PORTFOLIO SIMILARITY AND INTERNATIONAL DEVELOPMENT AID

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Abstract

How do governments distribute their foreign aid resources across international development organizations (IDO)? We argue that governments' distributional choices across IDOs are a consequence of their attempt to minimize the costs of delegation and to pursue their own interests (strategic or non-strategic) in foreign aid policy. Governments make decisions about the allocation of resources across a large number of IDOs, and they delegate their scarce aid resources to IDOs that pursue development policies in line with their own foreign development interests. We use data on the financial contributions of 22 OECD governments to 12 IDOs from 1970 to 2008 to test our theoretical hypothesis about governments' allocation decisions. The empirical analysis robustly supports our theoretical claims. Governments regularly contribute to a large number of IDOs, and they tend to delegate more resources to IDOs that provide higher levels of portfolio similarity. Our analysis provides a first attempt to analyze the consequences of the existence of multiple IDOs on the ability of governments to minimize the loss of control that they experience when delegating foreign aid resources to IDOs.

INTRODUCTION

Since the end of World War II the number of international development organizations (IDOs) has increased from one to almost fifty, each aiming to promote sustainable economic and social development in the poorest regions of the world. Governments tend to be members of a large number of these IDOs and provide about a third of their development assistance through them. How do governments decide about the distribution of their scarce aid resources across these multiple, and often overlapping, institutions? When addressing this question, scholars usually assume that multilateral aid is less politicized (and, therefore, more effective) than bilateral aid. As a consequence, existing work attempts to explain why governments delegate foreign aid to IDOs despite losing some ability to allocate it according to their strategic preferences. Some scholars argue that governments make this choice when they care more about effective economic development outcomes than about strategic goals (Rodrik 1995; Winters 2010, 2014; Dietrich 2013, 2016; Dietrich and Wright 2015). Others argue that governments make this choice when they need to make credible commitments to domestic audiences about the non-strategic intentions of their foreign aid (Milner 2006), or when they can benefit from the expertise and efficiency of IDOs (Hicks et al. 2008; Milner and Tingley 2010, 2011, 2013).

These are valid explanations for delegation, but they create trade-offs for governments, which want to maximize control over how their aid resources are spent (Milner and Tingley 2010). Delegation costs arise when governments' development policy interests are diluted in the IDO decision-making process. We argue that rather than taking these costs as given, governments actively seek strategies to minimize them. Our theory explains how governments can exploit their memberships in multiple IDOs to protect their interests. Governments strategically shift their financial contributions towards those IDOs that have foreign aid portfolios most similar to their own portfolios. Governments delegate in this way to IDOs and distribute across a number of IDOs to maximize their control over how resources are spent, thereby maximizing the potential economic and political benefits from delegation.

To test the empirical implications of our theoretical argument we use data on 22 OECD governments' financial contributions to 12 IDOs over the period 1970-2008. We analyze whether governments' financial contributions to IDOs vary with their portfolio similarity, and exhibit the distributional patterns that would indicate that governments allocate resources across IDOs in order to minimize the costs of delegation. Our analysis provides support for our theory. Governments

provide more resources to IDOs that maximize portfolio similarity with that government. The distributional patterns indicate that governments aim to maximize their control over multilateral foreign aid, thereby reaping the benefits of delegating while minimizing the potential costs. Specifically, a one-half of a standard deviation increase in portfolio similarity between a government and an IDO leads to a 13 percentage point increase in financial contributions from that government. Substantively, this result is quite large: one-half of a standard deviation increase in portfolio similarity leads to an increase in contributions that is just below the average commitment to IDOs in our dataset. We show that our main findings are robust to a number of different model specifications, and to different conceptualizations of governments' ideal foreign aid policies.

Our findings provide important contributions to the literature on foreign aid. Much of the existing research has focused on analyzing the dichotomy between bilateral and multilateral aid—the dependent variable is typically the ratio of a donor's multilateral aid to their total foreign aid. We open this black box of multilateral aid. Rather than observing the overall amount of multilateral aid provided by each government, we explicitly analyze governments' contributions across individual IDOs over a long period of time. To our knowledge, this is one of the first theoretical and empirical analyses concerning *how* governments shift their multilateral contributions across IDOs. Focusing on the components of overall multilateral aid commitments allows us to provide a better account of the strategies that governments can use to minimize the costs of delegating foreign aid to IDOs to begin with. This includes the decision to delegate more resources to IDOs that are more efficient and effective providers of development finance and those whose development policies protect the government's domestic interest. Our findings thereby also provide new insights into how governments cope with the risks of delegation to IDOs. In addition, we find that governments pursue similar preferences when delegating their foreign aid through bilateral and multilateral channels. Governments contribute more to IDOs whose policies are highly correlated with the country's bilateral aid preferences. This finding challenges the common wisdom that governments use bilateral and multilateral channels as complements rather than as substitutes in the pursuit of the government's development goals. On average, governments contribute to IDOs that pursue development strategies similar to their bilateral development strategies and not to IDOs that pursue different, complementary development strategies. Finally, our theory departs from the restrictive assumption in the literature that bilateral aid is always more strategic than multilateral aid. We argue that governments' development aid typically is grounded in a combination of strategic and

non-strategic goals, and that governments have strategies to pursue both of these goals through bilateral and multilateral channels.

TOWARDS AN INTEGRATED THEORY OF DELEGATION

This section motivates the theoretical argument by discussing how the literature addresses the prevailing empirical patterns of delegation to IDOs. We argue that much of the existing research focuses on the benefits of delegating development assistance to IDOs as a strategy to achieve more efficient and effective aid, or to make credible commitments to domestic and international publics. While these explanations are important contributions to explaining why countries delegate foreign aid in the first place, they do not provide insight into how governments cope with the *costs* of delegation. We argue that these costs are important and that we can only move towards a more integrated theory of delegation if we open the black box of multilateral aid by analyzing how governments allocate resources across IDOs. We provide some descriptive data that demonstrates that governments can and do shift their multilateral aid resources across a number of IDOs.

The delegation of foreign aid to IDOs typically refers to governments providing some of their foreign aid resources through IDOs rather than through bilateral channels. Historically, financial contributions to IDOs are a consistent part of countries' foreign aid budgets. Governments spend about 35% of their foreign aid budgets through IDOs annually, and much of the literature has focused on explaining the variation in delegation across donor countries. The question of delegation has attracted much attention because there appears to be a conflict between the development goals of governments and the development goals of IDOs. Research indicates that governments tend to use their bilateral foreign aid to achieve national strategic goals, but that IDOs tend to use their foreign aid to support economic and human development. Why would governments with largely strategic interests channel their foreign aid resources through IDOs rather than through their own bilateral aid agencies where they have more opportunities to embed their strategic interests into the allocation process?

There are two existing arguments. One strand of the literature argues that delegation occurs when governments care about effective development outcomes rather than about strategic goals (Winters 2010, 2014; Dietrich 2013, 2015; Dietrich and Wright 2015). This argument is based on the premise that IDOs provide more effective aid more efficiently (Rodrik 1995). Governments can reap the benefits of delegation by pooling their resources and exploiting the capacity of IDOs

(Hicks et al. 2008; Milner and Tingley 2010). The IDO's ability to attract private funding and lower administrative costs increases the overall value of aid giving. Individual donors can also gain from sharing the burden of development (Milner and Tingley 2011, 2013). If governments want to support economic growth in recipient countries, they may gain from delegating their resources to IDOs.[1] Another strand of the literature argues that governments sometimes delegate to IDOs even if they care more about strategic than non-strategic goals. Milner (2006), for example, argues that governments delegate to IDOs in order to tie their hands. Delegation signals to their domestic electorate that the government's foreign aid allocation is not politicized. To the extent that domestic publics care about humanitarian development over strategic outcomes (Milner and Tingley 2013), governments may experience domestic political gains from delegation (but experience costs from not being able to allocate their foreign aid strategically).

This research provides important insights into our understanding of international development strategies. One implicit assumption of these explanations is that governments take the costs of delegation as given. According to the literature, the main cost of delegation owes to the inherent principal-agent relationship: the international development agency may pursue goals that are not in the interest of the individual member governments (Nielson and Tierney 2003; Milner 2006; Schneider and Tobin 2013). The idea is that if the benefits do not outweigh the costs, governments would sanction the IDO by providing less foreign aid through multilateral channels and more through bilateral channels. For example, Schneider and Tobin (2013) show that agency slippage in the European Development Fund (EDF) leads to a decline in the resources that EU members are willing to delegate to the European Commission. This argument presumes a dichotomy between bilateral and multilateral aid and thereby ignores the ability of governments to shift their resources to other IDOs (rather than to withdraw them from the multilateral arena altogether). To substantiate this argument, we will now provide some evidence that (a) governments indeed provide resources to a number of IDOs, and (b) that there is a lot of variation in delegation across IDOs and over time.

The number of IDOs has grown dramatically in the last decades, from one development institution in 1946 to over 44 today. On average, OECD countries are members of 63% of existing

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[1] For example, Dietrich (2013, 2014) shows that donors delegate more resources to IDOs (and other non-governmental agencies) when recipient governments are poorly governed because IDOs are more likely to ensure that the foreign aid achieves its intended outcome.

IDOs. Although membership varies little across governments, there is much variation in the distribution of resources across IDOs, and in the amount of resources delegated to individual IDOs over time. Figure 1 illustrates some of this variation by graphing the delegation decisions of Germany and the United States to major IDOs between 1970 and 2008. Figure 1(a) shows that Germany's United Nations Development Programme (UNDP) contributions have been crowded out since the 1990s in favor of contributions to European aid agencies such as the European Commission (EC) and the European Development Fund (EDF). Contributions to the World Bank's International Development Agency (IDA) also vary significantly over time, but do not demonstrate a clear trend in either direction Figure 1(b) shows that the U.S. has consistently preferred to delegate aid to the IDA. Whereas contributions to the Inter-American Development Bank (IADB) and UNDP have declined over time, the World Food Program (WFP) has become a more important recipient of U.S. aid.
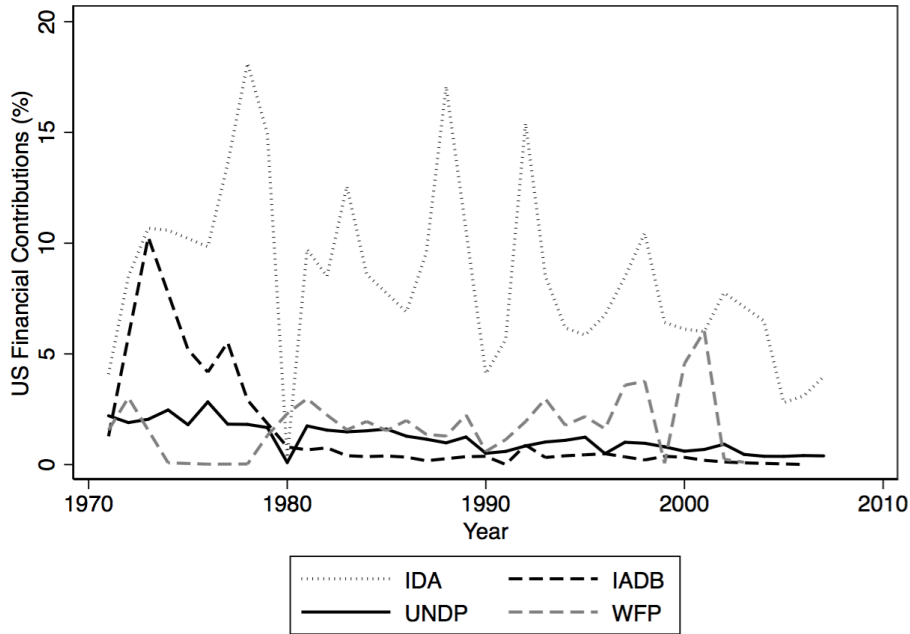
(a) Germany
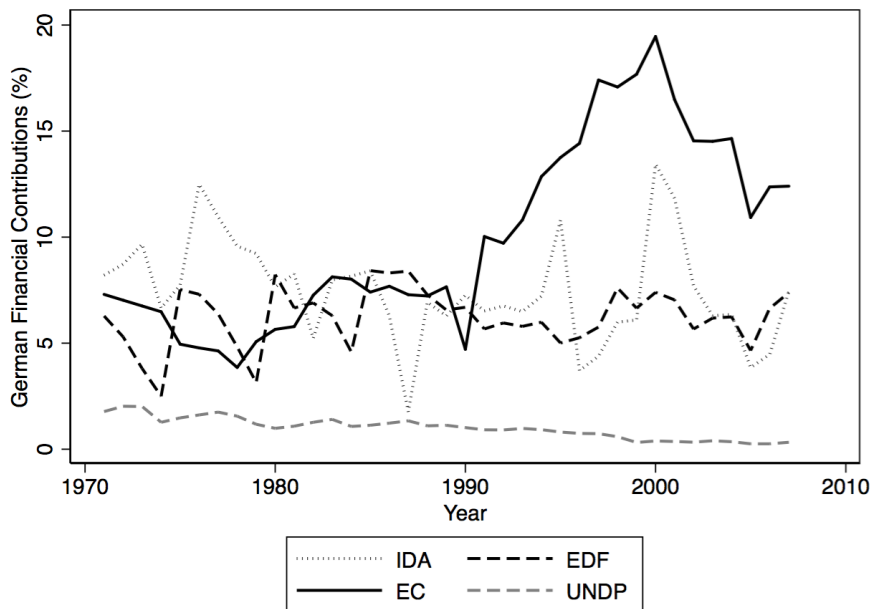
(b) United States

Figure 1: Financial Contributions (in % of Total Contributions to IDOs)

We make use of the ability of governments to shift resources across IDOs to provide an explanation of how governments can minimize the costs of delegation. We argue that governments can use their membership in multiple IDOs to strategically shift contributions in order to maximize their control over how their delegated foreign aid is spent, thereby actively minimizing the costs of delegation. The theory that we present in the next section extends the existing arguments to provide a rationale for the patterns of resource distribution across IDOs.

THEORY

We develop a theory that analyzes how governments distribute their financial contributions across a large number of IDOs. We argue that governments care most about the potential loss of control that they may experience by delegating foreign aid through IDOs. They can minimize the costs of delegation by distributing resources across IDOs, providing more resources to those IDOs that pursue development policies in line with their own interests.

We assume that governments form preferences over how their financial contributions should be allocated, that is, over their ideal foreign aid portfolio. We define a *foreign aid portfolio* as a donor's allocation of foreign aid resources across recipients and development sectors in a given

year. The foreign aid portfolio indicates how much of a donor's foreign aid resources are spent on each recipient and/or development sector (such as environment or general budget support), thereby indicating the importance of each recipient or sector for the donor. Sometimes governments care about both equally, and sometimes they care more about a particular region (i.e. former colonies) or a particular sector (i.e. global health). Incumbent governments are rational actors with partisan preferences, which aim to maximize their time in political power. As in other domestic and foreign policy areas, the formation of a government's ideal foreign aid portfolio is influenced by its partisan preferences, as well as its desire to get reelected. First, governments have ideologically predisposed preferences towards the allocation of foreign aid (Noel and Therien 1995; Therien and Noel 2000; Bermeo et al. 2011). Second, governments want to cater to the interests of domestic constituents, which often—but do not always—care about economic development, and interest groups which often want the government to use foreign aid in order to pursue economic or geopolitical goals (Milner and Tingley 2010, 2011, 2013; McLean 2012, 2015).[2] In line with the current literature, we assume that governments pursue both strategic (economic, military, or political) and non-strategic (economic development, humanitarian relief) interests when providing foreign aid. Nevertheless, given the different domestic pressures and ideological backgrounds, governments vary in the extent to which strategic or non-strategic interests drive their ideal foreign aid portfolio (Heinrich 2013). Once governments have formulated an ideal foreign aid policy, they can implement these policies by channeling resources through bilateral foreign aid agencies, such as USAID in the United States, or through IDOs, such as the World Bank (McKeown 2009; Milner and Tingley 2010). Finally, based on the empirical patterns described above we assume that when providing aid through multilateral channels, governments provide financial contributions to a large number of IDOs with variations in development goals, geographic focus, and membership.

Our theory is based on the notion that delegation carries costs for governments which have specific preferences over how development aid should be allocated (their ideal foreign aid portfolio). Governments want to reap the benefits of delegation, while minimizing any loss of control, as more effective aid will not be very beneficial to them if it is not provided to the recipients or

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[2] In addition to the domestic sources of foreign aid policies, governments may learn from the experiences of other donors, bilateral and multilateral, and adapt their foreign aid priorities based on international factors. For example, the importance of good governance was first promoted in a World Bank report, which in turn influenced bilateral foreign aid policies (Schneider 2015).

sectors that they care about. Whereas governments design IDOs to ensure that their interests are accounted for, pursuing foreign aid policies through IDOs always involves some degree of delegation to an implementation agency with greater expertise as well as an intergovernmental body composed of other shareholder countries with potentially diverging interests. When delegating to IDOs, the chain of delegation is long. The larger the number of influential actors, the smaller the likelihood of similarity between the portfolios of the IDO and the government. This potential decrease in what we call *portfolio similarity* can be costly for governments with specific preferences over the distribution of their aid.

Whereas the literature has focused on the problem of agency slippage, we can identify at least three points in the delegation process where the government may lose control over the IDO's foreign aid portfolio. First, governments send delegates to the IDO to negotiate with other stakeholders and IDO staff. These delegates may use information asymmetries to negotiate in their own interest, instead of the government's, thereby decreasing portfolio similarity. Second, decisions over the allocation of aid in IDOs are made at the intergovernmental level. That is, governments negotiate over particular allocation policies in an intergovernmental forum. In these negotiations, the greater the government's formal and informal bargaining power, the better it can influence allocation policies in its favor, thereby increasing portfolio similarity at the intergovernmental level. In addition, the more similar a government's policy goals to those of other member governments, the more likely it can form influential interest coalitions, thereby increasing the potential for portfolio similarity.

Third, the IDO agent implements and manages development projects according to collective decisions. The IDO agent also has opportunities to pursue policies that are not in the interests of its members. IDO agents are self-interested actors who want to maximize the likelihood of the organization's survival. They have strong incentives to protect the legitimacy of the institution by implementing the official aid goals of the organization. In addition, they aim to increase the depth and scope of the IDO by, for example, providing more aid to more regions (Copelovitch 2010, Schneider and Tobin 2013). The greater their informational advantage over their members and the greater their power to make allocation decisions, the more opportunities they have to pursue their own goals. Agency slippage diminishes portfolio similarity only if the governments' preferences that are different from the agents' preferences. Individual governments may even gain from agency slippage when the preferences of the agent and the government are similar. Figure 2 illustrates that

the portfolio similarity between an IDO and a government depends on the government's influence both at the intergovernmental level and at the agency level.
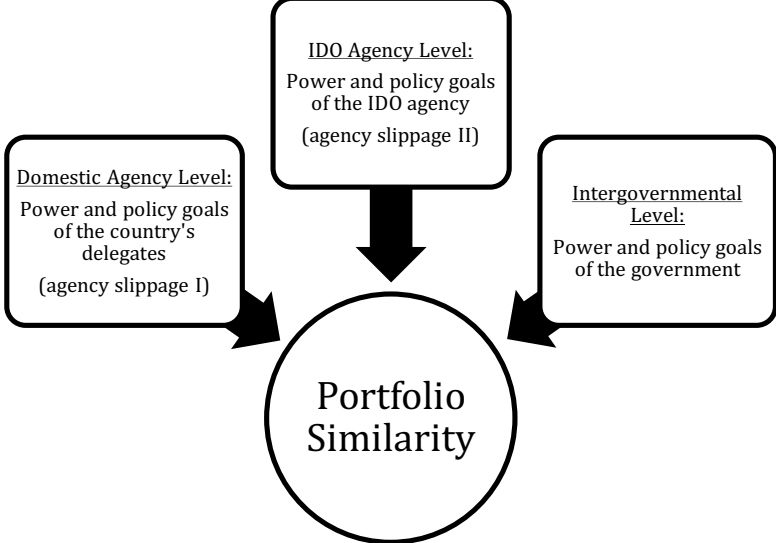

Figure 2: Determinants of Portfolio Similarity

The loss of control at the intergovernmental and at the agency level may impose great costs on governments which delegate because of potential capacity and efficiency gains, but which also have very particular preferences over how their foreign aid resources should be spent.

Whereas governments cannot usually increase their control over an IDO's decision at any given point in time, they can exploit the existence of a large number of IDOs. Although IDOs officially provide sustainable development to the poorest countries in the world, they vary in their membership, decision-making rules, and agency characteristics, as well as the extent and direction of potential agency slippage. IDOs also demonstrate variation with respect to the geographic and sectoral focus of their development work, the particular development strategies employed, the efficiency with which they convert government commitments into multilateral aid output, and the effectiveness with which the aid output is used to promote development on the ground. This implies variance in the level of portfolio similarity across individual IDOs that governments can exploit. Following the logic of our argument, governments should have strong incentives to shift more of their resources to IDOs that maximize portfolio similarity and away from those that minimize it.

In addition to variation in portfolio similarity across IDOs, the portfolio similarity between an IDO and a government may fluctuate over time. First, changes in the domestic government constellation may lead to changes in a government's ideal foreign aid portfolio, thereby increasing the costs of delegation. Preferences over how foreign aid is allocated vary across political parties, and it is not likely that the ideal IDO's aid portfolio is similar for both right wing and left wing parties. Consequently, if a government succeeds one of a different ideology, it will likely experience greater costs of delegation under the existing constellation. Second, whereas the IDOs' institutional structures and their overarching goals tend to be relatively stable over time, changes in membership, decision-making rules or agency personnel may affect the extent of portfolio similarity. New members, for example, may bias the allocation policies towards or away from a government's ideal policies. Third, institutional reforms may render a government less powerful in the intergovernmental bargaining process. Fourth, staff changes in the IDO may increase or decrease informational advantages, and, therefore, the opportunities for potentially detrimental agency slippage.

Governments can react to these fluctuations because they are members of a number of IDOs. If a new government with different preferences comes into power, for example, it can reduce contributions to IDOs with which it has a low level of portfolio similarity, and at the same time use these freed up resources to provide more contributions to those IDOs with higher levels of portfolio similarity. By shifting resources across institutions, governments can reap the benefits of delegating, and at the same time minimize the costs of losing control. Naturally, these shifts cannot take place continuously. The strategic redistribution of IDO contributions is most likely to occur during the replenishment negotiations, which occur every three to five years. During these negotiations governments commit themselves to a certain amount of contributions over a given number of years, so they have little ability to change the committed amounts within each of the multiannual budget cycles (though we do see some movements within budget cycles). Thus, while we expect the most significant changes to occur during replenishment negotiations, governments can, and do, reduce commitments on an annual basis if they do not agree with the IDO's policies.

So far, we have discussed incentives and strategies for a redistribution of contributions across IDOs. Given these incentives, how do governments determine whether any given IDO has high levels of portfolio similarity? Portfolio similarity is influenced by a number of factors, which often work together. Governments must consider the agency slippage of their delegates, preferences of all other IDO members, their formal and informal bargaining power, coalition formation, agency

slippage on the IDO level, as well as the interaction of all these factors. Because of the complexity of factors that contribute to the level of portfolio similarity, governments use shortcuts. Rather than analyzing all the different input factors, they can analyze the IDO's past allocation patterns to obtain some information about the likely extent of portfolio similarity with the IDO in the future. If past allocation patterns fit closely with the preferences of the government, then the likelihood increases that portfolio similarity is greater in the future. Consequently, governments use the history of portfolio similarity to form rational expectations about the level of portfolio similarity in the future.

To summarize, we argue that in order to minimize the costs of delegation, governments have strong incentives to exploit their existing memberships in multiple IDOs by shifting the resources that they provide to individual IDOs according to the degree of portfolio similarity, which fluctuates across IDOs and over time. Empirically, we should be able to observe that when distributing resources across IDOs, governments should increase their contributions to IDOs whose foreign aid portfolios are similar to the government's ideal foreign aid portfolio, but decrease their contributions to IDOs with low levels of portfolio similarity, *ceteris paribus*.

IV. EMPIRICAL ANALYSIS

The objective of our empirical analysis is to examine the impact of portfolio similarity on how governments' choose to contribute across a large number of IDOs over time. Our dataset covers 22 OECD governments' financial contributions to 12 IDOs from 1970 to 2008.[3] Our unit of analysis is the government-IDO-period. The 12 IDOs include a variety of institutions, including those that provide non-concessional loans, concessional loans and grants, or technical assistance.

DEPENDENT VARIABLE

We argue that governments provide more financial resources to IDOs with similar aid portfolios. To measure a government's decision about how much to delegate across existing IDOs, our dependent variable is the government's financial contributions to a particular IDO in a given three-

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[3]   The data include all information available from the OECD aid statistics. The database does not provide information on all existing IDOs, but it is the only database that provides data on core contributions to IDOs. Appendix A-1 provides a list of countries and IDOs included in the analysis.

year period as a percentage of that government's total financial contributions to all IDOs in the same period *(Financial Contributions [%])*. We use percentages instead of total contributions in order to capture the relative importance of an IDO to a government. This also allows us to compare delegation decisions across governments. In the robustness section, we show that our results hold if we use logged total financial contributions as our dependent variable. We follow the development finance literature and use commitment data rather than disbursement data because commitment data take into account the overall domestic decision-making process that allows us to fully understand delegation decisions. Whereas disbursements would additionally capture short-term changes in government preference, they are influenced by a variety of factors that are not connected to the politics of aid, and, therefore, a less desirable approximation of government's decisions. The results hold when using disbursement data. Data are from the OECD's International Development Statistics.[4]

Governments have the most leverage over the size of their contributions during the replenishment negotiations, which are usually conducted every three to five years (negotiations regarding capital increases in non-concessional lending institutions occur even less frequently). We average all of our data over three-year periods so that our analysis focuses on average financial contributions over a time period that roughly conforms to the actual time frame of replenishment negotiations.[5] An additional advantage of using period data is that aid contributions can be volatile due to emergency assistance or changes in governments. Averaging our data enables us to avoid the impact of any year-to-year variation caused by these patterns. Finally, for some countries and IDOs data do not exist for various years. By averaging we are able to include some country-IDO pairs with intermittent data availability.

PORTFOLIO SIMILARITY

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[4] We exclude data on commitments to trust funds (which account for approximately 11 percent of contributions to the World Bank). IDOs have very little control over the allocation of these resources since most of the control remains with the donor. Including the data on trust funds would bias the results in favor of our theory.

[5] Since replenishment periods differ across IDOs we cannot model the exact replenishment periods in our panel setup. We would expect the results to be stronger when modeling the exact replenishment periods because that is when the ability to increase/decrease contributions is largest. In the robustness section, we show that our results hold if we use yearly data or average our data over five-year periods.

Our main explanatory variable is the extent of portfolio similarity between a government and an IDO, or the congruence between a government's ideal foreign aid portfolio and the IDO's foreign aid portfolio. The traditional approach to analyzing control over IDO decision-making uses input factors. That is, scholars measure the formal and informal bargaining power of governments. According to our theory, the more control a government has over policy-making in an IDO, the greater should be its incentive to delegate to that IDO. One problem with this approach, for our purposes, is that government control is only one factor that drives portfolio similarity. Other factors, such as the insulation of the IDO agent, are not incorporated in this measurement approach (usually, because they are very difficult to measure). Another drawback of this approach is that it is a difficult task to control for all potential input factors such as formal voting power, informal voting power, coalition-building, and agency slippage because of data constraints, unreliable measures, and the ever-present threat of omitted variable bias. In addition, and as we discuss in our theory, it is the interaction between all these variables that explains the ability of governments to assert their preferences in IDO policy making. For example, a government's formal power in the intergovernmental bargaining process may not be sufficient to influence IDO policies if IDO agents can insulate themselves from political influences. Governments care that the final decision – the output – is in line with their preferred foreign aid policies. Instead of using individual (and potentially incomplete) measures of control and instead of assuming that governments can gauge their influence using the complex aggregation process that we discuss above, we utilize the fact that the IDO's actual allocation of foreign aid across recipients and sectors represents a measure of the output of this complex aggregation of input factors. This provides governments with information about the extent to which an IDO implements policies that are in line with the government's own ideal foreign aid policies.

We propose to use decision-making outputs as a strategy to provide a more fine-grained measure of the similarity between the IDO's foreign aid portfolio and the government's ideal foreign aid portfolio. To measure *Portfolio Similarity* we proceed in three steps (see Box 1).[6] We begin by measuring the foreign aid portfolios of each IDO and each government. Based on these two measures, we create a variable that quantifies the extent to which a government's ideal foreign aid

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[6] The formal derivation of our portfolio similarity variable is laid out in Appendix B.

policies compare to an IDO's policies. All data are from the OECD's Development Statistics. We now proceed to discuss our measurement choices for each of these three steps.

Step 1: Measuring the IDO's Foreign Aid Portfolio

We measure the IDO's foreign aid portfolio as the foreign aid (commitments) that any individual IDO allocates to a recipient country as a percentage of that IDO's total aid for each year average this data over the three-year period.

Step 2: Measuring the Government's Ideal Foreign Aid Portfolio.

We measure the government's ideal foreign aid policies as the amount of bilateral foreign aid (commitments) that each government allocates to a recipient country, as a percentage of that government's total allocation of bilateral aid, in each year, and average this over the three-year period.

Step 3: Measuring Portfolio Similarity

We measure portfolio similarity as the absolute value of the difference between the IDO's foreign aid portfolio and the government's ideal foreign aid portfolio, multiply it by negative one (in order to measure similarity rather than dissimilarity), and average it across all recipients for each government-IDO pair for the three-year period. For ease of interpretation, we standardize *Portfolio Similarity*. Greater numbers for *Portfolio Similarity* imply greater portfolio similarity between a government and an IDO.

To gauge portfolio similarity, governments must first observe the IDO's foreign aid practices. This provides them with a benchmark to assess portfolio similarity. As discussed above, governments can observe the actual allocation practices of IDOs to analyze the similarity of IDO policies with their ideal policies. We measure an IDO's foreign aid portfolio as the aid that an IDO allocates to a recipient country, as a percentage of that IDO's total aid for each year. The measure takes greater values the more foreign aid an IDO allocates to a particular recipient as a share of the IDO's total bilateral aid. We use the share of foreign aid that the IDO commits to each recipient country because it more closely represents the importance that the IDO attaches to the recipient governments.

Governments can compare these policies to their own ideal foreign aid policies. In a second step, we need to measure a government's ideal foreign aid policies, using a government's own bilateral aid allocations. Recent approaches demonstrate that governments tend to pursue strategic and non-strategic goals when providing foreign aid (Heinrich 2013). The extent to which they care about strategic or non-strategic goals can vary across donors, recipients, or over time (e.g. Burnside and Dollar 2000; Bermeo 2008, 2010; Dietrich 2016; Milner and Tingley 2013). Rather than assuming that governments have particular preferences when providing foreign aid, we measure a government's preferences over an IDO's foreign aid policies utilizing the findings of the standard literature in this field. As we summarize in the theory, governments' preferences over foreign aid policies (and foreign policies in general) are influenced by their ideology as well as their desire to stay in political power (which gives rise to pressure from interest groups and voters). Whereas it is difficult to correctly measure all of these inputs to derive a measure of government interest over foreign aid (similar to the problem with measuring IDO policies), it is possible to use governments' actual foreign aid policies in cases when it has great control over the allocation decisions. The information that best approximates these requirements is the government's bilateral foreign aid allocations. It is well established that a government's bilateral aid allocation is influenced by ideology, interest group pressure, and public opinion. It well reflects a government's preferences over how foreign aid should be allocated. Bilateral aid has frequently been used to measure a government's general foreign policy preferences and the importance of recipient countries (Stone 2004, 2008; Eichengreen et al. 2006).

Another reason for why bilateral aid portfolios provide a good measure of a government's foreign aid preferences is that while agency slippage may exist at the bilateral level (which would make bilateral aid allocations a less precise measure of government preferences), it tends to be relatively small, particularly in comparison to slippage in the multilateral setting where the chain of delegation is much longer and the number of principals is much larger. Many bilateral aid agencies are an integral part of a government's cabinet and therefore much less likely to exhibit agency slippage. For example, much of USAID's budget falls under the President's Initiative, where the executive has direct control over which countries and sectors should receive US foreign aid. And even if agency slippage occurs, the literature shows that agency slippage on the bilateral level usually occurs due to an increase in the overall volume of foreign aid. Yet, an increase in the volume of aid is not likely to bias our measure of a government's preferences.

We readily admit that this is not a perfect measure of a government's ideal foreign aid preferences. First, although not likely for the reasons explained above, agency slippage may occur on the domestic level such that the bilateral foreign aid portfolio may diverge from a government's ideal aid portfolio. This could be problematic if the agents favor foreign aid policies that significantly diverge from the government's preferred policies. One solution to this problem is to estimate a government's bilateral aid portfolio using factors that have been shown to influence a government's preferences over aid allocation (such as recipient GDP per capita, trade flows, colonial status). As a robustness check, we generate such a measure by estimating a country's bilateral aid flows based on a fixed-effects regression from the predominant foreign aid literature and use the predicted values for each government as a share of that government's total predicted bilateral aid.[7] This measure only uses the portions of bilateral aid that stem from actual government preferences, rather than agency slippage.[8] As long as one can assume that a government's policy preferences over foreign aid are influenced by these factors, the estimated measure of ideal foreign aid portfolio should provide an approximation of the actual policies that the government wants to implement.[9]

Second, governments may care about both the geographic and the sectoral allocation of aid. Whereas our main measure relies on the geographic preferences of foreign aid, as a robustness

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[7] See Table 2, Model 3 for these results and Appendix D.6 for the first stage estimates.

[8] Whereas this predicted measure is a good approximation of government preferences over foreign aid policies, it is problematic because our portfolio similarity measure is constructed based on estimates from a first-stage regression, which induces incorrect standard errors in the second stage coefficient estimates. Although there are a number of procedures to account for this additional variance, the fact that our estimates are only one piece of the constructed estimate for portfolio similarity reduces our confidence in the precision of the standard errors in the second-stage equation. We therefore use this operationalization as a robustness check rather than as our main measure of portfolio similarity.

[9] It is important to note that in addition to the standard factors used in the literature, a government's foreign aid policies may well be influenced by foreign aid policies at the multilateral level. For example, the importance of good governance in foreign aid allocation was first used in the World Bank and then became increasingly popular among bilateral donors. It would be unrealistic to assume that bilateral and multilateral donors do not learn from each other in respect to aid practices, particularly if they care about development outcomes. These learning effects tend to occur not immediately but in the long run, and so they are not likely to affect government's preferences immediately. In addition, while we expect the learning effect to matter, existing research indicates that this would be one factor among many others that drive a government's foreign aid policy preferences. Thus, we include multilateral aid in our first stage regression as a predictor of a government's preferences.

check we also use a measure which is meant to measure not just *who* gets aid, but *what* that aid is spent on (i.e. building a well or providing budget support). We rely on the OECD's sectoral classification of aid flows. The ideal foreign aid portfolio is calculated as the amount of bilateral aid that each government allocates to each sector, as a percentage of that government's total allocation of bilateral aid, in each year, averaged over the three-year period.[10]

Finally, our measure rests on the assumption that governments pursue their foreign policy goals through both bilateral and multilateral means. One could argue that governments use bilateral and multilateral aid channels as complements (rather than substitutes) to achieve different foreign aid policies. The literature above strongly indicates that governments aim to bias IDO decision-making according to their domestic foreign aid policy goals (oftentimes contradicting their official rhetoric), and a series of quantitative studies finds that governments use bilateral and multilateral aid as substitutes rather than as complements (McKeown 2009; Milner and Tingley 2010; Reinsberg et al. 2014). Nevertheless, there are a few conditions under which this assumption might not hold. First, if governments care about providing effective development aid then they may have strong incentives to coordinate with IDOs – if IDOs provide more aid to particular regions/sectors/projects then the government would focus on different regions/sectors/projects in order to maximize economic development in the developing world. For example, European donor governments within the EU have increasingly coordinated their bilateral foreign aid policies over time. If that were generally the case, then bilateral aid policies would not be a good measure for a government's preferences over IDO aid policies. Whereas there is some evidence for coordination in the EU, the literature generally finds very little support for aid coordination. In fact, the inability (or unwillingness) of donors to coordinate has been bemoaned by many foreign aid practitioners at the bilateral and multilateral level (Knack and Rahman 2007; Aldasoro et al. 2010; OECD 2011). We would therefore not expect donor coordination to dominate governments' delegation decisions. Second, one could argue that governments provide any aid that is geared towards fulfilling strategic interests through bilateral channels (where they have greater control over the allocation of their

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[10] Available in Appendix A-2. We do not use the measure of sectoral preferences as our main measure because it is potentially problematic for econometric reasons. Countries do not report as well on the sectoral distribution of aid as they do on the geographic distribution. The amount of missing data increases dramatically if we account for the sector of a given government's bilateral aid. Our sample size is reduced by more than 25 percent when moving from the overall portfolio similarity measure to one that focuses on the sector.

resources), but provide any aid that is geared towards fulfilling non-strategic interests through multilateral aid channels (where they lose control, but gain from burden-sharing). There are examples where governments use IDOs to achieve goals that they cannot achieve through bilateral means (Dietrich 2013, 2016). For our purposes, it is important that governments, on average (as opposed to consistently) use bilateral and multilateral aid as substitutes, and there is a great deal of evidence that bilateral foreign aid is not purely strategic. In addition, while there is some evidence that multilateral aid is more effective than bilateral aid, there is strong evidence that it is strategic as well because governments try to influence multilateral aid allocations according to their foreign policy interests. Thus, we do not expect these instances to be the dominant factors in governments' delegation decisions.

In sum, whereas a government's bilateral aid policies may not perfectly align with its preferred foreign aid policies in IDOs, the existing evidence strongly suggests that bilateral aid portfolios *on average* represent the best possible approximation of a government's ideal foreign aid policies.

CONTROL VARIABLES

Beyond portfolio similarity, a government's financial contributions to an IDO may be shaped by a number of other factors which we control for. According to the literature cited above, when choosing how much to contribute to different IDOs, governments provide greater financial resources to institutions where aid allocation is both more effective and more efficient. Effectiveness is defined as the ability of an IDO to achieve its goals, with governments more likely to increase funding for more effective IDOs. Efficiency, on the other hand, is defined as the ability of an IDO to multiply the amount of resources it receives from governments. IDOs are efficient the more output – in terms of resources spent on development – they produce for a given level of input – in terms of financial resources received from member governments. Both of these concepts are difficult to measure at the IDO level. Birdsall and Kharas (2014) have constructed a variable that rates IDOs based on the overall quality of their aid giving. The variable *Quality of Development Assistance (QuODA)* was designed specifically to measure both the efficiency and effectiveness

of IDOs as well as to make comparisons across IDOs. We combined the four standardized varia-bles giving equal weight to efficiency, fostering institutions, reducing administrative burdens and transparency and learning.[11]

Beyond the efficiency and effectiveness of an IDO, we control for the concentration of power within an IDO, an IDO's level of expertise and geographic domain, and a government's member-ship in a given IDO. To account for the fact that a government's delegation decisions may be weakened due to the membership of (other) powerful governments within the IDO we control for the number of major powers who are members of an IDO *(# Major Powers)*.[12] Data are from the Correlates of War Project (2008). To account for the level of expertise of an IDO and its potential beneficial or costly effects – i.e. older IDOs could be more experienced, and could create greater normative pressure for continued financial contributions, but alternatively, they could also create a greater accumulation of vested interests – we include a measure for the age of the IDO (*IDO Age*). To deal with the possibility that some IDOs are limited to certain regions for their aid allo-cations, we include a dummy variable equal to one for each IDO that is geographically restricted in its giving (*Regional IDO*). Additionally, we include a dummy variable equal to one in each year that a government is a member of the IDO (*Member*).[13] Next, we account for the size of an IDO by including the number of members of an IDO (# Members). Data are from the various annual reports of the IDOs in our sample. Appendix C reports summary statistics of all of our variables.

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[11] As a robustness check (see Appendix D.4), we include a different measure of effectiveness that was calculated by Easterly and Williamson (2011) and measure efficiency using the ratio of total IDO outflows to inflows over a three-year period.

[12] The results do not change if one includes a dummy variable for US membership.

[13] We include non-members in our regressions because IDOs receive contributions from governments that are not members of the IDO, and our theory should apply to those governments. The results are the same if we exclude non-member governments from the sample.

MODEL SPECIFICATION

Our model takes the following form:

$$Financial\ Contributions_{i,j,p} = \beta_0 + \beta_1 \Delta Portfolio\ Similarity_{i,j,p} + \beta_2 \Delta Controls_{i,j,p}$$

(1)

$$+\Delta\tau + \Delta\mu_{i,j,p}$$

Government i's financial contributions to IDO j as a percentage of all donor financial contributions in each three-year period p depend on *Portfolio Similarity*, control variables, time fixed effects τ, and an error term μ.[14] We estimate equation (1) using two-step System Generalized Method of Moments (SGMM) estimation with Windmeijer-corrected cluster robust errors and orthogonal deviations (due to a large number of gaps in our panel).[15] We assume that *Portfolio Similarity* is endogenous and that the remaining regressands are pre-determined, but not strictly exogenous (Roodman 2009).

SGMM was designed to deal with panel data that exhibits autocorrelation: the *system* estimator restricts the correlation between the error term and all explanatory variables to zero, thus dealing with possible bias from serial correlation (Arellano and Bond 1991; Arellano and Bover 1995). SGMM allows us to deal with the possibility of endogeneity by using moment conditions to derive a set of valid instruments for endogenous variables based on past values of those variables. An IDO's foreign aid portfolio could reflect a specific government's bilateral aid portfolio *because* that government has contributed a substantial amount to the IDO.[16] Such a relationship would bias our estimates in a positive direction, leading us to overestimate the effect of *Portfolio Similarity* on financial contributions. To deal with this issue while still controlling for government-IDO fixed effects we use the SGMM estimator.[17]

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[14] We include a lagged dependent variable (LDV) in our robustness checks below and do not find significant differences with our results.

[15] All models assume that the errors are dependent within each government-IDO pair.

[16] Although contributions and the number of votes are usually correlated in IDOs, they are not perfectly so. In addition, bureaucratic politics often diffuses some of the existing correlation.

[17] We re-estimate our main models using a number of standard estimation techniques in Appendix D.1. The results support the main conclusions of our SGMM estimations.

SGMM can produce such a large instrument matrix that the estimator could overfit our endogenous variables. To test the validity of our instrument set, we conduct a Hansen-J test of over-identifying restrictions. The null hypothesis is that the instruments are uncorrelated with the error term (i.e., are valid instruments), and a rejection of the null hypothesis at conventional levels of statistical significance means that the instruments are not valid. We also report the *p*-value of the Hansen tests: anything greater than 0.10 indicates that the instruments are valid.

To test for the possibility of serial correlation in the error term, we use the Arellano-Bond test for autocorrelation in first-differences. Our model is constructed such that the error term is the first difference of serially uncorrelated errors; although first-order serial correlation is probable, it would not affect the consistency of the estimator. Second-order autocorrelation, however, would indicate that the lags of our dependent variables, which are being used as instruments, are in fact endogenous. In the results below we report the *p*-value of this test, where anything greater than 0.10 indicates that second order serial correlation is not present.

Finally, if the instrument set were weak, then the instruments would be unreliable predictors of our endogenous variable and the SGMM estimator would suffer from small-sample bias (Bun and Windmeijer 2007). To test the weakness of our instrument set (that is, the validity of the coefficient estimate of our endogenous regressor), for each specification below we report the number of instruments and the p-value of a conditional likelihood ratio test (CLR) that H_0: $\beta_1=\beta_0$.[18]

RESULTS

The empirical findings lend considerable support to our main hypotheses. Table 1 reports estimates of our general measure of portfolio similarity (Model 1) as well as our measure of sectoral portfolio similarity (Model 2) and our predicted measure of portfolio similarity (Model 3). Across all three models, there is a strong, positive relationship between *Portfolio Similarity* and *Financial Contribution*s. The more similar an IDO's foreign aid portfolio to a government's bilateral foreign aid portfolio, the more a government contributes to the IDO, *ceteris paribus*. The coefficient estimates in Model 1 indicate that one-half of a standard deviation increase in portfolio similarity is associated with an increase in financial contributions from a government to an average IDO by 13 percentage points. Substantively, this result is quite large: one-half of a standard deviation increase in

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[18] See Stock, Wright, and Yogo (2012) for a survey of the literature on weak instrument tests.

portfolio similarity leads to an increase in contributions that is just below the mean commitment to IDOs in our dataset. The findings for sectoral similarity and predicted similarity are also positive and statistically significant.

	Model 1	Model 2	Model 3
Portfolio Similarity	0.132***		
	(0.0399)		
Sectoral Similarity		0.113***	
		(0.0181)	
Predicted Similarity			0.0487***
			(0.00944)
QuODA	0.0961***	0.0583***	0.0932***
	(0.0239)	(0.0223)	(0.0210)
# Major Powers	-0.00964**	0.00639	-0.00323
	(0.00488)	(0.0105)	(0.00288)
IDO Age	-0.00271***	-0.00286*	-0.000452
	(0.000993)	(0.00159)	(0.000467)
Member	0.0756***	0.106**	0.0524***
	(0.0227)	(0.0505)	(0.0147)
# Members	-0.000412*	-0.000528	-0.0000351
	(0.000220)	(0.000363)	(0.000135)
Regional IDO	-0.177***	-0.194***	-0.0780***
	(0.0250)	(0.0263)	(0.0162)
Constant	0.110***	0.218**	0.0197
	(0.0272)	(0.110)	(0.0184)
Observations	2911	1077	2948
N (Govt.-IDO)	262	247	263
Period Fixed Effects	Yes	Yes	Yes
Hansen J (p-score)	0.22	0.239	0.045
Arellano Bond (p-score)	0.214	0.459	0.95
# Instruments	125	40	125
AR (p-Score)	0.00	0.001	0.002

Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 1: Portfolio Similarity and Contributions
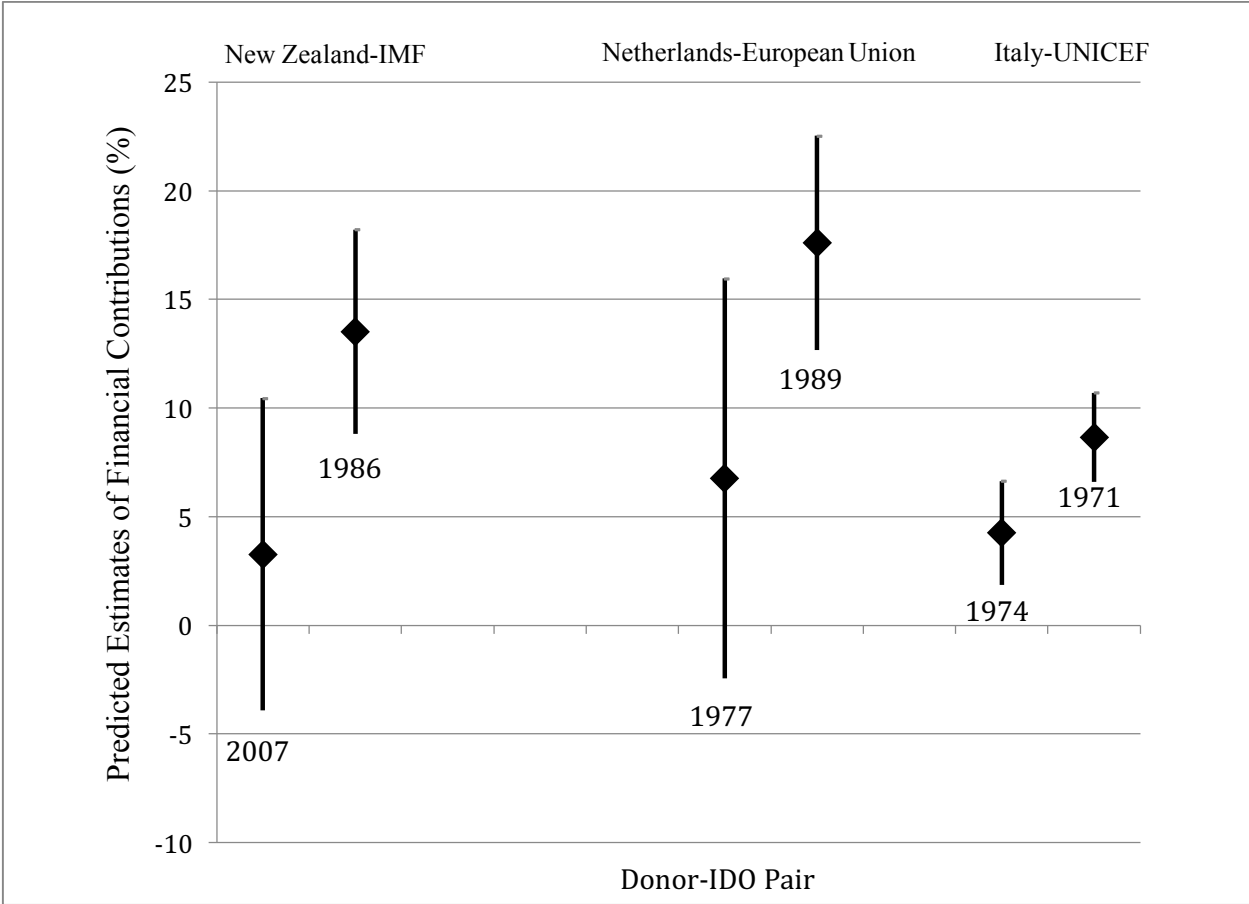
Figure 3: Estimates of Financial Contributions from Governments to IDOs

Figure 3 illustrates these results in greater depth. We focus on a few country-IDO pairs in our dataset that had high and low portfolio similarity at different points in time. We derive marginal effects at representative values for financial contributions from the governments to the IDO, using the coefficient estimates from Model 1 and the actual values of portfolio similarity for each of the country-IDO pairs. Estimates for financial contributions (diamonds) together with their 95% confidence intervals (solid lines) are displayed on the y-axis. For each pair, the left subfigure signifies predicted contributions for highly dissimilar portfolios (low portfolio similarity) while the right subfigure signifies predicted contributions for highly similar portfolios (high portfolio similarity). The predictions for the country-IDO pairs are consistent with our theory. For example, our model predicts that New Zealand would have contributed 3 percent of its multilateral ODA to the IMF in 2007 when the policy similarity between the two was low, but would have contributed 14 percent in 1986 when policy similarity was high. Similarly, the model predicts that the Netherlands and the European Union and Italy and UNICEF had similar changes in portfolio similarity in different

periods, and their predicted contributions reflect these changes. For both countries, the model predicts greater contributions for high levels of portfolio similarity and lower contributions for low levels of portfolio similarity.[19]

The findings for the control variables are interesting as well. As expected, IDOs tend to receive higher contributions, the higher the "quality" of their aid and from members of the institution, but they tend to receive lower contributions the more major powers are part of the organization, when membership is large, the older the organization, and when they have a regional focus.

<div align="center">ROBUSTNESS CHECKS</div>

To ensure that our results are robust to possible measurement and specification issues, we run a series of checks on our main econometric model. All results are presented in Appendix D. First, it is important to note that our measures of portfolio similarity have data constraints. A number of governments and IDOs do not report on their aid activities in all years. In Appendix D-1, we present a series of models to assess the robustness of our results to this missing data and changes in our sample. Model 1 complements our three-year averaged data with data compiled using multiple imputation. We include all variables from the main estimation in our imputation model using the government-IDO as the cross-sectional variable and the three-year period trend as the time variable. We create five imputations using the Amelia software in R and estimate the model using SGMM. Because our data is not missing at random and because we already build a high degree of uncertainty into the construction of portfolio similarity, we also test the robustness of our results to missing data by eliminating any government-IDO pairs that have high levels of missingness across years. We re-run our main estimation excluding government-IDO pairs that do not have data for at least 50 percent (Model 2) and 25 percent (Model 3) of the partnership's observations.

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19 Recent developments in the Caribbean Development Bank (CDB) may serve as an additional illustration of these dynamics. In the most recent period, portfolio similarity between the CDB and Germany and Italy increased by one standard deviation. Statements by the Italian and German governments at recent CDB Board of Governor's meetings illustrate the importance of this decline in delegation costs for their decisions to contribute more resources to the CDB. According to the Italian government's statement, the CDB recently moved to place environmental sustainability and disaster risk management at the forefront of their policy goals, something that both Italy and Germany had been pushing them to do in recent years. Statement by Germany at 39th BOG (2009) and Statement by Italy at 40th BOG (2010).

Model 4 excludes all time periods that include the period of the Cold War (*Prior to 1990*).[20] Model 5 averages the data over five-year periods and Model 6 uses annual data. Our core results are robust to all of these changes, with *Portfolio Similarity* having a positive and significant impact on financial contributions to IDOs.

Because the SGMM estimator makes a number of assumptions about the data generating process beyond that of simpler estimators, we test for the robustness of our choice of model specification in Appendix D-2. Models 1-4 estimate our main specification using ordinary least squares, with fixed donor effects and random effects (respectively), using both contemporaneous and lagged values of portfolio similarity. Model 5 returns to our SGMM estimator but lags our measure of portfolio similarity by one period. Model 6 uses a fractional logit model (with the lag of portfolio similarity) to account for the fact that our dependent variable is a fraction). The results of our portfolio similarity variable remain robust to these changes.[21]

Appendix D.3 tests whether the results are sensitive to the operationalization of the dependent variable. Model 1 uses the log of a government's average total financial contributions to a given IDO (in constant 2007 dollars). Model 2 uses a dependent variable that we calculated with disbursement data. Model 3 uses the log of disbursements. Model 4 uses a log transformation of the dependent variable to account for the fact that our data is compositional in nature. None of these changes to the measurement of our dependent variable has a significant effect on our main results.

Appendix D.4 tests for the robustness of our results to the inclusion of further control variables. It is possible that differences across the regulations of IDOs have an effect on our findings. For example, non-concessional lending institutions generally require smaller contributions than concessional lending institutions because these IDOs draw most of their resources from capital markets (only about five percent of funds are paid-in capital from member governments) whereas concessional lending institutions draw most of their resources from paid-in capital contributions. Delegation to non-concessional lending institutions is thus less costly (in terms of financial contributions) than delegation to concessional institutions. In addition, technical lending institutions

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[20] We do not include a dummy variable for the Cold War in our main estimation as it is highly correlated with our period fixed effects as well as the age of the IDO.

[21] We further estimated a Cragg-Double-Hurdle model to account for estimation problems that may result from the large number of government-IDO-years with no financial contributions. Our results remain robust to this specification, but we do not present them here because of the difference in presenting two-stage results.

typically require smaller funds than other lending institutions because they focus on technical assistance. To account for these differences, we estimated our main model with a dummy variable equal to 1 for IDOs that provide concessional loans and grants and 0 otherwise (Model 1). Additionally, it could be that government delegation decisions are shaped by factors in the donor country. We do not include government-level variables in our main model as they are not likely to have an effect on how governments distribute funds to IDOs, but include them in Model 2 as a robustness check. Here we account for the economic climate in a donor country with *Unemployment Rate* (as a percentage of overall employment) and *Economic Growth* (GDP per capita growth), and *Government Expenditure* (as a percentage of GNP). Data are from the OECD and the World Development Indicators. Finally, in Model 3 we substitute the *QuODA* measure with an IDO effectiveness ranking. Data from Easterly and Williamson (2011). In addition, we measure IDO efficiency using the ratio of total IDO outflows to inflows over the three-year period. None of these changes had a significant impact on our hypothesized relationship between portfolio similarity and aid distribution across IDOs. All newly included variables except for the country-level variables enter significantly into the models.

Appendix D.5 provides the results of additional tests that analyze whether our primary operationalization of policy similarity, in fact, measures the concept. First, the positive relationship could be driven by the large contributors because they are better able to influence the IDO portfolio. They may not choose to delegate to IDOs with greater portfolio similarity, but simply shape IDO portfolios to increase similarity. Whereas our model specification should deal with this type of endogeneity, Model 1 excludes the five largest donors (France, Germany, Japan, UK and US) from the analysis. Second, one may be concerned that some IDOs by design have lower portfolio similarity with a large number of countries. For example, regional institutions usually limit the number of recipients. The European Development Fund has traditionally focused on former colonies of its member states. Whereas portfolio similarity may be higher for former colonial powers (basically, France and the UK) it is most likely much lower for the other EU member states. To analyze whether the limited design of IDOs may drive our results we provide three additional tests. Model 2 estimates our primary specification excluding European governments, Model 3 excludes European IDOs and Model 4 analyzes IDOs that have a global reach. None of these changes has a significant impact on the core of our results.

V. CONCLUSION

We analyze how governments distribute their foreign aid resources across international development institutions. We argue that in order to minimize the costs of delegation, governments strategically shift their multilateral aid resources across a number of IDOs whose foreign aid portfolios are very similar to the governments' ideal foreign aid portfolios. The empirical analysis provides support for the strategic choice of governments when delegating aid to IDOs: governments distribution across IDOs is influenced by their desire to retain leverage over allocation decisions, while maximizing other benefits from delegation.

The empirical findings have interesting implications for the underlying puzzle of why states delegate to IDOs instead of allocating their foreign aid through bilateral agencies. Whereas previous research has focused on the ability of governments to reduce their multilateral contributions in favor of bilateral contributions, we show that governments can also minimize the potential costs of delegation by distributing their multilateral aid resources strategically across a multitude of IDOs. By choosing how much to allocate to each of these IDOs, they gain from the potential multiplier effects of IDOs, and at the same time, they minimize losses from the potential divergence of portfolios.

Our analysis is just the first step towards analyzing the allocation of foreign aid across IDOs. The findings raise interesting questions that need to be addressed in future research. First, whereas we provide insights into how governments use their multiple memberships to maximize their gains from delegation, we know very little about why governments choose to create such a large number of IDOs in the first place. Although our theory does not address this question, it provides an important foundation for the benefits that multiple IDOs can have for individual governments. Second, if (as we demonstrate in the paper) governments pursue goals with bilateral and multilateral aid that are largely similar, why do they use both venues instead of either going fully bilateral or fully multilateral? The similarity of bilateral and multilateral aid portfolios provides an important puzzle that needs to be addressed in future research.

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APPENDIX A-1: GOVERNMENTS AND IDOS INCLUDED IN ANALYSES

Governments	IDOs
Australia	African Development Fund
Austria	Asian Development Fund
Belgium	European Development Fund
Canada	European Union Development
Denmark	Inter-American Development Bank
Finland	International Development Agency
France	International Fund for Agricultural Development
Germany	International Monetary Fund
Greece	United Nations Childrens Fund
Ireland	United Nations Development Program
Italy	United Nations Population Fund
Japan	World Food Progamme
Luxembourg	
Netherlands	
New Zealand	
Norway	
Portugal	
Spain	
Sweden	
Switzerland	
United Kingdom	
United States	

APPENDIX A-2: WORLD BANK SECTORS INCLUDED IN ANALYSIS

Education
Health
Population Policy & Reproductive
Health
Water Supply & Sanitation
Government & Civil Society
Other Social Infrastructure & Services
Transport & Storage
Communications
Energy
Banking & Financial Services
Business & Other Services
Agriculture, Forestry, Fishing
Industry, Mining, Construction
Trade Policies & Regulations
Tourism
General Environment Protection
Other Multisector
General Budget Support
Food Aid/Food Security
Emergency Response

A government's bilateral aid portfolio is calculated as the bilateral aid of each government i to a recipient country k, as a percentage of that government's overall bilateral aid, in each year t:

$$\text{Government's Foreign Aid Portfolio}_{i,t} = \frac{\text{Foreign Aid}_{i,k,t}}{\text{Foreign Aid}_{i,t}}$$

The measure takes greater values the more bilateral aid a government gives to a particular recipient as a share of the government's total bilateral aid. Greater values for a *Government's Foreign Aid Portfolio* imply that a government has increasingly salient interests in providing aid to a particular recipient.

Next, we derive the foreign aid portfolio of any given IDO. We measure *IDO's Aid Portfolio* as the aid from IDO j to recipient k as a percentage of that IDO's total aid for each year t:

$$\text{MAI's Aid Portfolio}_{j,t} = \frac{\text{Foreign Aid}_{i,k,t}}{\text{Foreign Aid}_{i,t}}$$

Next, to measure *Portfolio Similarity* at the government-IDO level, we take the absolute value of the difference between these two values, multiply it by negative one (in order to measure similarity rather than dis-similarity), and average it across all recipients for each government-IDO pair:[22]

$$\text{Portfolio Similarity}_{i,j,t} = -1 * \left(\sum_{k=0}^{k} \frac{|\text{Government's Aid Portfolio}_{i,k,t} - \text{MAI's Aid Portfolio}_{j,k,t}|}{k} \right)$$

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[22] This only includes government-IDO pairs where the government is a member of the IDO.

APPENDIX C: SUMMARY STATISTICS

Variable	N	Mean	Std. Dev.	Min	Max
Financial Contributions	2,911	0.075	0.124	0	0.875
Portfolio Similarity	2,911	0.101	0.479	0.004	9.999
Sectoral Similarity	1,077	0.346	0.343	0	0.99
Predicted Similarity	2,948	0.010	0.008	0.005	0.067
QuODA	2,911	0.141	0.378	-0.420	0.790
# Major Powers	2,911	5	2	0	7
IDO Age	2,911	28	15	0	63
Member	2,911	0.927	0.260	0	1
# Members	2,911	105	68	0	191
Regional IDO	2,911	0.275	0.447	0	1

APPENDIX D.1: SAMPLE CHANGES

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	Imputed	50% Threshold	25% Threshold	Post Cold War	5-year periods	Yearly
Portfolio Similarity	0.0108*	0.112**	0.134***	1.430***	0.582***	0.0351*
	(0.00660)	(0.0437)	(0.0408)	(0.335)	(0.209)	(0.0218)
QuODA	0.0346***	0.0945***	0.0959***	0.0536***	0.0263	0.0941
	(0.0118)	(0.0228)	(0.0239)	(0.0203)	(0.0290)	(0.0623)
# Major Powers	0.00664***	-0.00927*	-0.00976**	-0.00149	0.0118**	-0.0124
	(0.00148)	(0.00492)	(0.00486)	(0.00408)	(0.00517)	(0.00947)
IDO Age	-0.000218	-0.00352***	-0.00270***	-0.000795*	0.00132	-0.00367***
	(0.000213)	(0.00116)	(0.000996)	(0.000477)	(0.000979)	(0.00138)
Member	0.0380***	0.0647***	0.0752***	0.0186	0.0779	0.0661
	(0.00804)	(0.0231)	(0.0227)	(0.0212)	(0.0549)	(0.0948)
# Members	-0.00026**	-0.000322	-0.000406*	-0.00104***	-0.00204***	-0.000314
	(0.000116)	(0.000227)	(0.000221)	(0.000287)	(0.000516)	(0.000252)
Regional	-0.0522***	-0.174***	-0.177***	-0.187***	-0.254***	-0.180*
	(0.0105)	(0.0255)	(0.0250)	(0.0356)	(0.0699)	(0.0949)
Constant	0.0226***	0.294***	0.256***	0.232***	0.120	0.324***
	(0.00468)	(0.0695)	(0.0623)	(0.0531)	(0.111)	(0.0767)
Observations	8800	2685	2901	1459	1864	8269
N (Govt.-IDO)	550	223	257	261	262	262
Period FE	Yes	Yes	Yes	Yes	Yes	Yes
Hansen J (p)	0.02	0.21	0.20	0.20	0.17	0.89
Arellano Bond (p)	0.08	0.25	0.21	0.001	0.10	0.20
# Instruments	113	125	125	73	35	1148
AR P-Score	0.0814	0.0001	0.0001	0.0001	0.0019	

Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

APPENDIX D.2: MODEL SPECIFICATION

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	Govt.-FE	Random Effects	Govt.-FE	Random Effects	SGMM	Fractional Logit
Portfolio Similarity	0.106***	0.108***				
	(0.0220)	(0.0233)				
Portfolio Similarity (lagged)			0.112***	0.114***	0.116***	1.600***
			(0.0217)	(0.0225)	(0.0391)	(0.302)
QuODA	0.0883***	0.0875***	0.0958***	0.0953***	0.101***	1.363***
	(0.00606)	(0.00698)	(0.00626)	(0.00733)	(0.0250)	(0.0872)
# Major Powers	0.000822	0.00142	-0.000895	-0.000443	-0.00543	0.455***
	(0.00258)	(0.00158)	(0.00267)	(0.00164)	(0.00610)	(0.0372)
IDO Age	-0.00163***	-0.00158***	-0.00160***	-0.00156***	-0.00133	-0.0389***
	(0.000251)	(0.000184)	(0.000258)	(0.000195)	(0.00116)	(0.00360)
Member	0.0699***	0.0582***	0.0684***	0.0582***	0.0740***	0.572***
	(0.00905)	(0.00833)	(0.00950)	(0.00893)	(0.0241)	(0.132)
# Members	-0.00058***	-0.00059***	-0.00046***	-0.00047***	-0.00035	-0.018***
	(0.0000775)	(0.0000821)	(0.0000796)	(0.0000830)	(0.000243)	(0.00111)
Regional	-0.157***	-0.157***	-0.153***	-0.153***	-0.151***	-3.148***
	(0.00684)	(0.00920)	(0.00682)	(0.00898)	(0.0292)	(0.0950)
Constant	0.122***	0.128***	0.103***	0.108***	0.155*	-3.546***
	(0.0133)	(0.0141)	(0.0154)	(0.0166)	(0.0863)	(0.249)
Observations	2911	2911	2739	2739	2739	2739
N (Govt.-IDO)	262	262	262	262	262	262
Period FE	Yes	Yes	Yes	Yes	Yes	Yes
Hansen J (p)					0.30	
Arellano Bond (p)					0.97	
# Instruments					111	
AR P-Score					0.0001	

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

APPENDIX D.3: OPERATIONALIZATION OF DEPENDENT VARIABLE

	Model 1	Model 2	Model 3	Model 4
	Log Contributions	Disbursements	Log Disbursements	Log Transformation
Portfolio Similarity	1.165*	0.108***	13.98**	5.824*
	(0.720)	(0.0346)	(5.705)	(3.610)
QuODA	0.665*	0.0829***	0.0790	2.183***
	(0.386)	(0.0202)	(0.436)	(0.251)
# Major Powers	0.0340	-0.00764*	0.424***	0.484***
	(0.0948)	(0.00434)	(0.128)	(0.0808)
IDO Age	-0.0461**	-0.00217**	-0.0225	0.0224
	(0.0224)	(0.000875)	(0.0149)	(0.0149)
Member	0.903**	0.0666***	0.739	-0.329
	(0.438)	(0.0203)	(0.514)	(0.476)
# Members	-0.00240	-0.000393**	-0.0173***	-0.0232***
	(0.00427)	(0.000197)	(0.00479)	(0.00346)
Regional	-1.804***	-0.152***	-1.840***	-2.751***
	(0.516)	(0.0214)	(0.581)	(0.298)
Constant	3.801***	0.206***	11.74*	-3.436***
	(1.436)	(0.0529)	(6.426)	(0.938)
Observations	2638	2911	3023	2097
N (Govt.-IDO)	240	262	262	211
Period Fixed Effects	Yes	Yes	Yes	Yes
Hansen J (p)	0.15	0.056	1	0.002
Arellano Bond (p)	0.24	0.103	0.534	0.575
# Instruments	125	125	113	111
AR P-Score	0.0004	0.0001	0.0001	0.0016

Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

APPENDIX D.4: ADDITIONAL CONTROLS

	Model 1 Concessional	Model 2 Govt.-level	Model 3 IDO-level
Portfolio Similarity	0.124***	0.133***	0.0657*
	(0.0396)	(0.0390)	(0.0380)
QuODA	-0.132***	0.0872***	
	(0.0452)	(0.0245)	
# Major Powers	0.00488	-0.00880*	0.0289
	(0.00359)	(0.00467)	(0.0218)
IDO Age	-0.00414***	-0.00218**	-0.00115*
	(0.00114)	(0.000864)	(0.000654)
Member	0.0464**	0.0773***	0.0611*
	(0.0225)	(0.0243)	(0.0350)
# Members	-0.00138***	-0.000386*	-0.00157***
	(0.000200)	(0.000221)	(0.000549)
Regional	-0.132***	-0.163***	-0.164***
	(0.0255)	(0.0254)	(0.0491)
Concessional	0.259***		
	(0.0548)		
Govt. Unemployment		-0.000998	
		(0.00112)	
GDP Growth		-0.000762	
		(0.00200)	
Government Expenditure		0.000276	
		(0.00154)	
Effectiveness			0.0620***
			(0.00867)
Efficiency			-0.00000688*
			(0.00000371)
Constant	0.363***	0.218***	0.161*
	(0.0711)	(0.0683)	(0.0922)
Observations	2911	2783	2427
N (Govt.-IDO)	262	262	220
Period FE	Yes	Yes	Yes
Hansen J (p)	0.106	0.007	0.141
Arellano Bond (p)	0.134	0.577	0.461
# Instruments	126	125	126
AR P-Score	0.0001	0.0001	0.0001

Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

APPENDIX D.5: EXCLUDING GOVERNMENTS AND IDOS

	Model 1 Excluding Large Donors	Model 2 Excluding EU Governments	Model 3 Excluding EU IDOs	Model 4 Global IDOs
Portfolio Similarity	0.140***	0.129**	1.875***	2.307***
	(0.0432)	(0.0498)	(0.389)	(0.478)
QuODA	0.0756***	0.0818***	0.0900***	0.119***
	(0.0239)	(0.0218)	(0.0175)	(0.0236)
# Major Powers	-0.00574	-0.0125**	0.00421	0.0185*
	(0.00530)	(0.00518)	(0.00314)	(0.0102)
IDO Age	-0.00203**	-0.00294***	-0.000628	-0.000104
	(0.000983)	(0.000948)	(0.000543)	(0.000713)
Member	0.0771***	0.136***	0.0306	0.0179
	(0.0236)	(0.0213)	(0.0191)	(0.0415)
# Members	-0.00051**	-0.00088***	-0.0024***	-0.00055
	(0.000250)	(0.000211)	(0.000333)	(0.000417)
Regional	-0.171***	-0.228***	-0.354***	
	(0.0278)	(0.0221)	(0.0489)	
Constant	0.215***	0.300***	0.413***	-0.0502
	(0.0623)	(0.0584)	(0.0770)	(0.0560)
Observations	2319	2040	2504	1976
N (Govt.-IDO)	214	190	220	176
Period FE	Yes	Yes	Yes	Yes
Hansen J (p)	0.406	0.006	0.378	0.465
Arellano Bond (p)	0.654	0.219	0.486	0.513
# Instruments	125	125	125	124
AR P-Score	0.0044	0.0057	0.0001	0.0034

Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

APPENDIX D.6: FIRST STAGE ESTIMATES FOR PREDICTED PORTFOLIO SIMILARITY

DV: Bilateral Aid (%)	
Log GDP Per Capita	-0.182***
	(0.0397)
Log GDP Per Capita Squared	0.00649
	(0.00716)
Log of Population	-0.256***
	(0.0819)
Log of Population Squared	-0.0387***
	(0.00823)
Log of Trade	0.0419***
	(0.00454)
Democracy	0.0103***
	(0.00142)
UN Voting Affinity	-0.993***
	(0.0837)
Political Risk	0.00412***
	(0.000734)
Multilateral Aid	0.00523***
	(0.000887)
Constant	7.591***
	(1.463)
N	42322
Log lik.	-50624
R-Squared	0.77

Level of analysis is the government-recipient-year
Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Notes on Data Sources and Model Specification

GDP Per Capita, Population, Trade and Multilateral Aid from the World Development Indicators. Democracy from Polity IV, UN Voting Affinity from Erik Voeten and, Political Risk from ICRG.

Model based on Alesina, Alberto, and David Dollar. 2000. "Who gives foreign aid to whom and why?" *Journal of Economic Growth* 5(1): 33-63.