extraordinary amounts of military and economic assistance in the run-up to the US invasion of Iraq. Pakistan and Uzbekistan were also rewarded generously for assisting US military efforts in Afghanistan. International financial institutions, which are in principle designed to provide collective goods like international financial stability, are also routinely “leveraged” by their most powerful shareholders when the geo-strategic stakes are high. For example, in 1998 Pakistan saw IMF loans disappear after testing a nuclear weapon in defiance of US wishes, and then suddenly reappear at the beginning of the war in Iraq. A leading analyst of international organizations also dismisses the World Bank as “a source of funds to be offered to US friends or denied to US enemies.”<sup>5</sup> According to this “dysfunctional” aid narrative, donors’ commercial goals also place strong constraints on the utility of IPG aid. Haggard and Moravcsik

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<sup>3</sup> Rich 1994; Danaher 1994;

<sup>4</sup> Alesina and Dollar 2000; Burnside and Dollar 2000.

<sup>5</sup> Wade 2002.

suggest that the West's primary motivation for distributing \$30-\$40 billion of assistance to former Soviet bloc states was not democracy, economic growth, and environmental protection – the stated objectives – but “privatizable” benefits advantaging special interests in donor countries. The same authors argue that “the lack of any coherent justification for the creation of the EBRD ... [suggests] ... it was *an act of political symbolism rather than functional necessity*.”<sup>6</sup> In this view, foreign aid bears little resemblance to its stated objectives, remains uncoordinated and rudderless, and has next to no effect on international public good provision. In the words of strange bedfellows like Jesse Helms and *The Economist*, giving aid is like pouring money “down a rathole.”<sup>7</sup>

To be sure, not all evidence for the dysfunctional aid narrative has been anecdotal. In an oft-cited quantitative study of aid, Alesina and Dollar “find considerable evidence that the pattern of aid giving is dictated by political and strategic considerations. An inefficient, economically closed, mismanaged non-democratic former colony politically friendly to its former colonizer, receives more foreign aid than another country with similar level of poverty, a superior policy stance, but without a past as a colony.” Subsequent econometric work has yielded similar conclusions.<sup>8</sup>

Yet curiously, foreign aid is also regularly credited with a number of spectacular success stories: the post-war reconstruction in Western Europe, the eradication of river blindness and smallpox, the Green Revolution, the introduction of family planning, and sharp, generalized

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<sup>6</sup> Haggard and Moravcsik 1993: 280, emphasis added. Darst writes that “the EBRD’s efforts to take a ‘hard line’ have been regularly undercut by pressure from donor states with politically influential nuclear engineering industries, such as the United States and France” (2003: 20). Marc Levy also “accept[s] the argument made by Stephen Haggard and Andrew Moravcsik that the EBRD is a largely redundant exercise in political symbolism, and suspect[s] that the decision to extend participation in the European Environmental Agency to eastern governments was motivated in large part by a perceived opportunity to garner similar symbolic laurels” (1993: 332).

<sup>7</sup> *The Economist* 1994.

<sup>8</sup> Alesina and Dollar 2000: 33.

increases in life expectancy rates.<sup>9</sup> More recently, scholars and policy makers have suggested that *IPG aid can have a profound impact on actual IPG outcomes*.<sup>10</sup> The Montreal Protocol Fund, for example, has helped secure virtually universal participation in an ozone regime that “ensures ... no developing country or transition economy can lose by being party to the agreement ... [and] any country will lose by not signing.”<sup>11</sup> Side payments to developing countries also have been a crucial component of many other international efforts to protect the environment.<sup>12</sup> More telling still, Senator Jesse Helms, perhaps the most strident critic of foreign aid in the US Congress, performed an abrupt volte-face in 2002, insisting that Western taxpayers’ dollars would be well spent on preventing the transmission of HIV/AIDS worldwide.

These competing narratives – one “functional,” the other “dysfunctional” – about IPG aid present us with an empirical puzzle. If the need for IPG provision is more pressing than ever and Western policy preferences are indeed coalescing around such issues, presumably we should observe patterned differences between IPG and non-IPG aid allocation and implementation outcomes. To discriminate between these competing narratives, we seek here to determine whether we can reject the null hypothesis that IPG and non-IPG aid *allocation* are governed by the same set of decision making criteria. To sharpen the analytical bite of our study, we triangulate on what many agree to be the archetypal international public good: environmental protection.

Critics of this approach might argue that the empirical spotlight should be thrown on IPG and non-IPG *implementation* outcomes rather than allocation patterns. Careful studies of implementation are no doubt desirable, but we also mustn’t create an illusory divide between

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<sup>9</sup> Knack and Rahman 2004; Radelet 2003.

<sup>10</sup> Attaran and Sachs 2001; Speth 1992; Ferroni and Mody 2002; Kaul et al. 1999; 2003.

<sup>11</sup> Barrett 1999: 216.

<sup>12</sup> Weiss and Jacobson 1999.

donors' intentions at the allocation stage and their follow-up at the implementation stage of the aid giving process.

In order to test our null hypothesis, we offer a series of *rational-functionalist* predictions as a baseline from which donor behavior can be empirically evaluated. If we can confirm that (some types of) donors are motivated primarily by the improvement of environmental protection overseas, then it also seems reasonable to assume (such) donors will monitor recipient behavior through police-patrol and fire-alarm oversight mechanisms, employ procedural checks and balances, and rescind or re-negotiate contracts in cases of defection, backsliding, or some other failure to follow through on specific policy commitments (Nielson and Tierney 2003). In other words, donors that appear to be genuinely interested in environmental protection at the allocation stage (i.e. those who screen and select for worthy recipients) will presumably take steps to ensure that their aid dollars are also spent wisely at the project implementation stage. Hence, we test whether donors contract primarily with recipient governments that are willing and able to offer an attractive environmental “rate-of-return” on donors’ aid investment. If this proposition can be confirmed, we argue we will be much closer to understanding *how concerned* donors are with aid effectiveness and IPG provision.

To be clear, the underlying assumption of the rational-functionalist models we develop in this paper suggests that donors are *actually*, as opposed to *nominally*, concerned with both international public good provision and aid effectiveness. Since problems like moral hazard, adverse selection, fungibility, rent-seeking, credibility, and poor economic policies influence the environmental “rate of return” that donors will receive on their aid “investment,” we would expect allocation patterns – or the use of scarce taxpayer dollars – to reflect these concerns. If environmental aid flows mainly to countries of geo-strategic and commercial interest to donors,

then we can conclude that our first-order assumptions about “eco-functional” donor motivations are inappropriate. However, if donors channel resources to places where they believe it will do the most good – specifically, to countries with reliable environmental information, sound institutions, a good investment climate, a significant level of interest in environmental protection, and meaningful environmental policies – then such an outcome speaks to the question of why donors are giving money in the first place. As Connolly puts it, donor allocations “[set] early parameters” on the effectiveness of aid.<sup>13</sup>

### **The Argument in Brief**

In our view, neither the functional nor the dysfunctional aid narrative is necessarily wrong. We suggest that propositions grounded in a rational functionalist framework can make sense of both narratives by specifying different conditions under which each is likely to hold. One problem with extant econometric work is that it relies on highly-aggregated data that obscures many of the most important stylized facts about aid allocation and effectiveness – these aggregated data wash out much of the meaningful variation in aid allocation patterns. By conflating *types* of aid and lumping together donors with different preferences, incentive structures, decision-making procedures, and capabilities, analysts have overlooked what may be the silver lining of the actual aid narrative – that some types of aid and some types of donors are less beholden to geo-strategic, commercial, and other “dysfunctional” constraints and better positioned to provide IPGs. In short, the existing literature on foreign aid has over-generalized its conclusions.

Foreign aid is routinely characterized as an undifferentiated mass of Western money flowing to corrupt and incompetent developing country governments. The implicit assumption of

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<sup>13</sup> Connolly 1996: 329.

most work on aid *allocation* is that different types of donors respond to similar ascriptive and behavioral recipient characteristics. It is also assumed that different types of aid get allocated by similar procedures with similar results. The perennial puzzle of aid *effectiveness* – whether, how, and to what extent the receipt of foreign aid influences development outcomes – is also fraught with serious theoretical and methodological problems. Careful analysts are no doubt aware that we should be analyzing *specific* types of aid and their impact on *specific* development outcomes, but instead what we have witnessed is an outpouring of econometric work on the relationship between total aid flows – including support for military expenditures, peacekeeping, landmine clearance, free and fair elections, civil society, bio-diversity, HIV/AIDS, drug trafficking, and refugee movements – and causally-distant outcomes like economic growth and poverty alleviation.<sup>14</sup> These research designs cannot gauge *the effect that specific types of aid have on their stated objectives*. Aid targeting bio-diversity protection surely affects economic growth and infant mortality differently than road construction, electricity grids, and oil derricks, but up until this point scholars have had no way of subjecting such hypotheses to discriminating empirical tests.

Rigorous empirical testing of hypotheses concerning the causes and consequences of IPG aid has proved overwhelmingly difficult because we lack systematic, reliable, and detailed data on the aggregate amount, sources, and destinations of aid. More importantly, we do not know the characteristics of individual aid projects. Interesting and plausible hypotheses pervade the IPG literature, and some of these derive from well-developed theoretical propositions, but knowledge accumulation has been minimal since arguments have not been tested with data gathered at the appropriate level of analysis. Specifically, hypotheses have not been tested at the level of

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<sup>14</sup> Boone 1996; Burnside and Dollar 2000; Hansen and Tarp 2001; Easterly et al. forthcoming; Collier and Dollar 2002; Easterly 2003a, 2003b; Roodman 2003. All these studies assume that aid is largely fungible. Conversely, Tierney (2003) argues that the fungibility of aid varies dramatically with the type of aid given.

development projects. Instead, scholars aggregate—incorrect and biased<sup>15</sup>—sums of aid and loans at the sectoral or country level.

In this paper, we hope to remedy this shortcoming by relying on a new dataset developed at the College of William and Mary and Brigham Young University. The project-level aid (PLAID) database allows analysts to identify important categories within aid sectors and standardize data across different types of donors. At the sectoral level, different donors often classify sectors differently, making cross-donor comparisons impossible. The independent coding scheme employed in the PLAID dataset standardizes such categories for all donors and recipients so that we can have greater confidence in our classifications of aid type.<sup>16</sup>

Importantly, PLAID codes specific projects based on their actual project descriptions, rather than assuming entire sectors are homogenous. Development agencies' sector coding can be highly misleading because very different projects are often lumped under the same sector heading, thus offering a skewed picture of donor agencies actual spending patterns and priorities. For example, in the OECD database (to which all bilateral donors theoretically report), sustainable forestry and selective logging receive the same sector code as clear-cutting deforestation projects! For scholars interested in the impact of foreign aid on the environment, such distinctions are vital and PLAID data highlights these differences.<sup>17</sup>

PLAID data also permits more accurate comparisons of multilateral and bilateral aid agencies. Currently, analysts cannot determine which types of projects donors tend to delegate

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<sup>15</sup> The standard data source on aid is the OECD DAC Report. While OECD staff are cognizant of the coverage problems with their data, few researchers attempt to gather the missing data to supplement DAC statistics or even to mathematically estimate the missing values so that descriptive and inferential errors can be reduced in any empirical analysis of allocation patterns. See Parks et al (2004) for full discussion of these methodological issues.

<sup>16</sup> For example, PLAID allows for independent coding of environmental projects, technical assistance, social projects, etc...

<sup>17</sup> Clear cutting projects are coded as dirty strictly defined (DSD) while sustainable forestry projects can receive a rating ranging from environmental strictly defined (ESD) to environmental broadly defined (ESD) depending on specific activities that are funded (Schultz 2004).

to multilaterals and which to their own bilateral agencies.<sup>18</sup> Extant data also cannot distinguish among recipients as to the specific aid they receive from multilateral and bilateral agencies respectively. Such distinctions are critical if we hope to test hypotheses about the motives of donors to provide multilateral, rather than bilateral, aid.<sup>19</sup>

### **A Theory of Environmental Aid Allocation**

After World War II, the overwhelming body of IR scholarship viewed foreign assistance as a *quid pro quo*—that is, an intergovernmental bribe.<sup>20</sup> The dominant principle governing aid allocation seemed to be “we know they are bastards, but at least they are our bastards, not theirs.”<sup>21</sup> Substantively, this meant that international financial transfers were often made for reasons of political loyalty, domestic politics, and national security, not their stated objectives (i.e. economic development, poverty reduction, public health, and education). Thus, until the end of the Cold War, most money flowed to strategic military locations, areas rich in natural resources, newly-independent colonies, and certain key trading partners. But soon after the fall of the Berlin Wall, realist models lacked the analytical purchase to explain new types of aid that closely resembled *voluntary* interstate cooperation. As international financial transfers for collective good provision—particularly, debt relief, environmental protection, infectious disease control, and structural adjustment—grew more prominent within bilateral and multilateral portfolios, new empirical patterns began to beg new questions concerning donor (and recipient) motivations. Most obviously, why had benefactors and beneficiaries moved toward pursuing

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<sup>18</sup> OECD data on multilateral donors is not complete for any year since many multilaterals simply do not provide their data to the DAC. This problem was even more severe for the first 15 years of our time series.

<sup>19</sup> Milner 2003; Rodrik 1996; Boulding 2004.

<sup>20</sup> Morgenthau 1962; Baldwin 1985.

<sup>21</sup> Neumayer 2003: 1.

broader shared interests that required and enhanced long-term policy coordination, unlike the earlier focus on more straightforward “aid-for-loyalty”—or “private good”—transactions?

In the 1990s, rational choice institutionalists attempted to explain this shift by characterizing foreign assistance as an act of international cooperation that represented mutual policy adjustment on the part of recipients and donors.<sup>22</sup> Aid, they argued, could be understood as a “contract in which funders trade concessional loans or grants for policy reforms in a recipient [country].”<sup>23</sup> Crucial too for institutionalists was the presence of underlying rules, principles, norms and decision-making procedures to govern such resources-for-reform swaps.<sup>24</sup> They emphasized that states could reduce transaction costs and uncertainty, discourage renegeing, and advance the shared interests and absolute gains of all parties by establishing mutually acceptable “rules of the game” that would stabilize expectations.

Importantly, rational choice institutionalists conceive of environmental aid transfers as inter-governmental contracts that promote collective good provision. The implicit “eco-functional” assumption underpinning their causal logic is that donors who distribute environmental assistance are genuinely interested in environmental protection. To probe the plausibility of this assumption, before turning to any analytical statistics, it is worth looking at patterns in the descriptive data. If donors are indeed motivated by a desire to advance the cause of environmental protection, we should observe (a) an increase in environmental aid as a percentage of total aid spending and (b) a decrease in aid that harms the environment – or “dirty” aid – as a percentage of total aid spending. Figures 1 and 2 confirm both of these expectations. Since “green” environmental issues like climate change, bio-diversity loss, deforestation and ozone depletion more closely resemble collective goods than “brown” issues like sanitation, soil

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<sup>22</sup> Keohane and Levy 1996; Kaul et al. 1999; Kaul et al. 2003; Barrett 1994.

<sup>23</sup> Ross 1996: 186.

<sup>24</sup> Keohane and Levy 1996:5.

erosion, and sewerage, which are more easily carved up into projects that can reward a targeted group of political supporters or construction contractors, we should see donors distribute relatively more green aid than brown aid. Figures 3 and 4, again, lend support to this expectation.

Yet these descriptive statistics are far from definitive evidence that donors are behaving in an “eco-functional” manner. To explain what *actually* motivates the behavior of environmental aid donors, we must analyze how scarce aid resources are allocated among recipient countries.

### **Observable Implications**

Following the logic of rational-functionalism, we argue that five recipient-level (behavioral and ascriptive) characteristics promote successful international financial transfers for environmental protection:

- First, for an “efficient” environmental aid contract to be written, we argue donors and recipient must establish a shared interest. Their interests needn’t be naturally harmonious, but both parties must stand to gain from cooperation.<sup>25</sup> Donor and recipient preferences are less likely to coalesce around issues of local environmental concern since they often lack the characteristics of a collective good. But issues like climate change and biodiversity, which yield significant benefits to both donors and recipients, require collective action and thus increase the probability of a stable cooperative equilibrium. We would therefore expect more environmental aid dollars and contracts to flow to countries of global environmental significance. For example, Brazil, Tanzania and the Philippines should matter more to eco-functional donors than Chad or Mongolia, even when holding all other factors that might explain aid flows constant.

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<sup>25</sup> In the absence of a shared interest, donors are vulnerable to malfeasant recipient behavior. See Darst 2001, 2003,.

- A rational-functionalist logic further suggests that donors will target recipient countries where environmental quality is poor, *ceteris paribus*. There are no doubt a whole host of variables that condition the effectiveness of environmental aid – and thus a donor’s willingness to give aid – but if donors are genuinely interested in improving the natural environment or preventing its degradation, they will target those countries where they expect their aid investment to yield the highest “environmental rate-of-return.”  
Furthermore, recipients experiencing high levels of environmental stress will have a greater interest in securing environmental aid contracts than recipients with relatively undamaged environmental resources.
- Another plausible determinant of environmental aid allocation is recipient credibility. Donors will be less likely to enter into aid contracts with recipients who fail to demonstrate their willingness and ability to implement meaningful environmental reforms. As Connolly suggests, “recipient countries’ political commitment to environmental reforms stands out as a major explanatory factor for the success or failure of financial transfers.”<sup>26</sup> Thus, we predict that donors will reward countries based on the strength of their revealed environmental policy preferences.<sup>27</sup>
- Also critical to a recipient’s credibility is its willingness and ability to provide donors with reliable information about its own behavior.<sup>28</sup> Transparency is an important

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<sup>26</sup> Connolly 1996: 330.

<sup>27</sup> Kotov and Nikitina (1998) argue that the USSR was unable to secure external financing for environmental protection during the Cold War largely because of credibility problems: “Unlike most other countries, the USSR had no agency devoted entirely to the environment with authority to issue and enforce regulations. Environmental quality was simply too low a priority for the government, which lacked the resources to invest in cleaner technology and could not provide incentives for plants to behave differently. Underlying these failings, of course, was the inability of a command economy to operate efficiently or to make significant technological progress. Limited information about the environment, low levels of public concern, and even lower responsiveness by the central government to these public concerns also contributed to this situation.”

<sup>28</sup> Mitchell 1998; Florini 2000; Stein 1999; Tierney 2003.

determinant of inter-state cooperation because it allows *demandeurs*<sup>29</sup> to assess the intentions, capabilities, and past behavior of potential cooperators and thus evaluate their trustworthiness. Trust lubricates cooperative efforts by reducing uncertainty and transaction costs, enhancing the credibility of state commitments, making defection more costly, and promoting stable expectations. Though free-riders can certainly report false information, those who report less environmental information, should be viewed with greater suspicion and thus receive fewer environmental aid dollars and contracts. Bad information is better than no information because self-reporting opportunistic actors run a higher risk of being detected and punished by donors, particularly in an era of high resolution satellite, spacecraft, and aircraft imagery, which provides “objective, unbiased, and transparent data sources in a near real time basis.”<sup>30</sup> The incentive to misrepresent one’s intentions, capabilities, or level of need is also weaker in transparent countries since government officials are aware that donors are better able to assess the credibility.<sup>31</sup>

### **Components of the Model**

To test these hypotheses, we estimate the following ordinary least squares (OLS) models of environmental, dirty/neutral, green, and brown aid allocation:

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<sup>29</sup> Abbott and Snidal (1998: 431) define *demandeurs* as states ... that have worked to obtain commitments from others ... in the face of strong resistance.”

<sup>30</sup> Sherbinin and Giri 2001: 3.

<sup>31</sup> Raustiala and Victor (1998: 675) offer anecdotal support for this hypothesis. In the Baltic Sea region, they report, “donors have focused on countries where transaction costs are lower and domestic assurances are higher. Consequently, in the Baltic Sea regime donors have favored Poland over Russia; the fraction of resources sent to Russia has risen only slowly. In both the regime to limit dumping of radioactive waste and the regime to protect the Baltic Sea, programmatic commitments and activities, such as to report and analyze data, have improved knowledge about national situations and made it easier to target aid.”

$$\begin{aligned} \ln(\text{SHARE}) = & \beta_0 + \beta_1 \ln(\text{POP}) + \beta_2 \ln(\text{LIFEEXPEC}) + \beta_3 \ln(\text{NATCAP}) + \\ & \beta_4 \ln(\text{ENVPOLIC}) + \beta_5 \ln(\text{ENNVULN}) + \beta_6 \ln(\text{ENVINFO}) + \beta_7 \ln(\text{MONETARY}) + \\ & \beta_8 \ln(\text{INTERVENE}) + \beta_9 \ln(\text{OPEN}) + \beta_{10} \ln(\text{INVESTMENT}) + \varepsilon \end{aligned}$$

The dependent variable in model 1,  $\ln(\text{ENVSHARE})$ , represents the share of the total environmental aid budget (of all bilateral and multilateral donors) captured by a recipient. We report share results both in terms of dollars and projects. Both measures capture the *relative* importance of a recipient to the donor community. To “smooth” the lumpiness in the data resulting from project cycles,<sup>32</sup> we average each recipient’s annual environmental aid share over the five year period of 1996-2000. We perform the same procedure for the dependent variables in models 2, 3, and 4 – “non-environmental,” “green,” and “brown” aid, respectively.

These data are taken from the project-level aid (PLAID) database, which codes more than 400,000 individual aid projects between the period 1970 and 2002 – approximately 90 percent of the entire development assistance universe – on a 5-point scale, ranging from strictly-defined environmental projects (ESD) to strictly-defined dirty projects (DSD).<sup>33</sup> Projects are also classified as broadly-defined environmental (EBD), broadly-defined dirty (DBD), or environmentally neutral (N).<sup>34</sup> From cleanest to dirtiest, then, the ordinal scale runs: ESD, EBD, N, DBD, DSD. In the models reported below, we measure environmental aid as the sum of ESD and EBD. Likewise, we take dirty aid to equal the sum of DSD and DBD. Any project that

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<sup>32</sup> Donors often commit a large sum of aid to a recipient in a one year and much less (or no aid) in subsequent years. This is usually because projects last multiple years. It would therefore be incorrect to assume that if USAID gave the Philippines \$500 million to protect their rainforests in 1990, but nothing between 1991 and 1994, that the US lost interest in the Philippines. While aid commitments are recorded by most donors in a single year, most environmental aid projects (indeed most development projects) are actually distributed over many years.

<sup>33</sup> All these data are from the e-PLAID I database. Schultz et al. 2004.

<sup>34</sup> Any foreign aid project which, according to its project description, could be characterized as beneficial toward the natural environment, by both intent and consequence, is classified as *environmental*. This included both *green* projects, dealing with issues such as global warming and biodiversity, and *brown* projects, dealing with issues such as water supply and sewerage. Any foreign aid project that is likely to have a detrimental impact on the natural environment is classified as *dirty*. Projects that appeared unlikely to affect the environment in a significant way were coded as *neutral*.

received an ESD or EBD designation was also coded as either green or brown.<sup>35</sup> This second coding scheme seems to capture the “collective good” vs. “private good” distinction discussed earlier. General coding criteria are provided in Tables 10 and 11.

The independent variables on the right-hand side of the equation correspond to the causal variables specified in the theories of aid allocation discussed above. In addition, we employ macro-economic variables  $X$ ,  $Y$ <sup>36</sup>, along with average life expectancy and population size,  $\ln(LIFEEXPEC)$  and  $\ln(POP)$ , as control variables. Extant econometric work on aid allocation suggests that both of these variables routinely emerge as significant across multiple specifications of donor allocation models. Life expectancy, which we use as a proxy for “recipient need,” should correlate positively with environmental aid allocation for reasons unrelated to the environmental interests of donors. There is wide agreement among aid analysts that donors are sensitive to human development needs, regardless of the specific type of aid they seek to distribute. Population size is also thought to capture a component of “recipient need” since poor countries with more people pose greater human development challenges. Since none of these controls speak to the causal logic of our theory, we expect these relationships to hold across all four models – environmental, non-environmental, green, and brown aid share

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<sup>35</sup> Green projects deal with global environmental problems, such as climate change, deforestation, and biodiversity, while Brown projects deal mostly with local environmental problems, like sanitation, soil erosion, and sewerage. The criteria were extremely specific, so that coders did not have to make judgment calls about different projects.

<sup>36</sup> Finally, one additional factor that might be expected to impact the a donor’s calculation of the “environmental rate of return” would be the economic policy environment of the recipient countries within which donors identify, prepare, execute, and maintain projects. In countries where the government regularly intervenes in markets and distorts pricing structures, there is a strong possibility that the selection and appraisal of public investment projects will also be distorted. For example, in countries where excess demand has been artificially generated, donors may select inappropriate investments and overestimate the “optimum attainable output capacity” of their projects.<sup>36</sup> Where trade, investment, and exchange rate restrictions are high, crucial project inputs may be prohibitively expensive or entirely unavailable.<sup>36</sup> Local firms seeking to provide complementary environmental goods and services will also do so more efficiently in the absence of state controls on capital goods and other imported inputs. As Raustiala and Victor note, “When domestic regulatory and market institutions are poorly developed, it is especially difficult for recipients to assure donors that financial transfers will be spent as intended.”<sup>36</sup> Hence, we expect that donors will reward recipient governments with “sound” economic policies, *ceteris paribus*.<sup>36</sup>)

estimations. We have taken average life expectancy and population data from the *World Development Indicators* dataset.<sup>37</sup>

$\ln(\text{NATCAP})$ , which measures the amount of “natural capital” that a country possesses, is designed to capture the global environmental significance of a recipient. Consistent with the causal logic of rational-functionalism, we expect that countries with more natural capital will be more likely to establish a shared interest with donors and thus secure more environmental aid contracts and dollars. This relationship, we predict, will be present in the environmental aid share estimation (model 1), absent from non-environmental aid share estimation (model 2), and stronger for green aid than brown aid (models 3 and 4). The Natural Capital Index (NCI) comes from Rodenburg et al.<sup>38</sup> Nations scoring high have larger land areas, more valuable natural species diversity, and resources. The formula used to calculate the NCI multiplies remaining natural areas (including water territory) by a biodiversity indicator. Remaining natural areas are obtained by subtracting commercial lands from total national territory, and the biodiversity indicator divides the total number of species in a country by the average number of species for a country with a given territory. We also employ Prescott-Allen’s “ecosystem wellbeing index”  $\ln(\text{ENVVULN})$  as a measure of environmental need, which should factor into the “shared interest” calculation for both donors and recipients as well.<sup>39</sup> The index is an unweighted composite of 10 indices, measuring land (land diversity, land quality), water (inland waters, sea), air (local air quality, global atmosphere), species and genes (wild diversity, domesticated diversity), and resource use (energy and materials, resource sectors).<sup>40</sup> A higher EWI score indicates a healthier ecosystem. Again, following the logic explicated above, we expect these

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<sup>37</sup> World Bank. 2001.

<sup>38</sup> Rodenburg et al. 1995.

<sup>39</sup> Prescott-Allen 2001.

<sup>40</sup> Resource use indicators were only factored into the EWI if they lowered the overall score.

relationships to be present in model 1, absent from model 2, and stronger in model 3 than in model 4.

As proxies for the credibility of a recipient's environmental policy commitments, we use two variables:  $\ln(ENVPOLIC)$  and  $\ln(ENVINFO)$ . Using a revealed-preferences approach, Nielson and Tierney have created an Environmental Policy Index [ $\ln(ENVPOLIC)$ ], based on Esty's Environmental Sustainability Index.<sup>41</sup> To construct the index, they gathered data on twenty-two distinct measures of environmental policy outcomes. The overall score is an average percentile ranking of these measures. A higher score on the EPI signifies a greater political commitment to environmental protection. In keeping with rational-functionalism, we hypothesize that countries with a poor environmental policy record are less likely to provide donors with a credible assurance of their willingness and ability to honor future policy commitments. Therefore, countries' EPI scores should correlate positively with the amount of environmental aid and the number of environmental aid contracts that a recipient secures. The logic of this claim may appear to contradict our prior argument that money and projects will go to countries that are environmentally needy. This problem only arises if the EPI unintentionally measures environmental outcomes rather than environmental policy. Similarly, we expect that a nation's transparency in the environmental realm will correlate positively with the number and size of their environmental aid contracts. For a measure of transparency, we rely on a component of Esty's Environmental Sustainability Index, which measures the number of environmental variables from a set of 51 "for which it could reasonably be expected that any country could have coverage if it wanted to."<sup>42</sup> This gets at the notion of transparency more precisely than other

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<sup>41</sup> Nielson and Tierney 2003; Esty 2001. Note that the data used in this paper for EPI was the first version of EPI (created in 2002). Nielson has subsequently improved these data substantially (see Nielson and Tierney 2004) and in future research we will run the models using the new and improved EPI.

<sup>42</sup> Esty 2001: 52.

measures (such as freedom of the press and generalized sunshine laws) because it parses out those cases where recipients can justifiably blame the weakness of their financial, administrative, or technical capabilities. Governments that score highly on  $\ln(ENVINFO)$  are more transparent about national environmental conditions and policies. We would expect to observe this relationship in model 1, but not in model 2. And the transparency correlation coefficient should be stronger in model 3 than in model 4.

The final four variables are designed to collectively address the economic policy environment of a recipient country. Our expectation is that poor monetary policy, high levels of government intervention, barriers to trade, and an unfavorable investment profile will be associated with fewer and smaller environmental aid contracts. Each of these variables represents a different policy distortion that may be present in an economy. Our measures are also analytically similar to those employed by Burnside and Dollar, who conclude that “poor countries with sound economic policies benefit directly from [such] policies... [because] aid is [not] dissipated in unproductive government expenditure.”<sup>43</sup> The first measure is the Heritage Foundation’s *Monetary Policy Index*, which takes the weighted average inflation rate of a country from 1992 to 2000.<sup>44</sup> Countries with lower scores on this index have less distortionary monetary policies. The Heritage Foundation also provides reliable indices of trade policy and government intervention in the economy. Their *Trade Policy Index* captures the degree to which governments prevent the free flow of imports and exports through tariffs, non-tariff barriers, customs service corruption. Again, lower scores indicate less distortionary trade policies. Their *Government Intervention Index* provides a composite measure of government consumption as a percentage of GDP economy, economic output produced by the government, and government

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<sup>43</sup> Burnside and Dollar 2000: 847. The World Bank (1998: 13) also takes the position that “there is no value in providing large amounts of money to a country with poor policies.”

<sup>44</sup> O’Driscoll 2001.

revenues derived from state-owned enterprises and government-owned property. Here, lower scores represent less government intervention in the economy. Finally, to measure the extent of government distortion in the area of investment, we use the International Country Risk Guide's (ICRG) "investment profile" index, which measures "the viability of contracts, probability of expropriation, and the ability to repatriate profits" on a scale of 0 to 12. Higher scores indicate lower levels of investment risk. We expect all of these posited relationships to be present in model 1, absent from model 2, and stronger in model 3 than in model 4.

## Results

Tables 1 and 2 provide estimation results for the first four models.<sup>45</sup> The first table reports all models using a recipient's share of total (environmental, non-environmental, green, and brown) aid *dollars* as the dependent variable. The second table reports the same models, instead using a recipient's share of total aid *projects* as the dependent variable. By logging variables on both the right- and left-sides of their equations, we have transformed all parameter estimates into unitless elasticities, which enables us to make comparisons *within* and *across* equations.

Both sets of results seem to tell a similar story. Environmental aid allocation appears to be, above all, responsive to the global environmental significance of recipients. In both the project and dollar variations of models 1 and 2, as a country's natural capital increases, the share of environmental aid it receives also increases. Yet curiously, a similar (but weaker) result obtains in the "non-environmental" regression estimation. Also, contrary to the causal logic of rational-functionalism, green and brown aid appear to be equally responsive to the global

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<sup>45</sup> Table 12 provides bivariate correlation coefficients for all of the independent variables employed in this paper. There do not appear to be any serious correlation problems that could skew our results.

environmental significance of recipients. Earlier we suggested that collective goods – which are more closely associated with the stated objectives of green aid than brown aid – would elicit more donor concern than private goods. This hypothesis is not supported by these data. But before throwing the rational-functionalist baby out with the bathwater, we must distinguish between different types of donors. Though rational-functionalist theory has little to say about comparative foreign policy, it does provide valuable insights concerning the differences between bilateral and multilateral donors, as well as the formal decision rules governing multilateral development banks and grant agencies. Therefore, our initial tests cannot be used to disconfirm the various rational-functionalist arguments discussed above. Like many of the econometric results in the extant literature, these models may in fact obscure countervailing forces that wash out when bilateral and multilateral donors with different preferences, incentive structures, decision-making procedures, and capabilities are lumped together.

Besides the consistently positive effect of the population control variable, the only remaining variables that are statistically and substantively significant are investment, trade, and environmental policy. While countries that offer a relatively undistorted investment environment seem to capture a larger share of the environmental aid “cake,” countries with *restrictive* trade policies also receive more environmental aid contracts and dollars. Since these unanticipated results are robust across multiple model specifications, their interpretation is especially important. One way of explaining the investment finding follows from the logic of underlying political institutions. Since risk-averse investors often base their decisions on the quality of a host country’s public institutions, a country’s “investment profile” may reflect little more than the strength of its bureaucracy, the predictability of its property rights regime, the degree to which it upholds the rule of law, and whether the government is capable of maintaining political

stability. If this is true, the “effect” that investment policy exerts (see Tables 1 and 2) may not be an effect at all. Instead, we may be observing the impact of underlying institutional forces. We have found some evidence to support this idea. Bivariate correlation coefficients between the ICRG investment profile measure and World Bank (2003) measures of “government effectiveness,” “political stability,” and “rule of law” all register somewhere between .5 and .6 in the predicted direction. Perhaps more convincingly, Parks et al. (forthcoming) find that recipients with politically-insulated, meritocratic bureaucracies receive more environmental aid dollars and contracts than those that lack such traits, *ceteris paribus*.<sup>46</sup>

As for the trade policy finding, it may not necessarily be that environmental aid donors are seeking to reward recipients with distortionary trade policies. A better way of interpreting these results is that environmental aid donors simply do not discriminate between recipients based on their economic policies.

The last finding that deserves our attention is the negative effect that environmental policy has on the likelihood of receiving *green* aid. Though we expected environmental policy to exert a stronger influence on green aid than on brown aid (because of its collective good properties), we did not expect the relationship to be a *negative* one. That said, we have overlooked an important alternative explanation that may account for this relationship. Connolly argues that environmental aid may be used to specifically target those countries with *poor* environmental policies in order to “boost [national] concern” for environmental protection. As she puts it, “environmental assistance ... [creates]...windows of opportunity: chances to augment financial resources in order to enable recipients to devote more attention to environmental problems; to build strong political coalitions in a position to protect the environment; to package

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<sup>46</sup> Similar results did not obtain when the authors employed the same independent variables to predict the allocation of “non-environmental” aid.

a deal to make environmental protection appeal to actors whom it otherwise would not. Not only can environmental assistance alter the incentives of key actors, it can also contribute to a redistribution of capabilities and hence political clout behind actors who exhibit environmental concern.... By increasing the political and financial resources of strategic coalitions within recipient countries that share donors' environmental goals, environmental aid may simultaneously boost concern and capacity."<sup>47</sup> In future research we need to examine this possibility more closely since it implies a very different causal logic in the donor decision process. A second possibility follows from our definition of recipient credibility. Nielson and Tierney's "Environmental Policy Index" encompasses a wide variety of revealed policy preferences that may occlude specific policy "signals" that donors are seeking.<sup>48</sup> For example, donors may refuse to contract with recipient governments that lack the functional equivalent of an Environmental Protection Agency (EPA). Alternatively, donors may interpret a credible assurance as compliance with a particular international environmental policy commitment.

### **Principal-Agent Theory**

Thus far we have not distinguished between types of donors in our discussion of efficient and inefficient aid "contracts." But the actual aid community comprises a wide variety of bilateral and multilateral donors with different preferences, incentive structures, decision-making procedures, and capabilities. This observation begs the prior theoretical question of "why sovereign states ever create and financially authorize supra-national agents to allocate and implement foreign aid in the first place?"

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<sup>47</sup> Connolly 1996: 328.

<sup>48</sup> Nielson and Tierney 2003.

We argue that states “out-source” the allocation and delivery of foreign aid in order to overcome collective action problems. International public goods like infectious disease control, bio-diversity protection, and international financial stability require the cooperation of many countries, yet in the absence of centralized authority that enforces contracts and “coerces trust,” every state faces a strong incentive to free-ride on the efforts of others.<sup>49</sup> “Hiring” a semi-autonomous agent with the “expertise, time, political ability, [and] resources to perform a task” can solve many of these problems.<sup>50</sup> In 1937, Coase observed that firms had a functional need to hire managers due to information asymmetries that prevented them from fully monitoring the effort level and productivity of their employees. The rationale behind supra-national delegation is often quite similar. Specifically, we identify two “agency benefits” that may motivate state delegation to independent aid-allocating and -implementing agents: information provision and the ability to credibly commit (or enforce ex ante and ex post conditionality).

According to principal-agent (PA) theory, “relations between a principal and an agent are always governed by a *contract*, even if this contract is implicit (never formally acknowledged) or informal (based on an unwritten agreement) between the parties. To be a principal, an actor must be able to both grant authority to an agent and rescind it.” Agents, on the other hand, “receive conditional grants of authority from a principal, but [do not necessarily] do what principals want. ‘*Agency slack*’ is independent action by an agent that is undesired by the principal and would not have been chosen by the principal if she were performing the act herself. Slack occurs in two primary forms: shirking, when an agent minimizes the effort it exerts on its principal’s behalf, and slippage, when an agent opportunistically shifts policy away from its principal’s preferred

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<sup>49</sup> For example, valuing one’s utility from cooperation, negotiating an acceptable agreement for all parties, and institutionalizing monitoring and enforcement mechanisms as a deterrent to free-riders.

<sup>50</sup> Hawkins et al. 2003.

outcome and toward its own preferences.”<sup>51</sup> Though principals would prefer to avoid these costs, there are conditions under which they will swallow them — most obviously, when the efficiency gains of hiring the agent exceed the costs of oversight, monitoring, and contracting.<sup>52</sup>

In the context of development assistance, states contract with multilateral development banks and aid agencies to provide *collective goods* that they are themselves incapable of supplying (or could only supply at higher cost or less fully than the IO agent). To reduce uncertainty, stabilize expectations, and constrain opportunism, sovereign governments grant authority to IOs to reduce the cost of gathering, interpreting, and disseminating information. Additionally, IOs may be tasked with enforcing conditionality and eliciting reform from other governments. From these general propositions follow a number of observable implications, which PLAID data allows us to empirically evaluate in novel ways..

### ***Proposition 1: Information Provision***

Development assistance is essentially a series of multi-principal-multi-agent relationships in which no boundedly rational principal has the ability to design *complete* contracts with any agent because of information asymmetries and high transaction costs.<sup>53</sup> This makes the task of assessing recipient intentions, capabilities, and behavior extremely costly for donors.<sup>54</sup> Three types of incentives warrant close attention: moral hazard, adverse selection and fungibility.<sup>55</sup>

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<sup>51</sup> Hawkins et al. 2003: 11.

<sup>52</sup> Principals and agents interact in repeated games and thus principals will often incorporate their past experiences into future contracts. Agents who stray too far will either be fired or principals rein them in through “re-contracting.” McNolgast (1987, 1989) explains how principals can economize *ex post* by writing careful contracts *ex-ante*. They regularly build in fire alarms, oversight mechanisms, and administrative procedures which keep agents on “auto-pilot,” i.e. continually serving the principals’ interests.

<sup>53</sup> Martens et al. 2002; Lake 1999 ; Ostrom et al. 2001.

<sup>54</sup> Svensson 2000. Reliable information should be especially important to *eco-functional* donors since recipients face a number of incentives inimical to environmental improvement.

<sup>55</sup> See Boone 1996; Svensson 2000, 2003.

Moral hazard, quite simply, refers to situations in which insurance promotes risky behavior.<sup>56</sup> In the context of international environmental politics, the concept of moral hazard suggests that recipients – especially those who are conscious of the intensity of Western preferences for environmental protection – face weak incentives to undertake meaningful environmental reform. Knowing that donors will disburse environmental funding regardless of their behavior, they will delay reform as long as they possibly can. Because recipients possess private information about their willingness and ability to implement meaningful reforms, donors also face a problem of adverse selection.<sup>57</sup> Information asymmetries make it rational for recipient governments to opportunistically exaggerate their needs, bluff about their intentions to reform, and shirk after disbursement since donors are incapable of fully monitoring their effort level.<sup>58</sup> In PA language, information asymmetries make it impossible for principals to “contract on the quality of a good”<sup>59</sup> Finally, there is a third problem of *fungibility*, which means that recipients may use funds for some purpose other than what was intended. If a donor allocates money for, say, environmental protection in North Korea, this money may unintentionally free up domestic resources to be spent on something else – say, a new palace for the ruling despot or a ballistic missile – while reinforcing retrogressive institutions and netting no additional environmental benefit.<sup>60</sup> As Paul Rosenstein-Rodin, former Deputy Director of the World Bank’s Economics Department, explained in 1949, “When the World Bank thinks it is financing an electric power station, it is really financing a brothel.” More colloquially, the authors of the World Bank’s *Assessing Aid* report stress that “what you see is *not* what you get.”<sup>61</sup>

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<sup>56</sup> Pauly 1968, 1974; Shavell 1979.

<sup>57</sup> Pauly 1974.

<sup>58</sup> Dollar and Svensson 1998.

<sup>59</sup> Azfar 2002.

<sup>60</sup> Feyzioglu et al. 1998

<sup>61</sup> World Bank 1998: 60.

Given these perverse incentives, donors genuinely interested in improving environmental policy may choose to empower an international organization to collect, analyze, and distribute costly information about developing countries on their behalf. By centralizing this task, donors can eliminate redundant monitoring efforts and reap significant efficiency gains. The Montreal Protocol Fund, for example, has embedded within it a single oversight mechanism that helps countries to decipher who has “cheated” by over-consuming or exporting ozone-depleting substances. Governments must report data on their production, consumption, and trade of ozone-depleting substances to the Montreal Protocol Fund’s Secretariat, which in turn verifies whether the information is correct. The World Bank performs a similar “watchdog” function. Anne Krueger, former Bank Vice President, argues that one of the Bank’s central functions is “to differentiate carefully between countries where reforms are serious and stand a reasonable prospect of success and those in which window dressing is used as a means of seeking additional funding.”<sup>62</sup> The World Bank and other IFIs are therefore said to provide a “good housekeeping seal of approval,” or confidence signal, to the foreign aid “market.” According to this logic, sovereign governments primarily value IOs for the informational functions they serve.

### ***Proposition 2: Credibility***

The need for a central information repository ties directly into the question of how donors issue credible threats to recipient governments that abrogate, backslide, or otherwise fail to implement their policy commitments. For decades, students of international relations treated IOs *as if* they were international regimes – a forum in which rules and policies were negotiated to reduce uncertainty, stabilize expectations and make contracting more efficient.<sup>63</sup> So narrow had

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<sup>62</sup> Krueger 1998: 31.

<sup>63</sup> Moravcsik 1991.

the discussion become that one commentator noted a “steady disengagement of international organization scholars from the study of organizations, to the point that today one even questions whether such a field even exists any longer except in name only.”<sup>64</sup> Yet even casual observers of international politics recognize that IOs’ substantive operations extend far beyond information provision. The World Bank, for example, “finances massive development projects, borrows on world capital markets, reviews state investment proposals, provides technical assistance and training in many disciplines, generates extensive research and publications, and performs other substantive activities.”<sup>65</sup> What explains these additional operational tasks that IOs perform? One plausible proposition is that states delegate aid allocation and implementation authority to international organization to enhance the credibility of their policy commitments.

Recently, a number of scholars in the rational-functionalist tradition have suggested that states may “tie their own hands” ex ante – by delegating to a multilateral agency – in order to protect foreign aid from their own short-term self-interests.<sup>66</sup> Distributing aid bilaterally may be undesirable for at least three reasons. First, states may be concerned with providing collective goods – like development, growth, transition to a market economy, environmental protection, or even the protection of human rights – but face domestic pressure to support geo-political allies and open export markets with their bilateral aid programs. In the presence of such strong domestic constraints, governments may do an “end-run” and financially authorize IO staff with the task of distributing aid with an eye toward collective good provision.<sup>67</sup> Since states geo-strategic and commercial interests often interfere with their ability to make credible bilateral threats, they may additionally delegate discretion to suspend financial transfers when recipient

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<sup>64</sup>Rochester 1986: 783-84.

<sup>65</sup> Abbott and Snidal 1998: 12.

<sup>66</sup> Milner 2004; Parks et al. Forthcoming; Also see Balogh 1967; Martens et al. 2002; and Martens 2003. For a nuanced analysis of the conditions under which this logic holds for the IMF see Stone 2002.

<sup>67</sup> Tierney 2003

governments renege or otherwise fail to comply with their policy commitments.<sup>68</sup> This is consistent with the argument that states take the multilateral route when “the preferences of the agent [are] more extreme than those of the state itself, so that left to its discretion the agent will adopt a policy that moves the outcome in the direction the state knows it ‘should’ go but cannot implement itself.”<sup>69</sup> In other words, if enforcing *ex ante* or *ex post* conditionality comes at a high financial or political cost, governments interested in collective good provision may empower an IO with the complementary tasks of information provision *and* contract enforcement. Monitoring is important, but so is policing. Issues like global climate change and bio-diversity loss require the participation of a large number of actors with highly heterogeneous preferences and strong incentives to free-ride. By hiring a single “police department” that enforces the rules of the game indiscriminately, demandeurs can impose their collective will upon disinterested or opportunistic parties more efficiently than they could individually.

Second, states may be unable to credibly threaten aid withdrawal from recipient countries because of a “privileged [bilateral] relationship.”<sup>70</sup> Consider for example the relationship between the United States and Egypt. For simplicity, assume that the US has two foreign policy goals vis-à-vis Egypt. They would prefer to see Egypt at peace with Israel and the see the government improve its environmental policies. Egypt receives environmental assistance from the US, but this amount pales in comparison to the aid package awarded by the US for security purposes. Now, if for one reason or another, Egypt is uninterested or unable to fulfill certain environmental policy commitments, the US government faces a dilemma. On one hand, it can threaten to withdraw environmental aid, contingent upon Egypt reforming its environmental

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<sup>68</sup>Connolly (1996: 340) has reported that “intense competition among Western nuclear suppliers over major retrofitting contracts and lucrative commercial contracts for the expansion of nuclear power in the East undermines the resolve of Western governments to stick to common conditionality policies.”

<sup>69</sup> Hawkins et al. 2003.

<sup>70</sup> Martens 2003; Stone 2002; Abbot and Snidal 1998: 18.

policies. But because Egypt knows the nature of its “privileged” relationship with the US (and the slim chance that its funding will be cut off), it will probably bargain strategically and issue its own threat. By linking their compliance with specific security commitments to the suspension of meddlesome “green conditionality” policies, Egypt can weaken the bargaining leverage of US. So long as the US ranks its preferences such that security concerns dominate environmental interests, any threat to suspend or cancel a project will not be credible and a successful environmental aid transfer will be unlikely. Thus, Weinbaum (1986: 64) writes that “[USAID] officials cannot with much conviction threaten to withdraw or withhold funds from the government... [T]he U.S. desire to assure Egypt's cooperation in [matters of international security] limits the demands the United States can impose.”<sup>71</sup>

Finally, states may delegate authority to a multilateral agent when their domestic constituents are *too* interested in providing a collective good. That is, if a donor country possesses intense preferences for a collective good like global environmental protection, it may find itself unable to credibly threaten environmental aid withdrawal from countries of global or regional environmental significance. Intense preferences such as these may actually be self-damaging because the receipt of environmental aid often provides an incentive for recipients to delay environmental reform or even further degrade the environment.<sup>72</sup> In Indonesia, “donor governments were so pressed to find projects to appease strong ‘save the rainforests’ movements within their own countries that they were unable to coordinate their efforts to bargain collectively with the Indonesian government for macropolicy changes. Already deluged with aid projects for

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<sup>71</sup> Weinbaum 1986.

<sup>72</sup> Following Buchanan’s original logic for the so-called “Samaritan’s Dilemma,” Robert Darst (2003) argues that “‘altruistic’ behavior—a proffered resource transfer, or a pledge of self-restraint—generates an incentive for exploitation on the part of the ‘beneficiaries’ of that behavior. The ‘altruists’ are unable to respond by punishing this exploitation, as this would lead to an increase in the very outcome that they seek to avoid, be it poverty, starvation, transboundary environmental degradation, or ‘collateral damage.’ The ‘beneficiaries’ are aware that the ‘altruists’ will find themselves in this bind, and thus rationally anticipate that exploitation will not lead to a permanent decline in resource transfers or the revocation of unilateral self-restraint.”

rainforest protection, the Indonesian government could afford to reject loans with conditionality aimed at reforming commercial logging policies.”<sup>73</sup> To avoid this type of “Samaritan’s Dilemma,” Robert Darst suggests states “must delegate enforcement of [the] rules to an agent with less incentive and/or authority to override [the rules in the event of a] breach.... Similarly, the determination of welfare or immigration eligibility often is—and, according to some economists, *should* be—placed in the hands of jaded, rulebound, supercilious bureaucrats better able than the average person to resist emotional identification with the applicants before them.”

In principle, then, creating and funding multilateral agents that serve no domestic political or economic masters should allow Western governments to collectively enforce environmental conditions upon disinterested or hostile developing country governments, yet their ability to *actually* do so depends upon the formal rules governing the particular international organization. In multilateral development banks (MDBs), where votes are distributed according to the “one-dollar, one-vote” criteria, Western nations with strong environmental preferences have disproportionate influence over their IO agents and thus greater leverage in implementing environmental conditionality. However, in multilateral grant agencies, where voting structures – such as “one-nation, one-vote” and double majority voting – favor developing countries substantively, a strong consensus is less likely to emerge around a primarily Western issue like environmental reform. *Ceteris paribus*, MDB agents ought to be more responsive to Western environmental concerns than multilateral grant agencies like UNDP, GEF, and the UNEP.

### **Observable Implications**

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<sup>73</sup> Connolly 1996: 339.

In short, multilateral aid seems to resemble a collective good more so than bilateral aid.<sup>74</sup> It meets the collective interests of the major states involved in financing multilateral institutions.<sup>75</sup> It is designed and approved by collective principals within multilateral organizations and thus predictably characterized by more stringent principles than bilateral aid. And though each individual state within the collective principal would like multilateral assistance to serve its own parochial national goals, its majority-decisions rules – or supermajority decision rules as in the reformed Global Environmental Facility – prevent distribution of resources to some minority faction within the collective principal. Furthermore, since all multilateral donors share goals such as maintaining exchange rate stability, clean air, and economic growth, if not the willingness to voluntarily contribute, then it is precisely these goals that the policies of multilateral organizations should reflect. As Martens puts it, multilateral agencies must “play off different interest groups against each other, forge coalitions in support of the policies that it proposes, induce collective action among members and, in general, achieve objectives that individual members would not be able to achieve on their own.”<sup>76</sup> Figures 3, 4, 5, and 6 provide suggestive evidence in support of this view. Over time, multilateral environmental aid has risen consistently, multilateral dirty aid has fallen precipitously, and multilateral neutral aid has skyrocketed. These patterns are considerably weaker when one looks at the changing composition of bilateral aid over time.

In multivariate analysis, we hypothesize that multilateral environmental aid contracts will be more “efficient” than similar bilateral arrangements. Specifically, we expect multilateral agencies to target the shared interests of donors and recipients more so than bilateral agencies. Further, the size and number of multilateral environmental aid contracts secured by recipients

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<sup>74</sup> Milner 2004; Rodrik 1996.

<sup>75</sup> Nielson and Tierney 2003.

<sup>76</sup> Martens 2003: 2003: 17.

will correlate positively their level of environmental vulnerability. Again, this relationship should be stronger in multilateral relationships than in bilateral relationships. Finally, multilateral agencies should conduct more rigorous credibility assessments and therefore impose ex ante conditionality to a greater extent than bilateral agencies.

## Results

Tables 3 and 4 present findings on bilateral and multilateral environmental and green aid. We report each equation using both a recipient's share of total (environmental and green) aid *dollars* and *projects*. Table 3 provides estimation results, using "dollar shares" as the dependent variable, and Table 4 reports results in terms of "project shares." Again, we logarithmically transform all independent and dependent variables to render coefficients within and between models unitless, and therefore comparable.

Recall that, based upon the logic of information provision and credibility, multilateral aid contracts *targeting collective good provision* will be more "efficient" than bilateral aid contracts intended for the same purpose. Substantively, this means that multilateral environmental aid allocation should be relatively more responsive to the "shared interests" of donors and recipients, the state of a recipient's natural environment, and a recipient's credibility (defined in terms of its environmental policies, environmental transparency, and economic policies) than bilateral environmental aid allocation. Since green issues feature characteristics more similar to collective goods than brown issues, we also hypothesize that such relationships will be stronger in green aid contracts than in environmental aid contracts (which include green *and* brown issues).

Beginning with models 5 and 6 (reported in columns 1 and 2 of Tables 3 and 4), it appears that multilateral aid agencies are substantially more interested in the shared interests of

poor and rich nations than are bilateral aid agencies. The size of one's natural capital reserves positively affects the likelihood of receiving environmental aid. These results obtain in the dollar share estimations, as well as in the *non-imputed* project share estimations. In models 7 and 8, we observe similar differences between bilateral and multilateral green aid allocation.

The results in Table 3 also indicate a sizeable gap between bilateral and multilateral donor concern for recipient credibility. Bilateral environmental (and green) aid exhibits a bias toward countries with weak environmental policy preferences. Multilateral environmental (and green) assistance, on the other hand, correlates negatively with credibility, but the size of its effect is significantly smaller than in the bilateral estimations. Though these results are not statistically significant, the consistently weaker association between multilateral aid and poor environmental policies offers some tentative evidence in support of our hypothesis. Having already discussed why, contrary to the logic of rational functionalism, poor environmental policies may exert a positive effect on the likelihood of receiving environmental aid, let us turn to the effect of economic policies.

These results were most perplexing of all. In both dollar share and project share estimations, bilateral donors appear to be more responsive to sound economic policies than multilaterals. To be fair, only  $\ln(INVESTMENT)$  registered a statistically significant effect in the predicted direction, and this may actually be picking up the underlying effect of institutions. But even if that is the case, this finding flies in the face of rational functionalist theory. Though not discussed here, good institutions are another reasonable proxy for recipient credibility.<sup>77</sup> If anything, then, we would expect this result to obtain for *multilateral* donors.<sup>78</sup>

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<sup>77</sup> Tierney 2003; Parks and Tierney 2004.

<sup>78</sup> Multilateral donors also appear to reward highly interventionist governments, according to column 2 of Table 3.

In the final series of regressions, presented in Tables 5 and 6, I seek to explain the patterned differences in multilateral development bank (MDB) and multilateral grant agency (MGA) environmental aid allocation. Columns 3 and 4 in these tables also present results for the single largest MGA and MDB *green* aid donors – the Global Environmental Facility (GEF) and the World Bank. With the exception of the first model in Table 5, it appears that MDBs are far more responsive to the shared interests of donors and recipients than are MGAs. The substantive significance of  $\ln(NATCAP)$  in the MDB regressions consistently dwarfs that of  $\ln(NATCAP)$  in MGA regressions. This is an extremely important finding because it shows that the *formal decision rules* of IOs matter a great deal. When IOs operate on a “one dollar, one vote” basis, the shared interests of rich and poor nations are better advanced than in an institutional environment characterized by dispersed power. Strikingly, in neither the dollar nor project share GEF regressions does  $\ln(NATCAP)$  show up as statistically significant. Equally important, the size of natural capital’s coefficient appears to be quite small. This result strongly suggests that the GEF’s formal decision rules – in particular, double majority voting (which strengthens the hand of developing countries) – allow it to distribute green aid more liberally than in MDBs. At the World Bank, by contrast, the preferences of the primary principals – rich, Western states – have coalesced around issues of global environmental concern.<sup>79</sup> Hence, in the World Bank dollar share model, the effect of natural capital is three times the size of that in the GEF dollar share model. In the project share model, the effect is almost one hundred times greater!

Among the other statistically significant variables,  $\ln(ENVINFO)$  is probably the most interesting. This measure of environmental transparency, which many scholars see as a “cue to credibility,”<sup>80</sup> soaks up a considerable amount of the variance in the imputed project share

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<sup>79</sup> Nielson and Tierney 2003.

<sup>80</sup> Tierney 2003.

regression for MDB environmental aid. As a recipient's transparency increases in the domestic environmental policy realm, so too does its likelihood of receiving an MDB environmental loan. Likewise,  $\ln(ENVINFO)$  showed up as statistically and substantively significant in the non-imputed dollar share regression. This finding confirms Rodrik's claim that IOs serve an important informational role. According to Rodrik, gathering and analyzing information about the credibility of individual recipients is extremely time-consuming and costly, so states hire an IO to perform this task in their place. But the  $\ln(ENVINFO)$  finding also shows that Rodrik's theory of delegation is incomplete. MDBs not only provide information; they act upon it in their substantive operations. Tables 5 and 6 clearly show that only MDBs were able to *enforce ex ante conditionality* in their dealings with un-transparent and therefore non-credible recipient countries. Bilateral agencies were incapable of doing so, as were MGAs. Why? We argue that the formal decision rules of MDBs allow rich, Western countries – the primary principals (or certainly the most common members of any winning coalition) – to realize a foreign policy objective that they themselves are incapable of carrying out. Since states often have their “hands tied” at home, and therefore are unable to issue credible bilateral threats, they task IOs with enforcing *ex ante* (and perhaps *ex post*) conditionality.

### **Conclusions and Future Extensions**

What have we learned? First, we can confidently reject the null hypothesis presented at the outset of this paper – that the decision making criteria governing IPG and non-IPG aid *allocation* are the same. Because of the formal decision rules and the dramatic differences in the relative power of the same states in these different institutions, we observe significantly different results in the distribution and type of environmental aid allocated by MDB vs multilateral grant

agencies. Another crucial finding of the paper is that bilateral and multilateral aid agencies face a separate set of incentives and constraints that condition the likely effectiveness of their IPG aid. Of course, none of these results are definitive and most of these hypotheses should (and will be) tested using econometric methods that can more fully exploit the time series data that we have collected. The PLAID data collection project will prove essential in resolving a number of empirical and theoretical puzzles in the aid literature.

While the conclusion of an essay is not the proper place for a full-blown analysis of new hypotheses or alternative explanations, we would like to leave readers with a taste of results from a similar set of models to the ones employed in this paper. We wanted to share these results because they include striking results for the EPI variable, for a new compliance variable, and some alternative explanations. These additional models (7, 8, and 9) include an alternative set of variables that suggest a constructivist explanation for aid allocation. We will keep it brief and informal. As in the prior tests, we pooled the donors so that there was a single environmental aid cake which includes all aid from 1996-2000.

In models 7, 8, and 9, we add six new variables and drop six old variables to keep our number of observations at a reasonable level. This procedure also eliminated a number of multicollinearity problems that arose when all independent variables were entered into the equation at once.<sup>81</sup>

Several of the results previously presented in this paper were perplexing, especially the finding that countries with poor environmental policies receive a larger cut of the environmental aid “cake.” Models 7 and 8 suggest that this result may have been a product of a highly correlated unobservable variable. After controlling for a number of environmental variables, it

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<sup>81</sup> This is why we did not attempt to include constructivist variables in the first set of models. Since there is a great deal of variation in our dependent variable, multicollinearity posed only minor problems – all of which were overcome by estimating separate equations (Maddala 2000).

turns out that EPI actually *correlates positively* with environmental aid. More interesting still, EPI exerts separate effects on bilateral and multilateral environmental aid. Whereas bilateral agencies reward countries with weak environmental policy preferences, multilateral agencies seem to contract primarily with countries that have demonstrated a credible commitment to environmental reform.

$\ln(ENVVULN)$ , which we have taken as a proxy for a country's level of environmental need, also shows up as significant in column 4 of Table 9, indicating that multilateral development banks are more responsive to the shared interests of rich and poor nations than multilateral grant agencies or bilateral funders. This reinforces the findings in the original set of models that contained different controls.

As important, our results in these last three models offer strong support to the hypothesis that states task multilateral aid agencies with enforcing compliance upon recipient governments that abrogate or otherwise fail to implement specific environmental policy commitments. Strikingly, our measure of compliance with international environmental agreements,  $\ln(COMPLIANCE)$ , exerts a positive effect in the multilateral environmental aid share estimation and a negative effect in the bilateral environmental aid share estimation. This suggests that multilateral agencies, on net, reward countries with a solid *international* environmental policy track record. Bilateral agencies, by contrast, appear to be caught in what Buchanan calls a Samaritan's Dilemma. Because of the intensity of their environmental policy preferences,<sup>82</sup> Western governments are themselves unable to credibly threaten recipients (by withholding environmental aid) through their bilateral agencies.<sup>83</sup> These results are also consistent with our

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<sup>82</sup> On Western environmental policy preferences, see Nielson and Tierney 2003; 2004.

<sup>83</sup> This finding is also consistent with the "tied hands" logic for delegating to international organizations.

earlier finding about the relative sensitivity of bilateral and multilateral agencies to the environmental transparency of recipient governments.

Finally, in Models 7-9 we did include two constructivist-inspired variables that test for the impact of epistemic communities and for the institutionalization of environmental norms. However, we don't pretend that such proxies should satisfy constructivist scholars, nor are we confident that our test reflects the logic of a constructivist alternative, but we were attempting to take these arguments seriously – something that does not happen enough in quantitative literature on aid allocation. We would be interested in feedback on how to engage this literature in a satisfactory way.

EINGO90 measures the cumulative number of country chapters of international environmental nongovernmental associations within each country.<sup>84</sup> Data come from 1990. We treat this as a proxy for the degree to which norms of environmental protection are embedded within a given society. Those countries with more EINGOs should be more interested in giving or receiving environmental aid. The second constructivist-inspired variable draws on the logic of epistemic community arguments. IUCN2001 measures the number of member organizations in World Conservation Union in each country per million population. IUCN is the oldest international environmental membership organization, currently with over 900 members (governmental and NGO) worldwide, often including the most significant environmental NGOs in each country. While this variable captures more than just the per capita number of scientists who are experts on the environment, it is a rough proxy.

Unexpectedly,  $\ln(EINGO)$  correlates negatively with all types of environmental aid (e.g. total environmental, green, brown, bilateral, and multilateral), and  $\ln(IUCN)$  bounces back and forth from negative to positive across different model specifications. While these results are not

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<sup>84</sup> Frank et al. 2000.

encouraging for an alternative constructivist account, we put little confidence in the measures employed here to capture that logic.

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Figure 1.

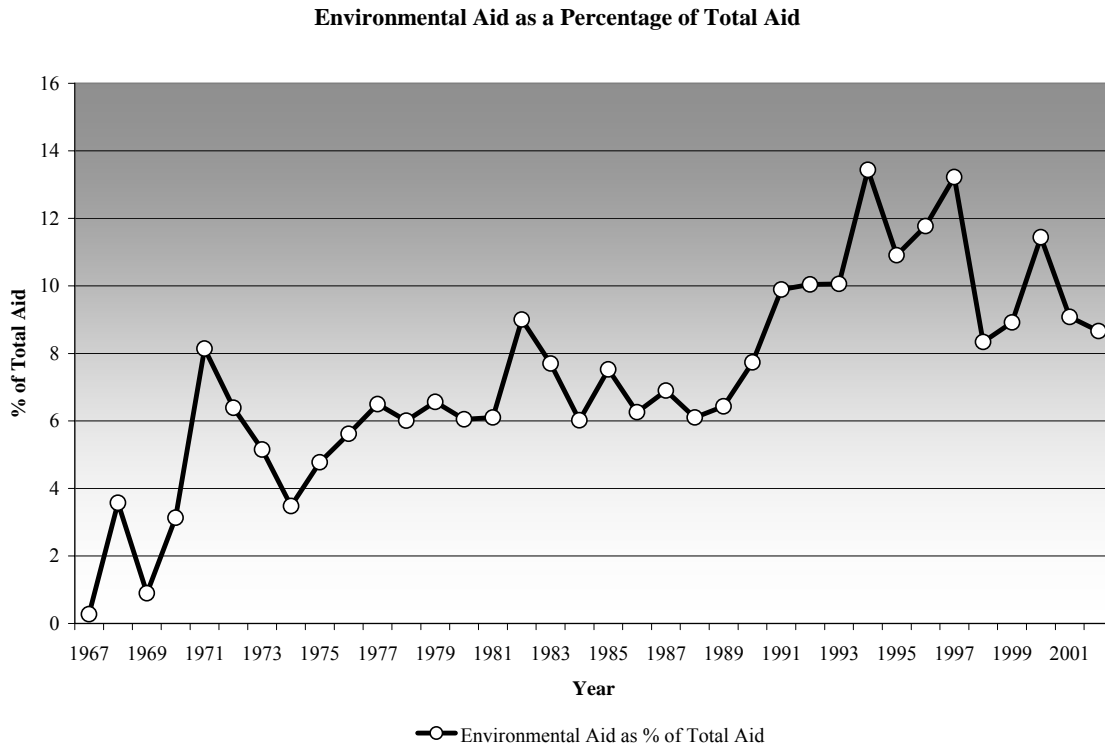


Figure 2.

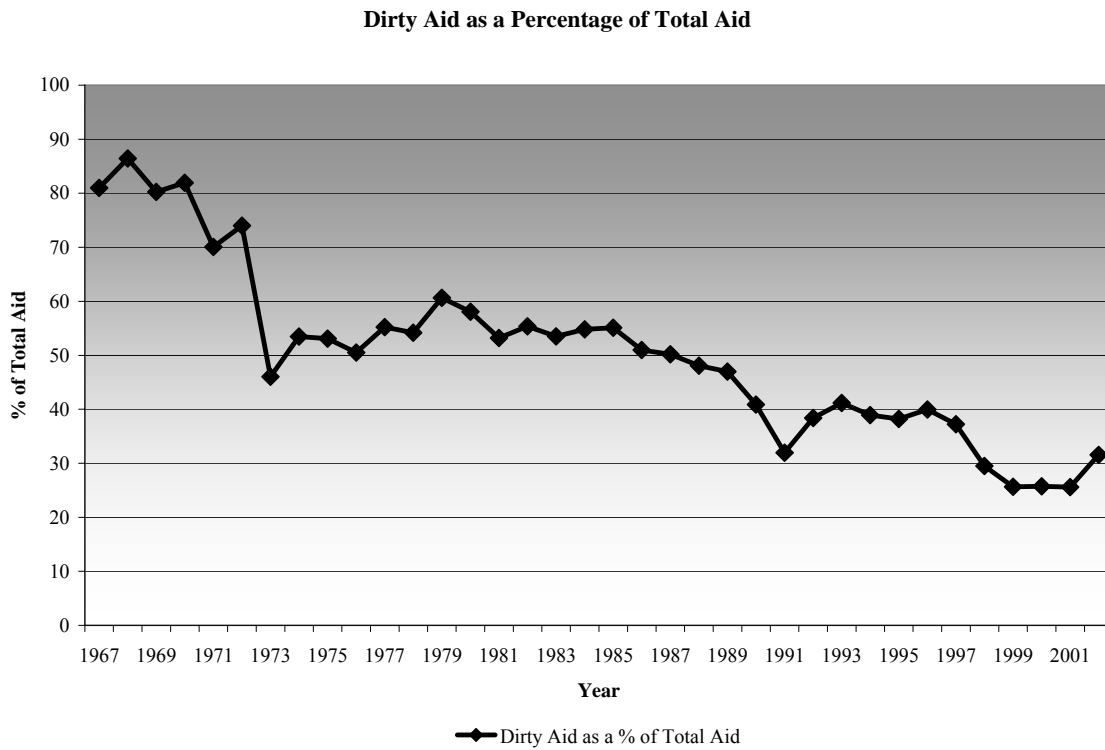


Figure 3.

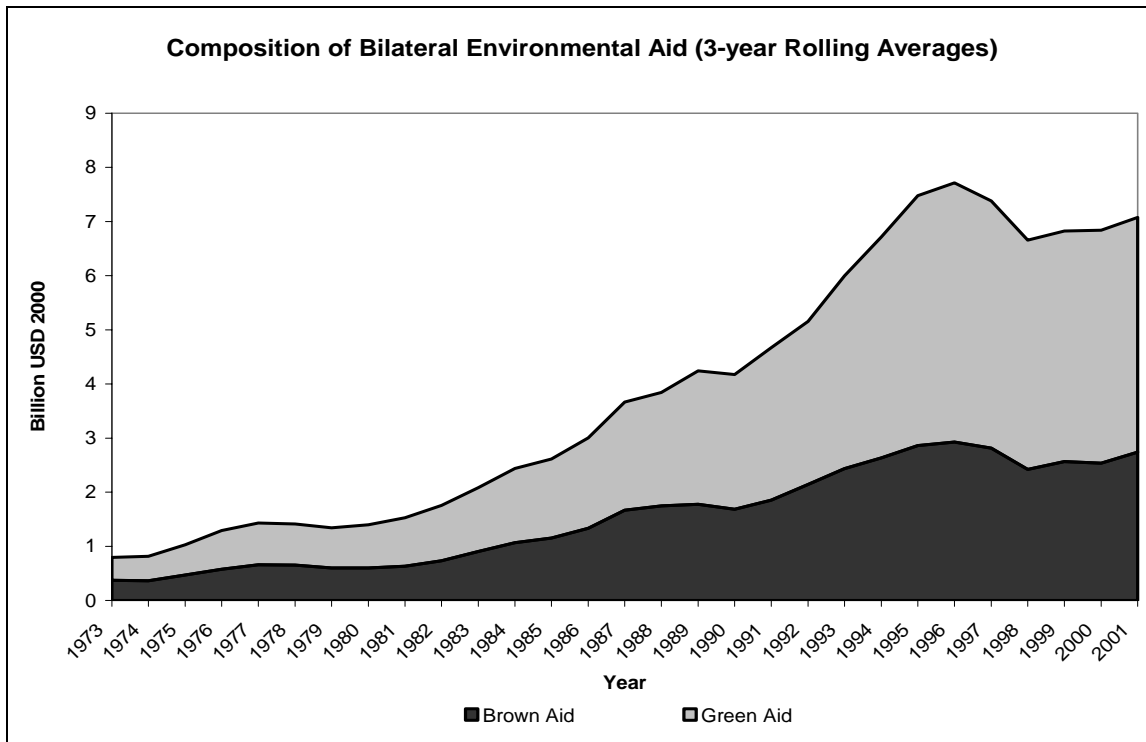


Figure 4

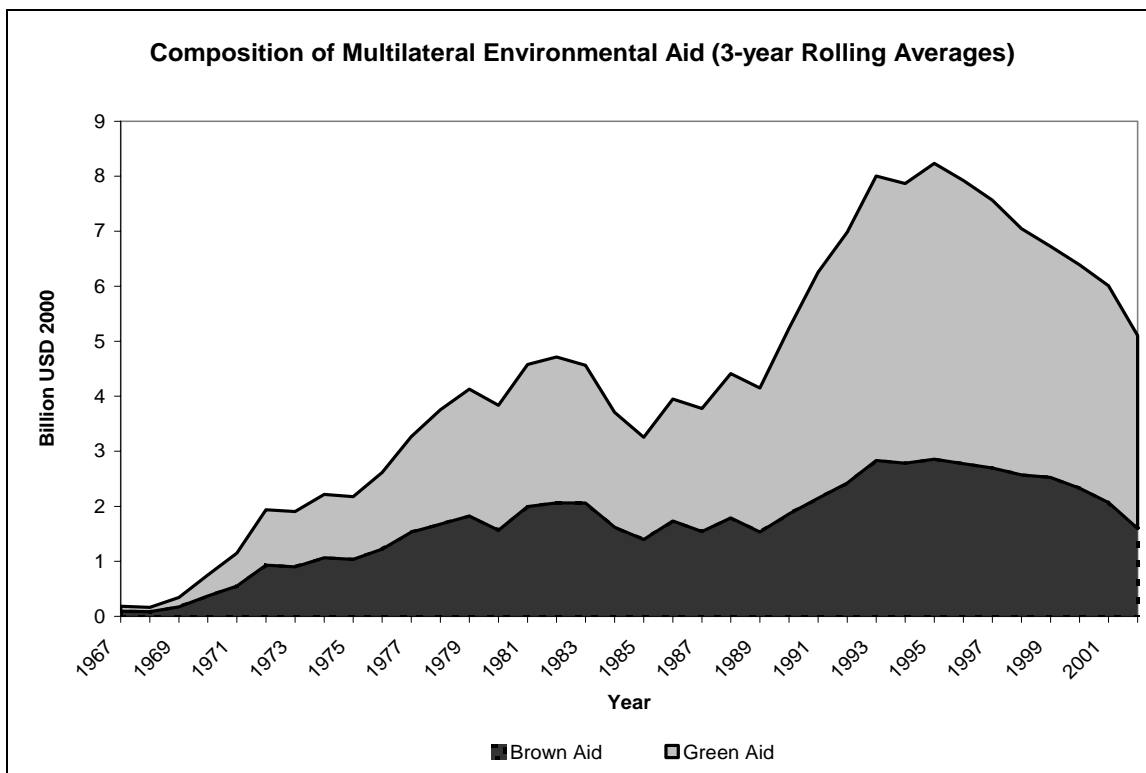


Figure 5.

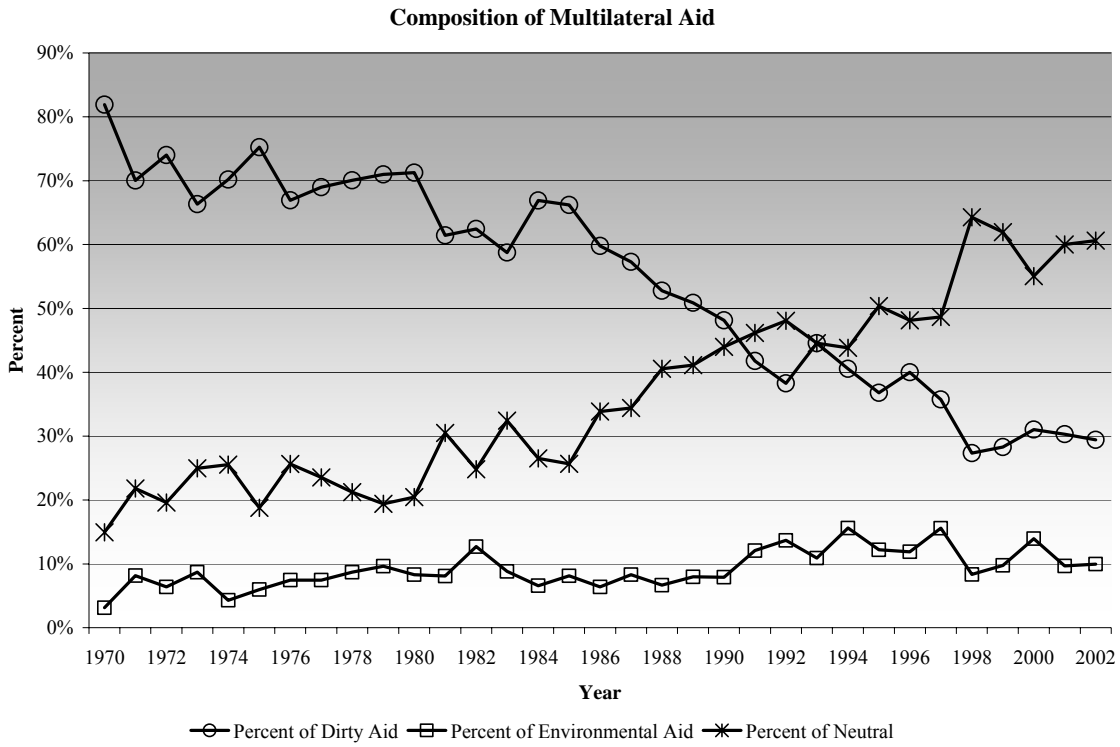
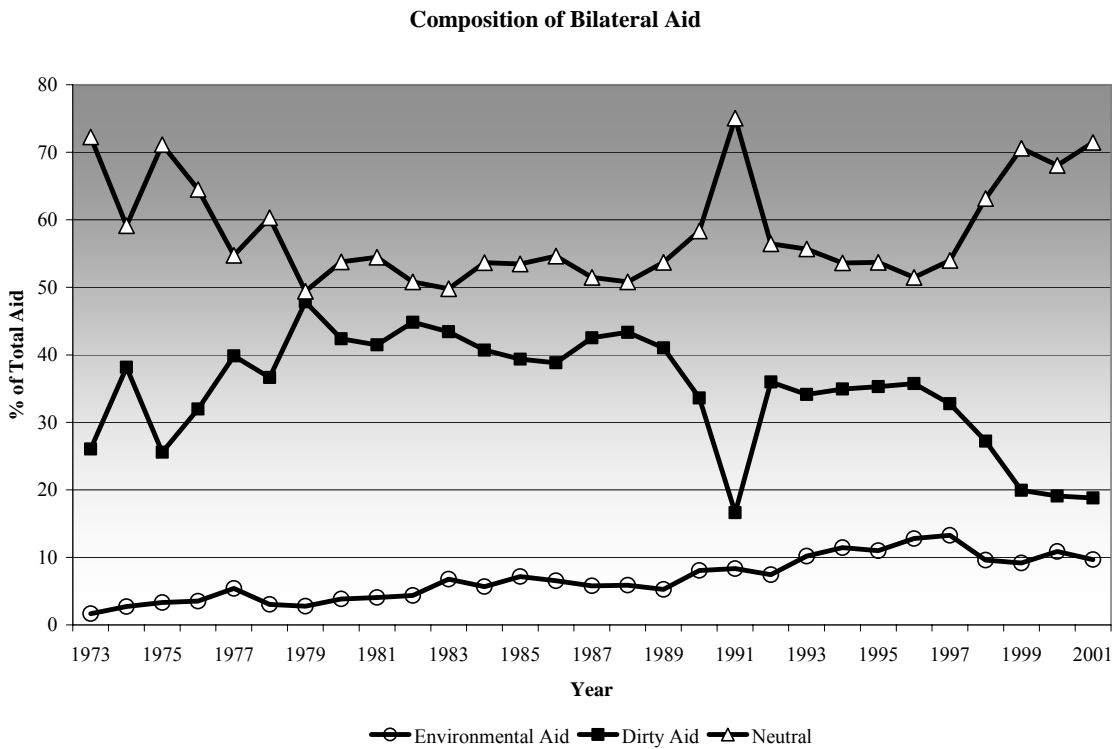


Figure 6.



**Table 1**

Dollar Shares	Environmental	Non- Environmental	Green	Brown
Population	0.0012** (2.64)	0.0009* (1.99)	0.0008 (1.27)	0.0013* (2.28)
Life Expec	-0.0019 (-0.49)	-0.0006 (-0.16)	-0.0003 (-0.06)	0.0018 (0.34)
Nat Cap	0.0095*** (6.02)	0.0073*** (4.64)	0.0100*** (4.49)	0.0099*** (4.84)
Env Policy	-0.0075 (-1.15)	-0.0051 (-0.82)	-0.0154† (-1.74)	-0.0080 (-0.98)
Env Vuln	-0.0013 (-0.57)	-0.0004 (-0.17)	0.0021 (0.66)	-0.0011 (-0.36)
Env Info	0.0014 (0.54)	0.0019 (0.70)	0.0038 (0.99)	0.0003 (0.09)
Monetary	-0.0017 (-1.30)	0.0014 (1.10)	-0.0013 (-0.73)	-0.0014 (-0.91)
Intervene	0.0003 (1.50)	0.0017 (.81)	0.0027 (0.86)	0.0041 (1.48)
Open	0.0038† (1.79)	0.0021 (1.06)	0.0039 (1.35)	0.0040 (1.53)
Investment	0.0032† (1.66)	0.0024 (1.25)	0.0028 (1.04)	0.0035 (1.42)
N	106	106	106	106
Adj R <sup>2</sup> ‡	.4026		0.3474	

Note: Models have all been run as log-shares; multiple imputation has been used for all models

‡ Adjusted R<sup>2</sup> and N are reported for non-imputed models

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, † p < 0.1

**Table 2**

Project Shares	Environmental	Non- Environmental	Green	Brown
Population	0.0011** (2.86)	0.0013*** (3.33)	0.0032 (0.57)	0.0076 (1.03)
Life Expec	-0.0036 (-.86)	-0.0057 (-1.34)	0.0730 (0.63)	0.0540 (0.52)
Nat Cap	0.0052*** (3.86)	0.0039** (2.94)	0.0028 (0.19)	-0.0054 (-0.25)
Env Policy	-0.0010 (-0.19)	-0.0002 (-0.04)	-0.0236 (-0.37)	0.0184 (0.23)
Env Vuln	0.0010 (0.47)	0.0036 (1.62)	0.0302 (0.58)	0.0514 (0.77)
Env Info	0.0003 (.15)	-0.0008 (-0.35)	-0.0034 (-0.13)	0.0092 (0.32)
Monetary	0.0007 (.65)	0.0001 (1.02)	0.0013 (0.11)	-0.0191 (-1.19)
Intervene	0.0009 (0.46)	0.0008 (0.45)	0.0047 (0.24)	0.0059 (0.24)
Open	0.0038* (2.13)	0.0019 (1.06)	0.0097 (0.50)	-0.0044 (-0.20)
Investment	0.0031† (1.88)	0.0034* (2.08)	0.0068 (0.37)	0.0041 (0.20)

N	106	106	96	96
Adj R <sup>2</sup> ‡	0.4828		0.4286	

Note: Models have all been run as log-shares; multiple imputation has been used for all models

‡ Adjusted R<sup>2</sup> reflects the explained variance for the non-imputed models

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, † p < 0.1

**Table 3**

Dollar Shares	Bilat Env	Multilat Env	Bilat Green	Multilat Green
Population	0.0010† (1.79)	0.0013* (2.36)	0.0008 ( 1.09 )	0.0009 (1.38)
Life Expec	-0.0010 (-0.21)	0.0019 (0.38 )	-0.0018 (-0.26)	0.0048 (0.68)
Nat Cap	0.0070*** (3.42)	0.0115*** (5.66)	0.0087** (3.28)	0.0102*** (4.20 )
Env Policy	-0.0146† (-1.81)	-0.0011 (-0.14)	-0.0274** ( -2.59)	-0.0105 (-1.07)
Env Vuln	0.0002 (0.08)	-0.0008 (-0.27)	0.0052 (1.25)	0.0026 (0.66)
Env Info	0.0018 (0.51)	0.0006 (0.18)	0.0059 (1.24)	0.0023 (0.56)
Monetary	-0.0007 ( -0.43 )	-0.0024 (-1.47)	-0.0006 (-0.30)	-0.0016 (-0.81)
Intervene	0.0018 (0.63)	0.0051† (1.83)	-0.0006 (-0.16)	0.0048 (1.44)
Open	0.0031 (1.19)	0.0042 (1.62)	0.0042 (1.20)	0.0036 (1.15)
Investment	0.0051* (2.05)	0.0015 (0.61)	0.0061† (1.86)	0.0013 (0.46)
N	106	106	106	106
Adj R <sup>2</sup> ‡	0.3245		0.3165	

Note: Models have all been run as log-shares; multiple imputation has been used for all models

‡ Adjusted R<sup>2</sup> and N are reported for non-imputed models

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, † p < 0.1

**Table 4**

Project Shares	Bilat Env	Multilat Env	Bilat Green	Multilat Green
Population	0.0005 (0.10)	-0.0000 (-0.01)	0.0043* ( 2.56)	0.0007 ( 0.95)
Life Expec	-0.0389 (-0.26)	-0.0296 (-0.19)	-0.0146 (-0.99)	0.0110 (0.90)
Nat Cap	0.0052 (0.37)	0.0093 (0.62)	0.0204*** (3.44)	0.0046† (1.92)
Env Policy	0.0087 (0.13)	0.0020 (0.03)	0.0026 ( 0.13)	-0.0054 (-0.55)
Env Vuln	-0.0112 (-0.17)	-0.0192 (-0.29)	0.0071 (0.91)	0.0027 ( 0.48)
Env Info	0.0043 ( 0.16)	0.0031 ( 0.16)	-0.0002 (-0.03)	0.0003 (0.07)
Monetary	0.0015 (0.12)	0.0012 (0.14)	0.0075 (1.44)	-0.0000 (-0.00)
Intervene	0.0004	0.0003	-0.0036	0.0014

Open	(0.12) 0.0015	(0.02) 0.0052	(-0.48) 0.0098	(0.46) 0.0048
Investment	(0.08) 0.0017 (0.09)	(0.27) -0.0020 (-0.12)	(1.46) 0.0166* (2.60)	(1.55) 0.0010 (0.34)
N	106	106	106	106
Adj R2 ‡	0.4006		0.3956	

Note: Models have all been run as log-shares; multiple imputation has been used for all models

‡ Adjusted R2 reflects the explained variance for the non-imputed models

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, † p < 0.1

**Table 5**

Dollar Shares	MGA Env	MDB Env	GEF	WB Green
Population	0.0041 (0.97)	-0.0003 (-0.21)	0.0060 (0.22)	0.0370† (1.67)
Life Expec	-0.0129 (-0.36)	0.0049 (0.17)	0.0953 (1.71)	-0.0028 (-0.01)
Nat Cap	0.0481*** (4.13)	0.0169** (2.96)	0.0048 (0.05)	0.4291*** (5.36)
Env Policy	-0.0057 (-0.10)	-0.0148 (-0.64)	-0.0031 (-0.01)	-0.0846 (-0.27)
Env Vuln	-0.0089 (-0.45)	0.0005 (0.04)	0.0305 (0.24)	-0.1008 (-0.85)
Env Info	0.0060 (0.25)	0.0097 (1.00)	-0.0107 (-0.07)	0.0389 (0.29)
Monetary	-0.0032 (-0.28)	0.0020 (0.46)	-0.0018 (-0.02)	-0.1008 (-1.57)
Intervene	0.0178 (0.88)	0.0022 (0.29)	0.0033 (0.03)	0.2043† (1.86)
Open	0.0203 (1.11)	0.0048 (0.66)	0.0064 (0.06)	0.1762† (1.71)
Investment	0.0086 (0.53)	0.0004 (0.07)	0.0090 (0.09)	0.0273 (0.28)
N	106	106	94	94
Adj R <sup>2</sup> ‡	0.3627		0.2157	

Note: Models have all been run as log-shares; multiple imputation has been used for all models

‡ Adjusted R<sup>2</sup> and N are reported for non-imputed models

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, † p < 0.1

**Table 6**

Project Count	MGA Env	MDB Env	GEF	WB Green
Population	0.0005 (1.22)	-0.0008* (-2.04)	0.0001 (0.30)	0.0009† (1.76)
Life Expec	0.0031 (0.84)	0.0023 (0.62)	-0.0000 (-0.00)	0.0003 (0.07)
Nat Cap	0.0054 *** (3.66)	0.0099 *** (6.47)	0.0031 (1.62)	0.0091 *** (4.81)
Env Policy	-0.0031 (-0.52)	-0.0185** (-2.98)	-0.0026 (-0.37)	0.0036 (0.47)
Env Vuln	-0.0011 (-0.51)	0.0008 (0.37)	0.0019 (0.68)	-0.0026 (-0.94)

Env Info	0.0012 ( 0.49 )	0.0101*** ( 3.80 )	0.0011 (0.37)	0.0010 (0.30)
Monetary	0.0000 (0.05)	0.0029 * (2.39)	0.0014 (0.95)	0.0014 (0.93)
Intervene	0.0009 (0.47)	0.0011 (0.52)	-0.0011 (-0.42)	0.0016 (0.62)
Open	0.0049* (2.54)	0.0015 (0.76 )	0.0019 (0.78)	0.0048† (1.91)
Investment	0.0004 (0.24 )	0.0008 (0.44 )	0.0011 (0.51)	0.0013 (0.56)
N	106	106	106	106
Adj R <sup>2</sup> ‡	0.3490		0.1864	

Note: Models have all been run as log-shares; multiple imputation has been used for all models

‡ Adjusted R<sup>2</sup> reflects the explained variance for the non-imputed models

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, † p < 0.1

**Table 7**

Dollar Shares	Environmental	Non- Environmental	Green	Brown
Population	0.002248*** (5.74)	-0.000450 (-0.68)	0.001458† (1.68)	0.002453** (3.12)
GDPpc	-0.004051*** (-6.18)	-0.000407 (-0.71)	-0.004426*** (-4.01)	-0.004665*** (-4.48)
Nat Cap	0.005818*** (4.66)	0.000172 (0.16)	0.008568*** (3.96)	0.006399*** (3.33)
Env Vuln	-0.000438 (-0.25)	-0.001422 (-0.89)	-0.002826 (-0.90)	-0.003367 (-1.17)
Env Pressure	-0.033382*** (-10.69)	-0.000980 (-0.34)	-0.026077*** (-4.68)	-0.034901*** (-6.92)
Env Policy	0.002260 (0.50)	0.001554 (0.38)	0.001950 (0.23)	0.004766 (0.67)
Effective	0.015506*** (5.13)	-0.000038 (-0.01)	0.014483** (2.68)	0.015009** (3.14)
Env INGOs	-0.001069*** (-3.52)	0.000013 (0.06)	-0.000727 (-1.63)	-0.001079* (-2.54)
IUCN	0.006338** (3.23)	-0.000385 (-0.23)	0.003035 (0.90)	0.006820* (2.26)
Env IOs	-0.004685* (-2.06)	0.000517 (0.26)	-0.003497 (-0.90)	-0.004143 (-1.19)
Compliance	---	---	---	---
N	97	97	97	97
Adj R <sup>2</sup> ‡	0.58		0.51	

Note: Models have all been run as log-shares; multiple imputation has been used for all models

‡ Adjusted R<sup>2</sup> and N are reported for non-imputed models

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, † p < 0.1

**Table 8**

Dollar Shares	Bilat Env	Multilat Env	Bilat Env	Multilat Env
Population	0.001374† (1.81)	0.002741*** (3.53)	0.00135 (0.73)	0.00855*** (3.08)
GDPpc	-0.004667*** (-4.54)	-0.003767*** (-3.79)	-0.00507** (-2.66)	-0.01265** (-3.34)

Nat Cap	0.005027 (2.59)	0.007556** (3.91)	0.00440 (1.42)	0.00383 (1.01)
Env Vuln	-0.003032 (-1.08)	-0.001327 (-0.48)	-0.00666 (-1.03)	0.00865 (1.00)
Env Pressure	-0.025966*** (-5.31)	-0.038224*** (-7.54)	0.05081* (2.31)	-0.04183*** (-4.11)
Env Policy	-0.003696 (1.76)†	0.012468 (-0.51)	-0.01747 (-1.30)	0.03394 (1.43)
Effective	0.015142** (3.18)	0.013305** (2.76)	0.01210 (1.25)	0.026590 (1.08)
Env INGOs	-0.000980* (-2.39)	-0.000934* (-2.14)	0.004630 (-0.00)	-0.038460 (-0.55)
IUCN	0.004730 (1.57)	0.005349† (1.79)	0.00306 (0.63)	0.00736 (1.03)
Env IOs	0.000695 (0.20)	-0.007977** (-2.30)	0.00658 (0.99)	-0.01313 (-1.23)
Compliance	---	---	-0.04027*** (-4.11)	0.02005* (2.11)
N	97	97	50	50
Adj R <sup>2</sup> ‡	0.49		0.58	

Note: Models have all been run as log-shares; multiple imputation has been used for all models

‡ Adjusted R<sup>2</sup> and N are reported for non-imputed models

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, † p < 0.1

**Table 9**

Dollar Shares	Bilat Green	Multilat Green	MGA Env	MDB Env
Population	-0.000799 (0.90)	0.000500 (1.80)†	0.006022 (1.84)†	-0.001438 (-0.80)
GDPpc	-0.006053*** (-4.26)	-0.003102* (-2.47)	-0.015112** (-3.17)	-0.004211† (-1.71)
Nat Cap	0.008793** (3.16)	0.008117*** (3.36)	0.026606** (3.17)	0.015326*** (4.11)
Env Vuln	-0.019924 (-0.68)	-0.027470 (-0.44)	-0.016769 (-1.42)	-0.014711† (-1.94)
Env Pressure	-0.002672** (-2.78)	-0.001566*** (-4.34)	-0.065697** (-3.24)	-0.022061* (-2.16)
Env Policy	-0.009191 (-0.85)	0.006467 (0.70)	0.029855 (1.11)	0.013368 (0.93)
Effective	0.019922† (1.88)	0.011278** (3.03)	0.029667 (1.36)	0.004743 (0.53)
Env INGOs	-0.001158* (-2.08)	-0.000499 (-1.02)	-0.002110 (-1.19)	-0.000251 (-0.35)
IUCN	0.003671 (0.86)	0.003007 (0.79)	0.020648 (1.42)	-0.004614 (-0.81)
Env IOs	0.004123 (0.79)	-0.007569† (-1.76)	-0.005009 (-0.31)	0.001111 (0.16)
Compliance	---	---	---	---
N	97	97	97	97
Adj R <sup>2</sup> ‡	0.38		0.50	

Note: Models have all been run as log-shares; multiple imputation has been used for all models

‡ Adjusted R<sup>2</sup> and N are reported for non-imputed models

\*\*\* p < 0.001, \*\* p < 0.01, \* p < 0.05, † p < 0.1

**TABLE 10: AIDTYPE VALUES AND GENERAL CRITERIA**

<b>Values</b>	<b>General Criteria</b>
<b>Environmental Strictly Defined (ESD)</b>	—Considered environmental aid in preponderance of literature —Description suggests that aid is intended as “green” aid
<b>Environmental Broadly Defined (EBD)</b>	—Considered environmental aid in some of the literature —Significant environmental benefits despite not being intended as “green” aid
<b>Dirty Strictly Defined (DSD)</b>	—Project description contains explicitly dirty elements
<b>Dirty Broadly Defined (DBD)</b>	—Project not explicitly dirty, but supports an empirically dirty sector —Project harms environment, but not enough to classify as DSD
<b>Neutral (N)</b>	—Project has no apparent or direct environmental effects

**TABLE 11: ENVAIDTYPE VALUES AND GENERAL CRITERIA**

<b>Values</b>	<b>Broad Criteria</b>
<b>Green</b>	—Environmental benefits of the project are regional or global
<b>Brown</b>	—Benefits accrue primarily to recipient



**Table 12****Correlation Matrix**

	Population	Life Expec	Nat Cap	Investment	Env Policy	Env Info	Env Vuln	Mon Policy	Gov Intervent	Trade Open
Population	1.00									
Life Expec	- 0.10	1.00								
Nat Cap	0.45***	0.10	1.00							
Investment	- 0.16†	0.35***	- 0.08	1.00						
Env Policy	- 0.14	0.38***	0.07	0.22*	1.00					
Env Info	0.39***	0.58***	0.33***	0.11	0.43***	1.00				
Env Vuln	- 0.19**	- 0.63***	- 0.09	- 0.34***	- 0.07	- 0.47***	1.00			
Mon Policy	0.18**	- 0.35***	0.03	- 0.45***	- 0.28**	- 0.25**	0.33***	1.00		
Gov Intervent	- 0.07	- 0.03	- 0.11	- 0.14	- 0.12	- 0.16†	- 0.05	0.02	1.00	
Trade Open	0.10	- 0.52***	0.06	- 0.31***	- 0.48***	- 0.42***	0.34***	0.33***	0.24**	1.00

Note: All variables were logarithmically transformed

Significance Levels: \*\*\* p<0.001; \*\* p<0.01; \* p<0.05; † p<0.1

