

# Foreign Aid and Policy Concessions

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Abstract: We present a model that explains foreign aid-for-policy deals between nations. The model assumes that leaders want to maximize their time in office and that the actions they take to do so are shaped by two political institutions, called the selectorate and the winning coalition. We show that a leader is likely to give aid if she extracts concessions from a prospective recipient on a valuable policy, and if she depends on a large coalition and a relatively small selectorate to remain in office. Prospective recipients are more likely to get aid if they depend on a small coalition and a large selectorate to stay in power; if they have few resources; and if the policy concession sought by the donor is not too politically costly. The amount of aid received, if any, increases as the recipient leader's coalition increases in size, the selectorate size decreases, the salience of the issue increases and the domestic resources available to the recipient leader increases. The theory provides an explanation for the common observation that many people in third-world countries simultaneously hate the United States and would like to live in it. The empirical examination of aid giving and receiving using USAID and OECD data for the post-World War II years supports the model's predictions.

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## INTRODUCTION

The provision of foreign aid poses four puzzles: (1) who gives aid; (2) how do donors determine how much aid to give; (3) who gets aid; and (4) how much aid does each recipient get? To answer these questions, we derive a theory that links aid allocations with the survival of political leaders. We posit two political institutions: the selectorate and the winning coalition. The latter, loosely speaking, is the set of people whose support is essential to keep a leader in office. The former – the selectorate – is the pool of potential supporters from which these essential backers are drawn to form a winning coalition. These two political institutions shape the desirability of trading foreign aid for policy concessions. We show that making policy concessions in exchange for aid is incentive compatible for leaders who depend on a small coalition. However, within relatively small coalition polities (e.g., autocracies, juntas, monarchies), the larger the coalition, the greater the aid that must be granted in exchange for policy concessions. Additionally, we show that purchasing such concessions with aid is incentive compatible for leaders whose survival in office depends on a large coalition. When politicians depend on a large group, citizens gain from paying for foreign aid. When recipient politicians depend on a small coalition, their citizens may be harmed by aid. They get policies they do not like and their leaders remain in office through corruption and rent-seeking rather than by producing effective public policy. We test implications of the theory, in the process offering evidence for the theoretical claims regarding who gives and who gets aid, and how much money donors give and recipients receive.

The paper proceeds as follows. In section 2 we review the relevant literature, making clear the contending arguments and evidence marshaled by others. In section 3 we examine the selectorate model of politics introduced by Bueno de Mesquita, Smith, Siverson, and Morrow (2003). We discuss the underlying logic as to how political

institutions shape the policy choices of leaders and the ease with which they survive. Section 4 develops a model of foreign aid within the context of the selectorate theory. The leader of nation A can offer the leader of nation B aid in exchange for policy concessions. We characterize a Markov Perfect Equilibrium (MPE) in which aid transfers depend upon the institutional arrangements in both the donor and recipient countries. We then examine the comparative static implications of the equilibria with respect to the possibility and size of aid transfers and the effect of aid transfers on the survival of leaders. In this way we suggest answers to who gives aid, how much do they give, who gets aid, and how much do they get. Section 5 describes the data and variables we use while section 6 presents the empirical tests. Section 7 offers conclusions and draws out policy implications, in the process providing an explanation for the seemingly puzzling regularity that many poor people in the world simultaneously hate the American government and wish they lived in the United States.

## LITERATURE

The literature on foreign aid divides fairly clearly along two dimensions: aid as an instrument of national policy and aid as an instrument of humanitarian concerns. Morgenthau (1962) was among the first to argue vigorously that aid is unlikely to alter political and social conditions in recipient countries. He contended that such changes are undesirable from the perspective of leaders in recipient countries. Morgenthau concluded that, in light of the status quo orientation of recipient leaders, the United States needs to be clearer about its own political objectives in giving foreign aid. McKinley and Little (1977, 1978) tested the apparent motivations behind American (1977) and British (1978) aid giving. They found that donor interests dominate recipient needs. Cingranelli and Pasquarello (1985) advance the analysis of aid dispersion by distinguishing between whether aid is received at all and, if so, how much

is received. They report that the human rights record of potential recipients has little influence over the likelihood of getting aid but, subject to receiving aid, good human rights performance is rewarded. This appears to be a more nuanced account than McKinley and Little's finding that donor giving is driven by national security concerns. However, an extensive literature critical of Cingranelli and Pasquarello's argues with their sampling procedures and other aspects of their model specification (e.g., McCormick and Mitchell 1988). Others argue that aid given by states other than the United States is substantially motivated by humanitarian concerns (Lumsdaine 1993). Maizels and Nissanke (1984) distinguish the degree of humanitarian motivation as a function of whether aid is bilateral or multilateral. While some aid might be distributed to alleviate poverty and suffering, the poorest states do not receive the most aid (McKinley and Little 1977, 1978); neither does it seem that aid is effective at ending poverty or promoting development (Easterly 2002; Boone 1996). Burnside and Dollar (2000), however, report that while aid allocations are not strongly influenced by the quality of development policies, good development policies in conjunction with aid leads to better economic performance. Alesina and Dollar (2000) press the issue of aid benefits further. They contrast the flow of aid with that of foreign direct investment. They find a sharp distinction between the use of FDI and foreign aid. Countries with good economic policies tend to attract significant foreign investment. Foreign aid in contrast, is allocated largely without regard to economic policy and very much in regard to the political and strategic considerations of the donor.

Recently the literature has examined more closely the presumed distinction between American strategic aid giving and humanitarian aid given by other states. Although some contend that Scandinavian countries give aid for humanitarian purposes (Lumsdaine 1993; Noel and Therien 1995), the first systematic empirical study of this question finds otherwise (Schraeder, Hook and Taylor 1998). Schraeder et al (1998) report that Swedish aid is strongly motivated by pro-socialist ideology and

trade benefits aimed at countries where the Swedish impact can be large rather than in response to humanitarian need. Hook and Zhang (1998) similarly report that even after the Japanese government announced that it would give aid for “democratization, human rights, and restraint in military spending” (p. 1051), its aid giving is still dominated by self-interest rather than altruism.

The literature to date has done a careful job of assessing the empirical evidence. However, the extant evidence has not been tied to an explicit, general theory that also can explain aid giving and getting. We attempt to build on the important insights from the empirical literature by constructing a formal model that helps sort out the fundamentals of aid while also leading to novel, testable hypotheses.

The model we offer proposes that aid giving and getting is a strategic process in which donors purchase policy support from recipients who use at least some of the assistance to ensure that they are securely ensconced in power. In this view, aid is not expected to flow to countries whose leaders naturally favor policies that are important to the donor. Nor is aid expected to flow to countries whose leaders cannot afford politically to adopt the policies sought by a prospective donor. Rather aid is expected to flow to countries whose leaders do not inherently support the policies of a prospective donor but are willing to back those policies in exchange for aid sufficient to improve their political and economic welfare relative to survival prospects for the recipient states’ leaders in the absence of aid.

## **A SELECTORATE MODEL OF POLITICAL SURVIVAL**

We consider aid transfers between a potential donor, state A, and a potential recipient, state B. Decisions are not made by nations, but rather by leaders, in this case AL and BL. Political competition within each state is modeled using the selectorate theory (Buono de Mesquita et al 2003), which focuses on how political institutions shape government allocations between private and public goods. We assume there

are policy differences between the two nations. In particular, the citizens of nations A would benefit from a policy concession from nation B. AL, the leader in nation A, can use aid transfers to ‘buy’ such a policy concession from nation B. For example, during the Cold War such a policy request from the American president to the leader of Zaire might have been to adopt an anti-communist stance. Alternatively, an American president or French premier might have sought permission for US or French corporations respectively to exploit mineral rights or run a pipeline across country B. Rai (1980) shows US aid is used as an inducement to obtain favorable United Nation votes. We refer to such policy concessions as pro-A policies.

If BL accepts the aid-for-policy deal then the aid is transferred. Aid transfers are fungible for the recipient and can be thought of as adding to BL’s resource base (Feyzioglu, Swaroop, and Zhu 1998), but at the cost of a policy concession. Leader BL decides whether to implement the agreed policy concessions and leaders AL and BL are subject to domestic political competition. The fundamental feature of our model is that leaders make aid and policy decisions with an eye to how they influence political survival. Decisions are not taken to improve the welfare of the people, unless coincidentally this simultaneously aids survival. As we shall see, under inclusive political institutions (large W) enhancing leader survival is typically synonymous with promoting public welfare. In contrast in more exclusionary systems, there is a disconnect between the policies that promote the public’s welfare and those that enhance a leader’s survival.

Central to our model is the credibility of BL’s willingness to implement pro-A policies. In particular, having received aid on the promise of implementing a pro-A policy, leader BL prefers not to implement the policy and would prefer simply to pocket the aid money. We model the credibility of BL’s promise to implement the pro-A policy using McGillivray and Smith’s (2000, 2004) concept of a leader specific punishment within the context of an infinitely repeated game.

If leader BL agrees to deliver a pro-A policy in return for aid but reneges after receiving the funds, then BL is said to lose her integrity. Once leader BL loses her integrity she is deemed untrustworthy by the current and future leaders in nation A who refuse to offer her any future aid. However, the loss of integrity and the removal of future aid are attached to the dishonest leader and not to the nation she represents. If the dishonest leader is deposed then nation B is again eligible for aid since its new leader arrives with her integrity intact.

### **Selectorate politics**

Before turning to the question of foreign aid, we articulate a simplified version of the selectorate approach to provide an account of the domestic political survival of leaders. The selectorate,  $S$ , is the set of people with a potential say in who is to be leader. The essential feature of the selectorate is that it is the pool of individuals from which a leader draws supporters to form a winning coalition,  $W$ . An incumbent leader must maintain the support of her winning coalition or else she is deposed.

The size of both the winning coalition and the selectorate can vary enormously across political systems.<sup>1</sup> In democratic states the selectorate is typically all adult citizens and the winning coalition is a relatively large proportion of this selectorate. The exact proportion of the selectorate that a leader requires to retain power depends upon the electoral rules. For example, in a two party directly elected presidential system, 50% of the selectorate constitutes a winning coalition. In contrast, a leader in a single member district, parliamentary system only needs 25% support to control the government. In monarchies or military juntas selectorates and winning coalitions are much smaller than in democracies and are composed of aristocrats or military elites only. Autocratic states generally have relatively small winning coalition, although

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<sup>1</sup>We are somewhat loose with our notation. We let  $W$  represent both the set of supporters and the size of this set.

selectorate size can vary greatly. Rigged electoral systems, for instance, have a small coalition but can have a large selectorate. Although standard regime type classifications are associated with particular configurations of selectorate and coalition size,  $W$  and  $S$  are inherently continuous measures. Thus, they not only allow us to distinguish between broad and somewhat arbitrary regime classifications, they also allow us, in principle, to distinguish between the institutions within each classification; as illustrated by our comparison of presidential and parliamentary democracies.

Political leaders have two mechanisms to reward supporters: public goods ( $x$ ) and private goods ( $g$ ). Policies, such as national defense and public health, with a high public goods component provide rewards to all residents of the nation. In contrast, private goods are allocated only to members of the winning coalition.

Of course in reality no policies are pure private or pure public goods. However, as we shall next show mathematically, the relative mix of public and private goods provided by government is strongly driven by coalition size. National defense provides an interesting policy arena to consider this relative focus. While defense satisfies the classic public goods definition of a non-excludable and non-rival good, its provision provides private goods to members of the military and to defense contractors. Political leaders might use defense spending to provide lavish officers quarters and bloated procurement contracts. Alternatively, funds might be spent on the optimal combination of equipment and training, with all contracts given out through competitive bidding. While both these alternatives provide some private and some public goods, the former has a much greater private emphasis than does the latter.

We assume all residents of a country have a basic utility function  $V(x, g)$  over public and private goods. This utility function is increasing and concave in both arguments. Although the characterization of the aid equilibrium below holds for concave functions, to ease the signing of several of the comparative static results we utilize the specific utility function  $V(x, g) = \sqrt{x} + \sqrt{g}$ .



We assume leaders are primarily driven by office holding. For each period in office a leader receives a payoff of  $\Psi$ . Further, leaders gain from any national resources that they can retain for themselves. The state produces  $R$  resources in each period. If the incumbent leader survives in office and spends  $M$  resources on public and private goods then her payoff for that period is  $\Psi + R - M$ . If she is deposed then she receives a payoff of zero. Following deposition, the challenger is relabeled as the incumbent and a new challenger is selected (from an infinite pool of potential challengers).

In addition to these direct payoffs, we assume that each leader and challenger has an idiosyncratic affinity ordering over all selectors. Ex ante, all possible affinity orderings are equally likely. Leaders are not driven primarily by these affinity concerns. However, all else equal, as a secondary consideration leaders prefer a coalition of selectors with whom they have high affinity compared to a coalition of low affinity selectors.

Initially a challenger's affinities are unknown; however, should the challenger attain office then the challenger's affinities are revealed and become common knowledge. Although by necessity, a challenger needs to attract the support of members of the incumbent's coalition to come to power, once established in office a leader can rearrange the new winning coalition around selectors with the highest affinity. This creates a risk for members of the incumbent's coalition who contemplate defection to the challenger. While in the current period the challenger might offer them greater benefits than the incumbent, upon attaining power, if the challenger has greater affinity for other selectors then some supporters risk being replaced. While a selector's support might have been vital in bringing the challenger to power, that supporter is not guaranteed a place in the challenger's long term coalition and therefore, the private benefits that come with such membership are at risk.

The selectorate politics game is infinitely repeated. All players have a common discount factor  $\delta$ . The stage game is as follows:

1) The incumbent forms a coalition with the  $W$  highest affinity selectors. The challenger forms a coalition of size  $W$ , which includes at least one member of the incumbent's coalition.

2) The incumbent, L, and the challenger, C, each propose public and private goods allocations  $(x_L, g_L$  and  $x_c, g_c$ , respectively) subject to the budget constraint  $px + Wg \leq R$ .

3) The selectors choose between the incumbent and the challenger. If the incumbent retains the support of her  $W$  supporters then she retains power; otherwise she is removed.

4) The affinity order of the leader (either the existing incumbent or the challenger if the incumbent were deposed) is revealed.

The challenger's objective is to attain office. Given the budget constraint  $px + Wg \leq R$ , in the current period the challenger can do no better than offer to maximize the rewards she offers her supporters:  $\max_{g \in \mathbb{R}^+, x \in \mathbb{R}^+} V(x, g)$  subject to  $px + Wg \leq R$ . The variable  $p$  is the price of public goods. Coalition size,  $W$ , serves the role of a price for private goods as it indicates the number of individuals who receive private benefits. Let  $x^*$  and  $g^*$  be the levels of public and private goods that satisfy this maximization. For interior solutions (upon which we focus), this implies the first order condition  $\frac{V_x(x^*, g^*)}{p} - \frac{V_g(x^*, g^*)}{W} = 0$ , which yields Bueno de Mesquita et al's (2003, 2002) primary result concerning coalition size and the public/private focus of policy. As the size of the winning coalition ( $W$ ) increases then leaders produce more public goods. A quick insight into this result can be obtained by remembering that coalition size is effectively the price of private goods. As this price increases, leaders substitute public goods to replace the now relatively more expensive private goods.

Next we define the indirect utility function  $v(m, W)$  as the utility level that leaders provide their coalition given that they spend  $m$  resources on a coalition of size  $W$ :  $v(m, W) = \max_{g \in \mathbb{R}^+, x \in \mathbb{R}^+} V(x, g)$  subject to  $px + Wg \leq m$ . Given the associated

optimal public and private goods allocations, it is also useful to define,  $u(m, W)$ , as the utility level from receiving only the public goods portion of this optimal allocation:  $u(m, W) = V(x^*, 0)$ . This payoff,  $u(m, W)$ , is the value of the benefits received by those outside the winning coalition.

Bueno de Mesquita et al (2003) characterize a Markov Perfect Equilibrium in which the incumbent leader survives and spends  $m^*$  resources optimally rewarding her coalition in each period. To characterize  $m^*$  we start by considering the best possible offer that a challenger can make in attempting to attain power. In the current period, the challenger can offer no more than to spend all available resources optimally on her coalition. This produces the immediate rewards of  $v(R, W)$ . Should the challenger succeed in bidding for power then in the next period the challenger becomes the new incumbent and spends  $m^*$  resources on the  $W$  selectors with the highest affinity. Since comparatively little is known about the challenger's affinities, supporters in the current winning coalition have only a  $\frac{W}{S}$  chance of being included in the challenger's long term coalition. That is to say, each selector has a  $\frac{W}{S}$  chance of being one of the  $W$  highest affinity types in the selectorate  $S$ . Since the challenger will spend  $m^*$  resources in each future period then the net present value of defecting to the challenger is  $v(R, W) + \frac{\delta}{1-\delta} [\frac{W}{S}v(m^*, W) + (1 - \frac{W}{S})u(m^*, W)]$ .

In contrast to the challenger, the incumbent does not face a commitment problem with respect to future inclusion in the winning coalition. Since the incumbent's affinities are known and the incumbent is already selecting her highest affinity selectors, members of her coalition know they will continue to receive private goods. This creates an incumbency advantage. While the incumbent can promise access to private goods with certainty, the challenger can only offer private goods probabilistically (with probability  $\frac{W}{S}$  to be specific). The size of the incumbency advantage depends upon the value of private goods and the risk of exclusion from future private goods. When  $W$  is small, allocations emphasize private goods, making them particularly

valuable. Additionally, when  $W$  is small and  $S$  is large the prospects of obtaining these valuable rewards under the challenger become remote and so supporters of the incumbent become loyal.

We started our analysis of selectorate politics by supposing the incumbent spends  $m^*$  resources in each period and survives. We now calculate the size of this resource expenditure. For members of the incumbent's coalition, retaining the incumbent is worth  $v(m^*, W) \frac{1}{1-\delta}$ . Provided that this level of rewards is at least as great as the challenger's best offer then the incumbent survives. In particular, since the incumbent wants to minimize expenditures she spends just enough to equal the challenger's best offer. This yields the following incumbency condition:

$$v(m^*, W) \frac{1}{1-\delta} = v(R, W) + \frac{\delta}{1-\delta} \left[ \frac{W}{S} v(m^*, W) + \left(1 - \frac{W}{S}\right) u(m^*, W) \right] \quad (1)$$

This incumbency condition provides the basis for the analysis that follows so we pause to examine it in more detail. Equation 1 ensures that the incumbent just matches what the challenger can offer. If the incumbent spends less, then the challenger could offer  $L$ 's supporters greater expected value and they would defect. If the incumbent spends more than  $m^*$  then she wastes resources that she could have retained for her own discretionary uses.

Unlike incumbents, challengers can not commit to retain all members of their transition coalitions once the challengers learn affinities. Consequently, the change in leaders creates a risk for members of the new coalition that they will be excluded in the future. The fear of exclusion and the consequential loss of private goods if one is dropped from the coalition enables incumbents to spend less than challengers and still survive. The amount of discretionary resources that the incumbent can retain,  $R - m^*$ , provides a useful metric for the ease of political survival. When coalition size is large, and hence private goods are relatively unimportant, then the incumbency

advantage,  $R - m^*$ , is small. There is little slack in the system, so even a relatively modest exogenous shock could leave the incumbent in a position of no longer being able to match the challenger's best offer.

In contrast, when  $W$  is small, private goods are more important relative to public goods. This engenders a loyalty norm, particularly when  $S$  is large since the prospects of obtaining private goods through long term membership of the challenger's coalition becomes more remote. Under this circumstance, the incumbent spends less resources and retains more discretionary resources for herself, i.e.  $R - m^*$  is large. This large difference between what the incumbent must pay out ( $m^*$ ) and available resources ( $R$ ) means the incumbent can survive even relatively large shocks since there is sufficient slack in the system to allow for additional compensation (Bueno de Mesquita et al 2003).

## FOREIGN AID IN SELECTORATE POLITICS

Nations A and B have leaders, AL and BL, and challengers, AC and BC. In addition to the private and public goods of the selectorate model, we model a single addition policy choice,  $z$ , in nation B. This policy can take two values,  $z \in \{0, 1\}$ , where we might think of  $z = 1$  as a pro-A policy, and  $z = 0$  as the default policy that everyone in nation B prefers. Specifically, we assume that in addition to rewards from public and private goods, all selectors in nation B receive a payoff of  $\sigma_B > 0$  from their preferred policy of  $z = 0$ . If, however, their leader adopts a pro-A policy they do not receive this additional benefit. If nation B adopts a pro-A position,  $z = 1$ , then all selectors in nation A receive  $\sigma_A$ .

We assume leader BL receives a payoff of  $\Sigma_B$  for implementing her nation's preferred policy ( $z = 0$ ) and leader AL receives a payoff of  $\Sigma_A$  should BL implement a pro-A policy. We might think of  $\Sigma_i$  as simply  $\sigma_i$ ; alternatively we might suppose leaders get additional psychic value from being responsible for implementing their nation's

preferred policy. None of our analyses rest on this distinction between selectors and leaders' payoffs for policy. For the comparative statics we assume  $\frac{d\Sigma_i}{d\sigma_i} = \xi > 0$ .

In the basic selectorate model the Markovian state variable describes the affinity ordering of the leader. In the aid game we extend the state space to encompass the affinity ordering of both nations' leaders and an additional state variable that describes the integrity of leader BL:  $X = A_A \times A_B \times I$  where  $\alpha_{AL} \in A_A$  is an affinity ordering over all members of the selectorate in nation A for leader AL,  $\alpha_{BL} \in A_B$  is the affinity ordering of BL and  $I$  represents the integrity of BL. Until a leader comes to power all affinity orderings are equally likely. Hence if  $\alpha_{Ac}$  is the challenger in nation A then  $\Pr(\alpha_{Ac} = a) = \Pr(\alpha_{Ac} = a')$  for all  $a, a'$  in  $A_A$ . The situation in nation B is analogous.

The third component of the state variable refers to the integrity of leader BL:  $I = \{H, D\}$ . Initially all leaders are assumed to be honest, or have integrity,  $I = H$ . However, if leader BL accepts aid in an aid-for-policy deal but then fails to implement the pro-A policy, leader BL loses her integrity,  $I = D$ . Once her integrity is gone, BL remains dishonest for the rest of the game,  $I = D$ . To preserve the focus on leaders we assume that the aid for policy deal is strictly between BL and AL. The deal is not inherited either by a replacement leader in A or in B. Should leader AL be removed then any agreement dies with AL and BL is free to implement any chosen policy without jeopardizing her integrity. Alternatively, we might have supposed that BL is obligated to nation A rather than to AL per se. Adopting this assumption changes the results little. While it modifies condition  $L$  defined below, the comparative statics remain unchanged.

The game is infinitely repeated with a common discount factor  $\delta$ . The stage game is given below:

1) **AL offers aid**: AL offers BL an aid-for-policy deal. Such a deal is a transfer of  $\rho$  resources in exchange for a pro-A policy,  $\rho \geq 0$ .

2) **BL accepts or rejects the aid offer.** If BL accepts  $\rho$  then the aid transfer is made,  $r = \rho$ . Otherwise, no aid transfer is made and  $r = 0$ .

3) **Domestic Competition in nation A:** AL forms a coalition with the  $W_A$  highest affinity members of the selectorate  $S_A$ . The challenger forms a coalition of size  $W_A$  which includes at least one member of AL's coalition. Leader AL and challenger AC propose policy and spending levels,  $(x_{AL}, g_{AL})$  and  $(x_{Ac}, g_{Ac})$  respectively subject to the budget constraint  $px_i + g_i W_A \leq R_A - r$  for  $i = \text{AL}, \text{AC}$ .

Selectors in A pick a leader (either incumbent AL or the challenger AC). The incumbent is deposed if any member of her coalition supports the challenger; otherwise she survives.

4) **Domestic Competition in nation B:** BL forms a coalition with the  $W_B$  members of the selectorate which whom she has the highest affinity. BL offers  $g_{BL}, x_{BL}, z_{BL}$  subject to the budget constraint  $Wg_{BL} + px_{BL} \leq R_B + r$ . BC forms a coalition of size  $W_B$  which includes at least one member of BL's coalition. BC offers  $g_{Bc}, x_{Bc}, z_{Bc}$  subject to budget constraint  $Wg_{Bc} + px_{Bc} \leq R_B + r$ .

The selectors in B choose. The incumbent, BL, is deposed if any member of her coalition supports the challenger; otherwise she survives.

5) **Update state variables:** The affinities of each leader are revealed. Should a challenger come to power the successful challenger is relabeled AL or BL, as appropriate, and a new challenger is chosen from an infinite pool. Further, the integrity of leader BL is updated according to the following rule. If the incumbent, BL, is replaced then integrity is restored to honesty:  $I = H$ . If incumbent leader BL is dishonest and she survives then she remains dishonest,  $I = D$ . If leader BL is initially honest,  $I = H$ , then BL remains honest unless BL accepts aid from leader AL, leader AL survives and BL fails to implement the pro-A policy. Under this latter contingency leader BL becomes dishonest:  $I = D$ .

## A Foreign Aid Equilibrium

We characterize a Markov Perfect Equilibrium utilizing leader specific punishments in which leader AL transfers  $r$  resources to BL and both leaders survive in office. We characterize the conditions under which such aid transfers are possible.

Although the formal statement of the equilibrium is complex, the underlying ideas are straightforward. Provided that BL is honest ( $I = H$ ), AL offers  $r^*$  aid which is accepted. Following the aid transfer BL implements the pro-A policy  $z = 1$ , and AL and BL each spend the minimal amount of resources,  $m_{Ar^*}$  and  $m_{Br^*}$  respectively, to just match the best possible offer of the challenger, as described in the basic selectorate model above.

If leader BL is dishonest ( $I = D$ ) then AL never offers aid,  $\rho = 0$ . If ever offered any aid, then a dishonest BL accepts the aid but never implements the pro-A policy. The threat of aid withdrawal is leader specific. If leader BL is deposed then the challenger that replaces her is regarded as honest ( $I = H$ ). The challenger becomes more attractive to the selectors if he re-establishes integrity. Following the replacement of a dishonest leader with an honest challenger aid transfers resume, swelling the pool of resources from which supporters are rewarded. The desire to maintain future aid is what ensures that the incumbent BL implements the pro-A policy having accepted an aid-for-policy deal.

In the equilibrium, four conditions govern the range of parameters over which aid-for-policy deals occur. The resources that AL offers in any aid-for-policy deal must satisfy the criteria that BL wants to 1) accept the deal offered (Condition  $K(r^*) \geq 0$ ) and 2) having accepted the deal, BL must prefer to implement the deal rather than renege (Condition  $J(r^*) \geq 0$ ). As we derive below, condition  $K$  ensures that leader BL prefers to accept the current deal rather than decline aid and play the selectorate game without a larger resource pool. Condition  $J$ , which is again formally derived



below, ensures that once BL accepts the aid deal, she prefers to implement the pro-A policy rather than renege, lose her integrity, and thereby play all future interactions of the game without access to foreign aid.

Leader AL will offer the smallest aid package that will be both acceptable and implementable for BL. In equilibrium, this ensures that one of the conditions  $K$  or  $J$  is a binding constraint and so is satisfied with equality. These conditions characterize the minimum aid donation required to obtain the desired pro-A policy concession from BL. The conditions  $O(r^*) \geq 0$ , and  $L(r^*) \geq 0$ , derived below, ensure leader AL is willing to make the required resource transfer in the form of aid. If condition  $O$  is not satisfied then in the long run the aid-for-policy trade-off is not beneficial for leader AL. Condition  $L$  ensures that in the immediate period AL prefers to make the aid-for-policy deal rather than postpone the deal until the next period. These four constraints directly address the four puzzles with which we began.

Selectorate institutions and other parameters in the model shape the size of the aid payment required for BL to accept and implement the pro-A policy: conditions  $K$  and  $J$ . Institutions also shape whether AL is willing to pay these costs to obtain pro-A policy concessions: conditions  $O$  and  $L$ . Therefore, by characterizing the equilibrium and examining its comparative statics, we obtain predictions as to how much aid is given (if it is given: conditions  $K$  and  $J$ ), and whether aid is given at all (conditions  $O$  and  $L$ ).

Proposition 1: There exists a MPE with  $r^*$  aid utilizing leader specific strategies if  $O(r^*) = m_{AD0} - r^* - m_{Ar^*} + \Sigma_A \geq 0$ ,  $L(r^*) = m_{A0} - r^* - m_{Ar^*} + \Sigma_A \geq 0$ ,  $K(r^*) = r^* - m_{Br^*} + m_{B0} - \Sigma_B \geq 0$ ,  $J(r^*) = \delta r^* - m_{Br^*} + (1 - \delta)m_{BDr^*} - \Sigma_B + \delta m_{BD0} \geq 0$  and one of the constraints  $K(r^*) = 0$  or  $J(r^*) = 0$  holds with equality, where

$$v(m_{Ar^*}, W_A) + \sigma_A + \frac{\delta}{1 - \delta} v(m_{Ar^*}, W_A) + \frac{\delta}{1 - \delta} \sigma_A - v(R_A - r^*, W_A) - \delta Z_{AC} = 0 \quad (2)$$

$$v(m_{AD0}, W_A) + \frac{\delta}{1-\delta}v(m_{AD0}, W_A) - v(R_A, W_A) - \delta Z_{ACD} = 0 \quad (3)$$

$$v(m_{A0}, W_A) + \frac{\delta}{1-\delta}v(m_{Ar^*}, W_A) + \frac{\delta}{1-\delta}\sigma_A - v(R_A, W_A) - \delta Z_{AC} = 0 \quad (4)$$

$$v(m_{Br^*}, W_B) + \frac{\delta}{1-\delta}v(m_{Br^*}, W_B) - v(R_B + r^*, W_B) - \sigma_B - \delta Z_{BC} = 0 \quad (5)$$

$$v(m_{B0}, W_B) + \frac{\delta}{1-\delta}v(m_{Br^*}, W_B) - v(R_B, W_B) - \delta Z_{BC} = 0 \quad (6)$$

$$v(m_{BDr}, W_B) + \frac{\delta}{1-\delta}\sigma_B + \frac{\delta}{1-\delta}v(m_{BD0}, W_B) - v(R_B + r, W_B) - \delta Z_{BC} = 0 \quad (7)$$

$$v(m_{BD0}, W_B) + \frac{\delta}{1-\delta}\sigma_B + \frac{\delta}{1-\delta}v(m_{BD0}, W_B) - v(R_B, W_B) - \delta Z_{BC} = 0 \quad (8)$$

$$\begin{aligned} Z_{AC} &= \frac{1}{1-\delta} \left( \frac{W_A}{S_A}v(m_{Ar^*}, W_A) + \left(1 - \frac{W_A}{S_A}\right)u(m_{Ar^*}, W_A) + \sigma_A \right), \\ Z_{ACD} &= \frac{1}{1-\delta} \left( \frac{W_A}{S_A}v(m_{AD0}, W_A) + \left(1 - \frac{W_A}{S_A}\right)u(m_{AD0}, W_A) \right), \text{ and} \\ Z_{BC} &= \frac{1}{1-\delta} \left( \frac{W_B}{S_B}v(m_{Br^*}, W_B) + \left(1 - \frac{W_B}{S_B}\right)u(m_{Br^*}, W_B) \right). \end{aligned}$$

**Corollary 1** *The equilibrium has the following characteristics.*

BL honest ( $I = H$ ):

If leader BL is honest ( $I = H$ ) then leader AL offers leader BL aid transfer  $\rho = r^*$ , which leader BL accepts. If AL offers  $\rho = r$  such that either ( $J(r) \equiv -(1-\delta)m_{Br} + \delta r^* - \delta m_{Br^*} + (1-\delta)m_{BrD} - \Sigma_B + \delta m_{BD0} \geq 0$  and  $K(r) = r - m_{Br} + m_{B0} - \Sigma_B \geq 0$ ) or ( $J(r) < 0$  and  $K(r) - J(r) \geq 0$ ) then BL accepts the offer. Otherwise aid is rejected.

If no aid transfer takes place ( $r = 0$ ) then BL implements policy  $z = 0$  and leaders AL and BL spend  $m_{A0}$  and  $m_{B0}$  respectively. If BL accepts aid  $r$  and leader AL is removed then BL implements policy  $z = 0$  and BL spends  $m_{BHr}$ . If BL accepts aid  $r$  and leader AL is not removed then if  $J(r) \geq 0$  BL implements policy  $z = 1$  and AL and BL spend  $m_{Ar}$  and  $m_{Br}$  respectively and if  $J(r) < 0$  then BL implements policy  $z = 0$  and AL and BL spend  $m_{ADr}$  and  $m_{BDr}$ , respectively.

BL dishonest ( $I = D$ ):

If leader BL is dishonest ( $I = D$ ) then leader AL offers no aid. Should any aid be offered then leader BL accepts the aid but does not implement the pro-A policy. Given no aid, leaders AL and BL spend  $m_{AD0}$  and  $m_{BD0}$  respectively which solve equations 3 and 8. If  $r$  aid is transferred then leaders AL and BL spend  $m_{ADr}$  and  $m_{BDr}$  respectively which solves equations 10 and 7.

$$v(m_{Ar}, W_A) + \sigma_A + \frac{\delta}{1-\delta}v(m_{Ar^*}, W_A) + \frac{\delta}{1-\delta}\sigma_A - v(R_A - r, W_A) - \delta Z_{AC} = 0 \quad (9)$$

$$v(m_{ADr}, W_A) + \frac{\delta}{1-\delta}v(m_{AD0}, W_A) - v(R_A - r, W_A) - \delta Z_{ACD} = 0 \quad (10)$$

$$v(m_{Br}, W_B) + \frac{\delta}{1-\delta}(v(m_{Br^*}, W_B)) - \sigma_B - v(R_B + r, W_B) - \delta Z_{BC} = 0 \quad (11)$$

$$v(m_{BHr}, W_B) + \frac{\delta}{1-\delta}(v(m_{Br^*}, W_B)) - v(R_B + r, W_B) - \delta Z_{BC} = 0 \quad (12)$$

**Proof.**—

Before characterizing the above equilibrium, we discuss a few general features of our approach that will reduce unnecessary notation. First, optimality in dynamic programming means that only single move deviations followed by subsequent play

as specified by the equilibrium path are the only deviations that need consideration (Chiang 2000). Given this, we do not index states, strategies, or payoffs by time. Second, we do not characterize the policy choices of leaders explicitly. Rather we characterize their spending via the indirect utility function  $v(M, W)$ , which assumes the optimal mix of public and private goods for the given coalition size. Third, we consider a selectorate strategy that picks the incumbent over the challenger provided that the expected payoffs from the incumbent are at least as large as the expected payoffs from the challenger: such a strategy is a best response. In the equilibrium we characterize, the incumbent spends just enough to match the best possible offer that the challenger can make. This behavior creates incumbency conditions 2 through 12, analogous to equation 1 that characterize the spending decisions of leaders under all contingent circumstances. By setting spending to match the challenger's best offer the incumbent survives and controls the slack between the available resources and the level of spending required to survive ( $R - m^*$ ). Finally, in characterizing spending decisions off the equilibrium path we assume that the leader can always survive. Since the leader can survive on the equilibrium path, any defection that has the leader removed obviously can not be a best response.

**Dishonest State:  $I = D$**  We start by considering the case in which the current incumbent is dishonest,  $I = D$ . Following aid transfer  $r$ , the available budget in nation B is  $R_B + r$ . Consider the best possible offer the challenger can make to depose the incumbent. Given that in future periods any challenger who succeeds in coming to office will form a winning coalition with the  $W_B$  most preferred supporters from  $S_B$ , each selector has a  $W_B/S_B$  chance of being included in future winning coalitions. Upon coming to office the challenger's integrity is intact ( $I = H$ ). Therefore, in future periods he will be offered  $r^*$  aid and will accept it, implementing policy  $z = 1$  and spending  $m_{Br^*}$  resources to reward his coalition. The best possible offer that the

challenger can make in the current period is to spend all  $R_B + r$  resources optimally and implement the selectors' most preferred policy  $z = 0$ . This largest possible offer has expected value for coalition members of  $v(R_B + r, W_B) + \sigma_B + \delta Z_{BC}$ , where  $Z_{BC} = \frac{1}{1-\delta}(\frac{W_B}{S_B}v(m_{Br^*}, W_B) + (1 - \frac{W_B}{S_B})u(m_{Br^*}, W_B))$ .

If dishonest BL is not deposed then, given that  $I = D$ , in every future period BL receives no offers of aid and will spend  $m_{BD0}$  on the coalition and provide the selectors with their most preferred policy ( $z = 0$ ). The continuation value for current members of the coalition associated with retaining the incumbent is  $v(m_{BDr}, W_B) + \sigma_B + \frac{\delta}{1-\delta}(\sigma_B + v(m_{BD0}, W_B))$ . Given the selectors' strategy of retaining the incumbent unless the challenger offers higher expected rewards, the incumbent survives provided that  $v(m_{BDr}, W_B) + \sigma_B + \frac{\delta}{1-\delta}(\sigma_B + v(m_{BD0}, W_B)) \geq v(R_B + r, W_B) + \sigma_B + \delta Z_{BC}$ .

Since BL maximizes her payoff by satisfying this incumbency constraint with equality,  $m_{BDr}$  is characterized by equation 7. If BL implements a pro-A policy she must spend additional resources to satisfy the incumbency condition. Since this does not affect her integrity it can not be a best response. If no aid transfer is made ( $r = 0$ ) then equation 7 solves for the spending level  $m_{BD0}$  (equation 8). Despite her tarnished record ( $I = D$ ), leader BL survives provided that  $m_{BD0} \leq R_B$  and  $m_{BDr} \leq R_B + r$ . If these conditions are not met then BL spends all available resources optimally.

**AL strategy given  $I = D$**  We now consider leader AL's strategy when BL is dishonest,  $I = D$ . We focus only on the case in which BL can survive ( $m_{BD0} \leq R_B$  and  $m_{BDr} \leq R_B + r$ ) despite being dishonest. The case in which BL can not survive follows by a similar argument.

Suppose no aid transfer has been made,  $r = 0$ . Given BL's dishonest status, BL will never implement a pro-A policy and no aid transfers occur in future periods. What does this imply for AL's survival in office? Should AC come to power he will choose the  $W_A$  selectors with the highest affinity to form his coalition. For a selector

in AL's coalition the probability of inclusion in a future winning coalition is  $W_A/S_A$ . Hence, challenger AC's best possible offer is to spend all available resources optimally:  $v(R_A, W_A) + \delta Z_{ACD}$  where  $Z_{ACD} = \frac{1}{1-\delta}(\frac{W_A}{S_A}v(m_{AD0}, W_A) + (1 - \frac{W_A}{S_A})u(m_{AD0}, W_A))$ . To match this best possible challenge while minimizing spending, AL will choose  $m_{AD0}$  given by equation 3.

In the event that leader BL could not survive the current period then country B's new leader will have an honest integrity and AL's incumbency constraint, equation 3, will be modified to  $v(m_{AD0}, W_A) + \frac{\delta}{1-\delta}v(m_{Ar^*}, W_A) - v(R_A, W_A) - \delta Z_{ACD} = 0$ , where  $Z_{ACD} = \frac{1}{1-\delta}(\sigma_A + \frac{W_A}{S_A}v(m_{Ar^*}, W_A) + (1 - \frac{W_A}{S_A})u(m_{Ar^*}, W_A))$ .

Now suppose AL offered aid  $\rho = r$  to a dishonest BL who then accepts the offer. The available resources in nation A become  $R_A - r$ . BL does not implement pro-A policy now or in the future. Hence in order to survive AL spends  $m_{ADr}$  that just matches the best possible offer by the challenger, as given by the incumbency constraint in equation 10.<sup>2</sup>

Taking these considerations into account, we see that offering aid is never optimal when BL is dishonest. If AL offers aid  $\rho = r$  then it is always accepted by BL, but dishonest BL never implements a pro-A policy. Hence AL's payoff from offering  $r$  aid is  $\Psi + R_A - r - m_{ADr} + \frac{\delta}{1-\delta}(\Psi + R_A - m_{AD0})$ , where  $m_{ADr}$  is given by 10. Concavity in  $v(m, W)$  ensures that AL's payoff is decreasing in  $r$ . Therefore, AL never makes offers to dishonest BL's.

As an aside, we now consider a no-aid equilibrium. The logic developed above ensures the existence of a MPE in which no aid transfers take place. In the no aid MPE leader, AL never offers aid and leader BL always accepts aid but never

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<sup>2</sup>Note if leader BL could not survive the current period then  $Z_{ACD} = \frac{1}{1-\delta}(\sigma_A + \frac{W_A}{S_A}v(m_{Ar^*}, W_A) + (1 - \frac{W_A}{S_A})u(m_{Ar^*}, W_A))$ ; if BL could survive the current period but not subsequent periods ( $m_{BDr} \leq R_B + r$  and  $m_{BD0} > R_B$ ) then  $Z_{ACD} = \frac{W_A}{S_A}v(m_{AD0}, W_A) + (1 - \frac{W_A}{S_A})u(m_{AD0}, W_A) + \frac{\delta}{1-\delta}(\sigma_A + \frac{W_A}{S_A}v(m_{Ar^*}, W_A) + (1 - \frac{W_A}{S_A})u(m_{Ar^*}, W_A))$ .

implements pro-A policy. Such an equilibrium exists under all conditions and the spending levels on the equilibrium path  $\underline{m}_{A0}$  and  $\underline{m}_{B0}$  are given by the following incumbency constraints:

$$v(\underline{m}_{A0}, W_A) + \frac{\delta}{1-\delta}v(\underline{m}_{A0}, W_A) - v(R_A, W_A) - \frac{\delta}{1-\delta}\left(\frac{W_A}{S_A}v(\underline{m}_{A0}, W_A) + \left(1 - \frac{W_A}{S_A}\right)u(\underline{m}_{A0}, W_A)\right) = 0$$

and

$$v(\underline{m}_{B0}, W_B) + \frac{\delta}{1-\delta}v(\underline{m}_{B0}, W_B) - v(R_B, W_B) - \frac{\delta}{1-\delta}\left(\frac{W_B}{S_B}v(\underline{m}_{B0}, W_B) + \left(1 - \frac{W_B}{S_B}\right)u(\underline{m}_{B0}, W_B)\right) = 0.$$

### **Honest BL ( $I = H$ ).**—

In this case, on the equilibrium path, A offers aid  $\rho = r^*$  which BL accepts. If AL survives then BL implements a pro-A policy, spends  $m_{Br^*}$  and survives as well. We start by characterizing the challenger BC's best possible offer following aid transfer  $r$ . This best offer is to spend all available resources optimally and implement nation B's preferred anti-A policy ( $z = 0$ ). Should BC become leader in the next period he will be offered  $r^*$  aid which he will accept and form a coalition of the  $W_B$  highest affinity selectors. Hence, for every selector in BC's transitional coalition the expected value of BC coming to power is  $v(R_B + r, W_B) + \sigma_B + \delta Z_{BC}$ , where  $Z_{BC} = \frac{1}{1-\delta}\left(\frac{W_B}{S_B}v(m_{Br^*}, W_B) + \left(1 - \frac{W_B}{S_B}\right)u(m_{Br^*}, W_B)\right)$ .

To survive, BL must match the challenger's best possible offer:  $(m_{Br}, W_B) + \frac{\delta}{1-\delta}(m_{Br^*}, W_B) \geq v(R_B + r, W_B) + \sigma_B + \delta Z_{BC}$ . This yields equation 11 and, when equated at  $r = r^*$ , yields equation 5.

We now examine the minimum spending that is necessary by BL to survive under each possible contingency. First, suppose no aid ( $r = 0$ ) transfer occurred. Under this circumstance, BL's integrity is not affected by her policy choice. She chooses  $z = 0$  since this is the policy she prefers and it reduces what she must spend on her supporters. In particular, BL spends  $m_{B0}$  given by equation 6.

Suppose aid transfer  $r$  has occurred and leader AL survives. If BL implements the pro-A policy  $z = 1$  then she retains her integrity. She then offers to spend  $m_{Br}$ , the minimum expenditure to match the best possible offer of the challenger. This yields a payoff of  $\Psi + R_B + r - m_{Br} + \frac{\delta}{1-\delta}(\Psi + R_B + r^* - m_{Br^*})$  where  $m_{Br}$  satisfies 11.

If following transfer  $r$  leader AL survives and BL implements policy  $z = 0$  then BL destroys her integrity and will never be offered aid again ( $I = D$  in all future periods). The maximum payoff she can receive under this scenario is  $\Psi + R_B + r - m_{BDr} + \Sigma_B + \frac{\delta}{1-\delta}(\Psi + R_B - m_{BD0} + \Sigma_B)$  where  $m_{BDr}$  satisfies equation 7. Hence, having accepted aid transfer  $r$  and if AL survives, BL implements pro-A policy iff  $-m_{Br} + \frac{\delta}{1-\delta}(r^* - m_{Br^*}) \geq m_{BrD} - \frac{1}{1-\delta}\Sigma_B + \frac{\delta}{1-\delta}m_{BD0}$ . We write this as the constraint  $J(r) \equiv -(1-\delta)m_{Br} + \delta r^* - \delta m_{Br^*} + (1-\delta)m_{BrD} - \Sigma_B + \delta m_{BD0} \geq 0$ .

If following aid transfer  $r$  leader AL with whom BL made the deal is removed then, by our assumption that deals are between leaders, BL is no longer obliged to implement a pro-A policy to retain her integrity. Thus, BL sets policy to  $z = 0$  and minimizes spending to  $m_{BHr}$  which satisfies equation 12.

Note that since leader AL is never deposed in the equilibrium we characterize, the assumption that BL's obligation is to AL rather than nation A is moot. Alternatively, if we assumed that B's obligation were to nation A, the characterization of B's behavior would be unchanged.

Next, we consider BL's decision to accept the foreign aid offer  $\rho = r$ . If BL accepts the offer and  $J(r) \geq 0$  then BL's maximizes her payoff by just matching the best offer her challenger can make. BL spends  $m_{Br}$  as given by equation 11. This yields a payoff of  $\Psi + R_B + r - m_{Br} + \frac{\delta}{1-\delta}(\Psi + R_B + r^* - m_{Br^*})$ .

Alternatively, if BL rejects the aid offer then her payoff is  $\Psi + R_B - m_{B0} + \Sigma_B + \frac{\delta}{1-\delta}(\Psi + R_B + r^* - m_{Br^*})$ . Therefore, if  $J(r) \geq 0$  then BL accepts aid iff  $K(r) = r - m_{Br} + m_{B0} - \Sigma_B \geq 0$ .

If  $J(r) < 0$  then, having accepted aid, BL implements  $z = 0$  and loses her integrity.



Under this circumstance BL's payoff from accepting aid is  $\Psi + R_B + r - m_{BrD} + \Sigma_B + \frac{\delta}{1-\delta}(\Psi + R_B - m_{BD0} + \Sigma_B)$ . Therefore, if  $J(r) < 0$  BL accepts aid iff  $K2(r) \equiv r + m_{B0} - m_{BrD} + \frac{\delta}{1-\delta}(\Sigma_B - m_{BD0} + m_{Br*} - r^*) \geq 0$ . Note that  $K(r) = J(r) + K2(r)$ .

Hence if  $J(r) \geq 0$  and  $K(r) \geq 0$  then BL accepts aid and implements policy  $z = 1$ . If  $J(r) \geq 0$  and  $K(r) < 0$  then BL refuses aid, although she would have implemented policy had she accepted aid. If  $J(r) < 0$  and  $K2(r) \geq 0$  then BL accepts aid but does not implement policy. If  $J(r) < 0$  and  $K2(r) < 0$  then BL refuses aid and would not have implemented the pro-A policy had aid been accepted.

**AL strategy given  $I = H$ .** If AL offers aid  $\rho = r$  such that  $J(r) \geq 0$  and  $K(r) \geq 0$  and AL survives then BL accepts such an offer and implements  $z = 1$ . In contrast, if AL is deposed by AC, then BL implements  $z = 0$ . We can now calculate the best possible offer that challenger AC can make. AC's best possible offer is  $v(R_A - r, W_A) + \frac{\delta}{1-\delta}(\frac{W_A}{S_A}v(m_{Ar*}, W_A) + (1 - \frac{W_A}{S_A})u(m_{Ar*}, W_A) + \sigma_A)$ . The incumbent spends enough to match this optimal offer:  $v(m_{Ar}, W_A) + \sigma_A + \frac{\delta}{1-\delta}v(m_{Ar*}, W_A) + \frac{\delta}{1-\delta}\sigma_A$ . This yields equation 9 which solves for  $m_{Ar}$ . At  $r = r^*$  this equation becomes 2 which solves for  $m_{Ar*}$ . A's payoff from offering  $\rho = r$  is  $\Psi + R_A - r - m_{Ar} + \Sigma_A + \frac{\delta}{1-\delta}(\Psi + R_A - r^* - m_{Ar*} + \Sigma_A)$ .

We next show that under this circumstance AL's payoff is decreasing with respect to  $r$ . If AL offers aid that is expected to result in BL implementing pro-A policy ( $K(r) \geq 0$  and  $J(r) \geq 0$ ), then AL offers the smallest such transfer.  $\frac{d}{dr}(\Psi + R_A - r - m_{Ar} + \Sigma_A + \frac{\delta}{1-\delta}(\Psi + R_A - r^* - m_{Ar*} + \Sigma_A)) = \frac{d}{dr}(-r - m_{Ar}) = -1 - \frac{dm_{Ar}}{dr}$ . Since  $\frac{dm_{Ar}}{dr} = -\frac{v_R(R_A - r, W_A)}{v_R(m_{Ar}, W_A)}$ , the concavity of  $v(m, W)$  ensures that  $0 > \frac{dm_{Ar}}{dr} > -1$ .

In order that AL's strategy is a best response, if AL offers aid that is accepted with pro-A policy implementation, it must be case that either constraint  $J(r) \geq 0$  or constraint  $K(r) \geq 0$  is binding. Let  $r^{**}$  be the smallest aid transfer that satisfies  $J(r^{**}) \geq 0$  and  $K(r^{**}) \geq 0$ . By the stationarity of MPE,  $r^* = r^{**}$ . We now consider

aid offers that deviate from  $\rho = r^{**}$ .

First, suppose AL offers aid  $\rho = r < r^{**}$  which BL rejects; that is, either  $K(r) < 0$  and  $J(r) \geq 0$  or  $K2(r) < 0$  and  $J(r) < 0$ . Such an offer always exists,  $\rho = 0$  for instance. AL's payoff is  $\Psi + R_A - m_{A0} + \frac{\delta}{1-\delta}(\Psi + R_A - r^* - m_{Ar^*} + \Sigma_A)$ , where  $m_{A0}$  solves equation 4. We now compare this payoff to the payoff AL receives if AL offers at least enough aid that BL accepts and implements pro-A policy ( $J(r) \geq 0$  and  $K(r) \geq 0$ ). That is,  $\rho = r \geq r^{**}$ . In this latter case, AL's payoff is  $(\Psi + R_A - r - m_{Ar} + \Sigma_A + \frac{\delta}{1-\delta}(\Psi + R_A - r^* - m_{Ar^*} + \Sigma_A))$ . Comparing these two aid allocations, we see that AL prefers to offer an aid allocation that is accepted and implemented by BL, provided that the following constraint holds:  $L(r) = m_{A0} - r - m_{Ar} + \Sigma_A \geq 0$ . Intuitively, this constraint ensures that AL prefers an aid-for-policy deal in the current period.

Second, suppose AL offers an aid deal  $\rho = r$  which BL will agree to but then fails to implement ( $K2(r) \geq 0$  and  $J(r) < 0$ ). AL's payoff is  $\Psi + R_A - r - m_{ADr} + \frac{\delta}{1-\delta}(\Psi + R_A - m_{AD0})$ , where  $m_{ADr}$  solves 10. This payoff is decreasing in  $r$ , so AL wants to minimize her offer if it will be accepted without pro-A policy implementation:  $\sup_r(-r - m_{ADr}) = -m_{AD0}$ . Note this is an upper bound, not a maximum, since unless  $r > 0$  BL's integrity can not be tarnished. Additionally, we cannot guarantee that BL will accept aid as the amount offered approaches zero. That is,  $K2(r)$  might be negative as  $r \rightarrow +0$ . Therefore, the upper bound on the payoff that AL could receive while offering an aid deal that does not lead to policy implementation is  $\Psi + R_A - m_{AD0} + \frac{\delta}{1-\delta}(\Psi + R_A - m_{AD0})$ . Consequently, leader AL prefers to offer an aid deal that is both accepted and implemented by BL ( $r = r^*$ ) provided that  $O(r) \equiv m_{AD0} - r - m_{Ar} + \Sigma_A \geq 0$ . Informally, this condition states that leader AL prefers an aid transfer in every period rather than never having aid transfers.

We have shown that if either  $(J(r^*) \geq 0, K(r^*) = 0)$  or  $(J(r^*) = 0, K(r^*) \geq 0)$  and  $O(r^*) \geq 0$  and  $L(r^*) \geq 0$ , then the aid equilibrium is a MPE since all players play best responses given the strategies of all other players and the state variable. QED.

The aid equilibrium characterizes the size of aid transfers,  $r^*$ . In particular,  $r^*$  is the minimum aid transfer such that both  $J(r^*) \geq 0$  and  $K(r^*) \geq 0$ . Through the use of comparative statics for this system of equations we now show how institutions affect the amount of aid transfers from A to B.

Proposition 2: If aid-for-policy transfers occur then the size of aid transfers ( $r^*$ ) increases as B's winning coalition ( $W_B$ ) increases ( $\frac{dr^*}{dW_B} > 0$ );  $r^*$  decreases as B's selectorate ( $S_B$ ) increases ( $\frac{dr^*}{dS_B} < 0$ );  $r^*$  increases as the salience of the pro-A policy issue ( $\sigma_B$ ) increases in nation B ( $\frac{dr^*}{d\sigma_B} > 0$ ); and  $r^*$  decreases as players become more patient ( $\frac{dr^*}{d\delta} < 0$ ).

Unfortunately, we have been unable to analytically sign the comparative statics of  $r^*$  with respect to  $R_B$  when  $K$  is the binding constraint. When  $J$  is the binding constraint then  $\frac{dr^*}{dR_B} > 0$ . Simulations suggest this result holds when  $K$  is the binding constraint; we conjecture that  $\frac{dr^*}{dR_B} > 0$ .

Proposition 2 characterizes how the size of aid transfers depend upon institutions and other parameters. However, aid-for-policy deals do not occur unless AL desires them. In particular, aid transfers require that conditions  $O$  and  $L$  are met.

Proposition 3: The probability that an aid-for-policy deal occurs increases as the required amount of aid ( $r^*$ ) decreases ( $\frac{dL}{dr^*} < 0$ ,  $\frac{dO}{dr^*} < 0$ ); the probability of an aid transfer increases as  $W_A$  increases ( $\frac{dL}{dW_A} > 0$ ,  $\frac{dO}{dW_A} > 0$ ); the probability of an aid transfer increases as  $S_A$  decreases ( $\frac{dL}{dS_A} < 0$ ,  $\frac{dO}{dS_A} < 0$ ); the probability of an aid transfer increases as the value in A of the pro-A policy ( $\sigma_A$ ) increases ( $\frac{dL}{d\sigma_A} > 0$ ,  $\frac{dO}{d\sigma_A} > 0$ ); and the probability of an aid transfer increases as players becomes less patient ( $\frac{dL}{d\delta} < 0$ ,  $\frac{dO}{d\delta} < 0$ ).

Unfortunately we have not been able to sign analytically the comparative statics  $\frac{dO}{dR_A}$  and  $\frac{dL}{dR_A}$ . However, given simulation results we conjecture that AL's willingness for an aid-for-policy deal is increasing in A's resources ( $\frac{dO}{dR_A} > 0$ ,  $\frac{dL}{dR_A} > 0$ ).

Now we examine the welfare implications of foreign aid. The key insight from the model is that aid-for-policy deals improve the welfare of the leaders in the donor and recipient state. Improved welfare for leaders, however, does not necessarily imply improved welfare for their citizens. Indeed, in recipient states the average citizen is generally made worse off by aid.

For the leader of a recipient nation to enter into an aid-for-policy deal, the leader's prospects of political survival must be improved. In order that this occurs, the leader must use some of the additional resources gained through aid to compensate her coalition for the imposition of the pro-A policy, a policy that they inherently dislike. Aid, of course, increases the total resource pool and so makes it feasible for challengers to make better offers than was true without aid. Therefore, the incumbent must spend more than was true without aid. This generates a higher level of welfare for her coalition. But, the incumbent need not spend all of the aid on the coalition, so it may also leave extra resources at the discretionary disposal of BL.

Those outside the winning coalition in the recipient country often are made worse off by foreign aid in small coalition systems. These, we have shown, are the polities most likely to receive aid. As we have noted, aid-for-policy brings about some increase in rewards because the leader must spend more on her supporters to fend off challengers. Unfortunately, when  $W$  is small most of this additional compensation comes in the form of private goods that those outside  $W$  do not share in. That is, when  $W$  is small the improvement in government-provided benefits is aimed at the winning coalition and so is unlikely to offset the welfare losses resulting from pro-A policy for those outside the coalition. Additionally, aid fosters the survival of a political leader in a small coalition regime whose incentives make it unlikely that she provides effective public policy. Therefore, not only do those outside the coalition get pro-A policies they dislike, but they also experience the prolongation of a typically oppressive, rent-seeking political order supported by the aid-giver. Therefore,

we should expect that aid donors are unpopular among the general public in many recipient countries. Indeed, this dislike is most intense when a small coalition leader receives a large amount of aid because a large amount of aid is indicative of the implementation of a policy especially distasteful to the citizens in B. Given the lack of systematic data we do not compare attitudes towards donor nations here.

Aid donation generally improves welfare for residents in the donor nation. Obtaining policy concessions enhances leader survival in A. If it did not do so then the leader would not make the aid-for-policy deal. Aid generally improves the welfare of those inside and outside the winning coalition through the benefits derived from "improved" policy in nation B; that is, improved in terms of the interests of citizens in nation A. Indeed, those inside the coalition gain somewhat less from foreign aid transfers than do those outside the winning coalition. The former sacrifice both private and public goods that could have been purchased with the  $r$  resources devoted to aid. In contrast, those outside the coalition only give up some internal public benefits in exchange for new external public benefits (the pro-A policy).

## TESTS

### Data and Method

We test the theoretical predictions using US aid transfers. The U.S. Agency for International Development (USAID) prepared a report on U.S. Overseas Loans and Grants, Obligations and Loan Authorizations July 1, 1945 - September 30, 2001. This publication is popularly known as "The Greenbook." Although USAID differentiates between economic and military aid and between loans and grants, here we restrict our focus to total economic aid. Our dependent variable is the logarithm of aid measured in constant (1996) US dollars.<sup>3</sup>

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<sup>3</sup>US department of commerce's implicit GDP deflator (NIPA tables).

The theory predicts that the institutions in potential donor states shape the probability of aid giving. Our focus on USAID data prevents us from testing these predictions since US institutions remain constant throughout the period for which we have data. One might think that the OECD (2003a, b) aid data are more appropriate. While we also present analyses using OECD data, these data are more problematic than the USAID data. The OECD donor states are, like the United States, predominantly rich democracies. Although Spain, Portugal and Greece are non-democratic for portions of the time period, only Portugal is recorded as giving any aid during these periods and this aid was limited to a small set of recipients, making the sample of donor coalition sizes, like that for the USAID data, essentially without variance. Additionally, OECD data are limited by the fact that they concern only aid transfers “which are: undertaken by the official sector; with promotion of economic development and welfare as the main objective; at concessional financial terms (if a loan, have a grant element of at least 25 per cent)” (OECD 2003a, p. 315). This filter on the types of transfers that the OECD considers as aid is not benign. Indeed the correlation between gross US economic aid transfers reported by the OECD and the USAID gross economic aid transfer is only 0.83, suggesting that the OECD data composition process filters out many transfers. Those that are excluded are precisely the type our theory addresses; that is, aid-for-policy.

Our analyses examine both whether any aid was given to a specific potential recipient and, conditional on aid having been given, how large the transfer was (Cingranelli and Pasquarello 1985). The theory predicts how these two processes are related. We utilize Heckman (1979) regression to simultaneously assess the questions of whether any aid is given, and if so how much? Heckman regression is a two equation model (Greene 2003, 782-787). The first equation is the regression equation  $y_{it} = x_{it}\beta + \varepsilon_{1it}$ , where  $y_{it}$  is the dependent variable, in this case the level of aid,  $x_{it}$  is a vector of independent variables and  $\varepsilon_{1it}$  is a stochastic error assumed to be normally distrib-

uted with mean zero and variance  $\sigma^2$ . This is, of course, the classic regression setup. The second equation is the selection equation which assesses whether the dependent variable is observed. In this context, the selection equation estimates whether any aid is given. The selection equation takes the form of a probit model, where the positive aid transfers are observed if latent variable  $u_{it} = z_{it}\gamma + \varepsilon_{2it}$  is positive. If the latent variable is negative then no aid is observed.  $z_{it}$  represents a vector of independent variables and the stochastic error  $\varepsilon_{2it}$  is assumed normally distributed with a mean of zero and (for identification purposes) a variance of one. Since the theory suggests the regression equation and selection equation are related, the stochastic errors are correlated with a correlation coefficient of  $\rho$ .

Exclusion restrictions in the regression equation ensure the identification of the Heckman model. Our theory suggests that  $W_B, S_B, R_B$  and  $\sigma_B$  determine the amount of aid needed to buy concessions from the recipient. Although the donor's institutions, resources and salience ( $W_A, S_A, R_A$ , and  $\sigma_A$ ) determine whether the donor is willing to pay, these donor features do not shape the size of the aid transfer. Measures of the donor's characteristics should appear only in the selection equation; while the recipients characteristics belong in both equations.

Throughout we use STATA 8's maximum likelihood implementation of the Heckman model. We cluster our observations by region-year fixed effects to obtain robust standard errors. In addition to the Heckman analyses reported, we examine a number of other techniques to check the robustness of our results. We examine the regression equation in isolation from the selection decision using fixed effects panel models; using both recipient country fixed effects and region-year fixed effects. These analyses support the finding presented here. From the mid- 1970's onward, Israel and Egypt account for about 30–40% of the total US aid budget. Exclusion of these two outliers does not substantially alter the reported results.

### **Measurement of key concepts.—**

Our measures of winning coalition and selectorate size in the recipient state come from Bueno de Mesquita et al (2003). Institutional arrangements within the US are constant across the domain of our study. Winning coalition size,  $W$ , is measured as a composite index based on the variables REGTYPE, XRCOMP, XROPEN, and PARCOMP from the Arthur Banks (2002) data. These data are also commonly reported by Polity IV (Marshall, Jaggers and Gurr 2002). When REGTYPE is not missing data and is not equal to codes 2 or 3 so that the regime type was not a military or military/civilian regime,  $W$  receives one point. Military regimes are assumed to have particularly small coalitions and so are not credited with an increment in coalition size through the indicator of  $W$ . When XRCOMP, the competitiveness of executive recruitment, is larger than or equal to code 2 then another point is assigned to  $W$ . An XRCOMP code of 1 means that the chief executive was selected by heredity or in rigged, unopposed elections, suggesting dependence on few people. Code values of 2 and 3 refer to greater degrees of responsiveness to supporters, indicating a larger winning coalition. XROPEN, the openness of executive recruitment, contributes an additional point to  $W$  if the executive is recruited in a more open setting than heredity (that is, if the variable's value is greater than 2). Executives who are recruited in an open political process are more likely to depend on a larger coalition than are those recruited through heredity or through the military. Finally, one more point can be contributed to the index of  $W$  if PARCOMP, competitiveness of participation, is coded as a 5, meaning that "there are relatively stable and enduring political groups which regularly compete for political influence at the national level" (Polity II, p. 18). This variable is used to indicate a larger coalition on the supposition that stable and enduring political groups would not persist unless they believed they had an opportunity to influence incumbent leaders; that is, they have a possibility of being part of a winning coalition. The indicator of  $W$  is then divided by 4 to create a five



point scale for  $W$  taking the possible values 0, .25, .5, .75, and 1. Selectorate size is measured as LEGSELEC, the selection procedure for the legislature. This variable is also normalized as a three point scale between 0 and 1.

We obtain economic and demographic data from the Penn World Tables (Heston, Summers and Aten 2002, PWT hereafter). We also include a variety of control variables. Using Bennett and Stam’s (2000) program EUGENE we include variables for geographic contiguity, distance between states, and Bueno de Mesquita’s (1981) measure of alignment with the US based on security alliance portfolios,  $\tau_B$ . Additionally, we use Gleditsch’s (2002) measure of dyadic trade flows.

Our theory predicts that aid flows depend upon political institutions, resources of each government, and policy salience. To measure the magnitude of aid flows we analyze the logarithm of aid transfers. We use several measures of resources. The first measure of the recipient leader’s resources is the logarithm of nation B’s GDP in the previous year ( $\text{Ln}(\text{GDP}_{t-1})$ ).<sup>4</sup> Obviously, not all the resources in the economy are available to the leader, so to control for this we generate  $\text{Resource}_B$  as the logarithm of GDP times the government’s share of GDP in the previous year.<sup>5</sup> We measure US (donor state) resources with two measures:  $\text{Resource}_A$  (which has analogous construction to  $\text{Resource}_B$  except it is not lagged) and US share of world GDP. Immediately following World War II the US had about half of the world’s economic capacity and so was the only conceivable large scale donor. Although the US economy has grown during the post war period such that US leaders now have access to more resources, the US economy now has a much smaller proportion of world production.

Policy salience affects the likelihood of aid. We approximate salience with nation

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<sup>4</sup>Specifically,  $\ln(\text{population} * \text{rgdpch}_{t-1})$  where  $\text{rgdpch}$  is real per capita GDP, as measured by PWT.

<sup>5</sup>Calculated using the PWT variable  $\text{kg}$ , Government share of RGDPL.

size (measured as the logarithm of population), geographic contiguity (measured as less than 500 miles), geographic distance (measured as the logarithm of distance between capitals), extent of trade relations (measured as the logarithm of bilateral trade in constant 1996 US dollars), alignment with the US (measured as  $\tau_B$ ), and the Cold War (coded as 1 through 1989 and 0 after). We believe the US cares more about the policies of large states that are close by or contiguous rather than small, distant states. High levels of trade or a close alignment might also make a nation's policy salient to the US. However, caution is needed in assessing these last two variables. It is quite possible that closer trade relations or closer alignment are the policy concessions sought by the US. That is, trade flows and alliance commitments might be the policies bought with aid.

The Cold War was epitomized by rivalry between the US and its western allies, on the one hand, and the USSR and its eastern bloc allies on the other. This rivalry often manifested itself as a competition between the two sides to buy influence within the third world, with the particular policies sought often being an anti-communist or a pro-communist stance respectively. Meernik, Krueger and Poe (1998) show a change in the focus of US aid goals following the end of the Cold War. We anticipate this altered the content of aid-for-policy deals and, therefore, the salience of the policies in question. During the Cold War it is likely the US's anti-communist policy demands had high salience for both the US and the potential recipient. According to our model, such high levels of salience require a large aid package if the policy concession is to be obtained. High salience also increases the desirability of attaining the policy concession. We expect higher levels of aid during the Cold War when aid was given. The prediction as to whether the US was more likely to give aid is ambiguous. The relatively higher salience of the issue increased the desirability of obtaining concessions but it also increased the price of buying those concessions. The

rivalry aspect of the Cold War is expected to further deepen these effects.<sup>6</sup>

## RESULTS

Table 1 contains Heckman analyses of economic aid. Model 1 provides a direct representation of the theoretical variables of interest. The theory suggests that the US is most likely to give aid to states with small winning coalitions and large selectorates. The significant negative coefficient on the coalition size variable,  $W$ , and the significant positive coefficient on the selectorate size variable,  $S$ , in the selection equation strongly supports this conclusion.

For instance, if a large coalition nation ( $W = 1$ ) has a 50% chance of receiving aid, then a corresponding small coalition system ( $W = 0$ ) has a 91% of receiving aid. The US is most likely to give aid to small coalition, large selectorate systems, such as rigged electoral autocracies. However, as can be seen from the positive coefficient of the  $W$  variable in the regression equation, conditional upon receiving aid, a large coalition system ( $W=1$ ) will receive approximately 39% more aid than the corresponding small coalition system ( $W=0$ ). Since democracy is correlated with  $W$ , these results are consistent with Alesina and Dollar's (2000) finding that democratization increases the amount of aid a nation receives.

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<sup>6</sup>In our formal model the donor state pays the recipient just sufficient aid to make the leader in the potential recipient state just willing to accept the aid-for-policy deal. Although not formally modeled, the presence of rival donors who are bidding for mutually exclusive policy concessions increases the bargaining leverage of the recipient state's leader. The recipient leader can increase her demands for aid until one of the rivals is no longer willing to pay more. At this point the other bidder gains its desired policy, but at a cost that exhausts its rival's willingness to pay. This extension to the model suggests that the US was less likely to give aid to any given state during the cold war, since it might have been the loser in the bidding war. However, if it won the bidding war and gave aid then it probably had to give a higher level of aid to more than match the Soviet's highest bid.

The theory predicts that as the resources available to the leader in the recipient state increase then aid becomes less likely, but should aid occur then the size of the aid increases. We proxy for the resources available to the leader with two measures,  $\text{Resource}_B$  (the scale of government revenues) and  $\text{Ln}(\text{GDP}_{t-1})$  (the scale of the economy). The significant negative coefficient for  $\text{Resource}_B$  in the selection equation suggests that, consistent with the theory, the US is less likely to give aid to leaders with abundant resources. In the regression equation, the positive and significant coefficient on  $\text{Resource}_B$  indicates that a doubling of recipient government resources increases the amount of aid given by about 40%. Model 2 substitutes  $\text{Ln}(\text{GDP}_{t-1})$  as the measure of the recipient leader's resources. Again the pattern is similar. High levels of resources reduce the probability that a state will receive aid, and, conditional on getting aid, significantly increase the amount received.

We use  $\text{Ln}(\text{Population})$  of the prospective recipient country as a measure of its policy salience to the US. As the significant positive coefficient on the  $\text{Ln}(\text{Population})$  variable indicates, the US is more likely to give aid to large nations rather than small nations. The US is more likely to care about policy concessions, for instance, from China than from Nepal. We do not include population size in the regression equation since the theory predicts that while  $\sigma_A$  influences the decision to give aid, it does not determine the amount of aid required to buy policy, which is a function of  $W_B$ ,  $S_B$ ,  $R_B$  and  $\sigma_B$ .

The resources and political institutions of the recipient state shape the amount of aid required to buy policy concessions. Whether the donor is willing to pay this price depends upon its resources and political institutions. Since the US's institutions remain constant over the domain of the data we can not test the impact of donor institutions. However, we use two variables,  $\text{Resource}_A$  and US share of world GDP to examine the impact of resources. As discussed earlier, the first variable captures the US's absolute quantity of resources, while the second captures the declining hegemony

of the US. The coefficients for these variables are positive, indicating that the greater the US's resources, in either absolute or relative terms, the more likely the US is to give aid. Although  $\text{Resource}_A$  is not statistically significant, the joint hypothesis tests that the coefficients on both these variable are simultaneously zero indicates that in combination these two variables are significant. As the theory suggests, the greater the US's resources the more likely it is to be willing to pay the price, in terms of aid, to gain policy concessions.

Models 1 and 2 include a dummy variable for the Cold War. We speculate that anti-communist policy concessions sought by the US during the Cold War had high salience both for the prospective recipient and the US. As such, any aid transfers made during the Cold War where likely to be large in magnitude. This prediction is borne out by the positive coefficient in the regression equation. During the Cold War aid transfers were about twice the size of aid transfers in the post-Cold War era. Although the formal model suggests an ambiguous effect for the Cold War variable in the selection equation, informal arguments about the rival nature of the Cold War suggest the US would be less likely to give aid to any given state during that period since the USSR might outbid the US. This appears to be the case with a significant negative coefficient on the Cold War variable in the selection equation.

Model 3 investigates further the role of the Cold War in determining aid flows by interacting the Cold War variable with the  $\tau_B$  measure of alliance portfolio alignment with the US. Previous scholars have looked at alignment with the US though UN voting (Kegley and Hook 1991; Poe 1991; and Wittkopf 1973). The positive coefficient on  $\tau_B$  in the selection equation suggests the US is more likely to give aid to states aligned with it, although the coefficient is statistically insignificant. Although the negative Cold War coefficient suggests the US is less likely to give aid to any state during the Cold War, the US is highly likely to give to states that are aligned with it. A joint hypothesis test that the sum of the coefficients for  $\tau_B$ , Cold War and

$\tau_B$ \*Cold War is greater than zero is statistically significant in the selection equation. One interpretation is that the US was most likely to give aid to its friends during the Cold War. Alternatively, as our theory suggests, the US buys alignment through aid. Rai (1980) finds similar results with respect to UN voting. The regression equation also shows that the US gives less aid to states that are strongly aligned with it. However, during the Cold War this relationship is diminished. As was found in models 1 and 2, during the Cold War the US gave out substantially higher overall levels of aid.

Model 3 also contains variable that measure distance between states, contiguity with the US and trade with the US. Although contiguous states received more aid than non-contiguous ones, distance does not appear to significantly affect the quantity of aid or the probability of receiving it. Other studies demonstrated the link between aid and trade (Dudley and Montmarquette 1976; Hook and Zhang 1998; Poe 1991; Schrader Hook and Taylor 1998 and Wittkopf 1972). Trade with the US significantly increases both the probability of receiving aid and the size of aid transfers. As with the discussion of alignment above, care must be taken with this result because we can not tell whether the US gives more aid to its trading partners or the US uses aid to buy trade access.

The USAID data does not allow us to test how donor characteristics influence aid. Table 2 replicates the analyses using OECD data for 22 donors. In addition to being able to examine the effects of differences in donor resources, these data allow us to assess the impact of donor institutions on the propensity to give aid. Although the variance on donor institutions is quite limited for the OECD data, at least there is some. This benefit comes, however, at a cost in that, as noted earlier, the OECD's definition of aid is specifically designed to overlook explicit attempts to make aid-for-policy deals.

Models 4 is a Heckman analysis. Since we are now looking at donors that range

between Luxembourg and the US we include controls for donor resources in the regression equation. We also add a variable for the amount of aid given by other states. The results largely parallel those found for the United States. A central purpose behind this analysis is to examine the effects of donor institutions on aid giving. We find that the few small coalition members included in the OECD data are significantly less likely to give aid than are the large coalition democracies. We also see that resource-rich donor states are more likely to give aid (as predicted) and give more aid than those with fewer resources. This result holds whether we include or exclude the United States from the analysis.

Contrary to our expectations (but remember the biases in the OECD data against aid-for-policy deals), recipient institutions do not significantly affect the chance of receiving aid. However, consistent with the prediction, the size of the recipient's coalition strongly influences how much aid is received, with large coalition systems ( $W=1$ ) receiving about fifty percent more than small coalition systems ( $W=0$ ). The salience indicators (colony and  $\text{Ln}(\text{PopulationB})$ ) are consistent with expectations regarding both selection and amount of aid. The recipient's resources have an indeterminate effect depending on which of the two indicators is considered.

## CONCLUSIONS

We propose a theory of aid-for-policy deals. While we believe this is a major determinant of aid giving, we do not deny that aid might be given for other purposes. Aid is just one weapon in the foreign policy arsenal of leaders (Baldwin 1985). In this paper our approach has been to embed our explanation of aid giving within the context of the selectorate theory of political survival. As Bueno de Mesquita et al (2003) show, the selectorate model explains many other features of domestic and international politics. On the international side, for instance, it explains immigration and emigration, the democratic peace, and patterns in nation building. That a single

theoretical framework can explain results in many disparate political arenas provides reassurance relative to a tailor-made application to account for one aspect of the larger political puzzle.

Our model offers important policy advice for those who wish to help the needy around the world. Receiving aid is most likely to improve the welfare of citizens in large coalition systems. In such systems the majority of the additional resources are allocated to public goods and the leader can retain only limited resources for her own discretionary projects. Aid given to such systems is likely to promote economic growth and enhance social welfare. US reconstruction aid to Western Europe under the Marshall plan is an example of such a success story. In small coalition systems aid resources disproportionately end up in the hands of the leader and her cronies in the form of private goods. Aid does little to promote growth and development (Burnside and Dollar 2000).

In terms of promoting development the theory's implications are clear: political reform needs to precede economic development. The democratic institutions of Western Europe ensured that US Marshall plans dollars promoted vigorous growth and produced a counterbalance to Soviet incursions into Europe. Aid to poor democracies around the world would likewise generate effective development. An emphasis on enlarging winning coalition size around the world is the most effective way to alleviate poverty.

Unfortunately, such goals are generally inconsistent with the survival incentives of leaders in large coalition donor countries. The survival of leaders in large W systems depend upon providing for the welfare of their supporters and not upon the welfare of peoples abroad. It is far easier for leaders to 'buy' the public goods their citizens value from a small coalition state than from a large coalition democratic system. Unless it is the case that the policy goals in the donor state are furthered by enhancing growth in the recipient states (as we might argue was the case under the Marshall plan) or



the citizens in the donor state really care about promoting growth abroad (as for example Lumsdaine (1993) and Noel and Therien (1995) have argued is the case for Scandinavian nations), then leaders in donor states promote their political survival better by buying policy from autocrats than they do by pushing for the institutional reforms necessary for effective development. As van de Walle (2001) observes, aid often undermines the attempts at democratic reforms. The selectorate theory paints a depressing picture about the likely effectiveness of foreign aid for alleviating poverty around the world.

## REFERENCES

Alesina, Alberto and David Dollar. 2000 "Who Gives Foreign Aid to Whom and Why?" *Journal of Economic Growth*, March 2000, 5(1), pp. 33–63.

Baldwin, David A. 1985. *Economic Statecraft*. Princeton: Princeton University Press.

Banks, Arthur 2002. *Cross-National Time Series Data Archive*.

Bennett, D. Scott., and Allan C. Stam, III. 2003. *EUGene: Expected Utility Generation and Data Management Program*. <http://eugensoftware.org/>.

Boone, Peter. 1996. "Politics and the Effectiveness of Foreign Aid." *European Economic Review*, February 1996. 40(2): 289-329.

Bueno de Mesquita, Bruce. 1981. *The War Trap*. New Haven and London: Yale University Press.

Bueno de Mesquita, Bruce, James D. Morrow, Randolph Siverson and Alastair Smith. 2002. "Political Institutions, Policy Choice and the Survival of Leaders" *British Journal of Political Science*, 32(4): 559-590.

Bueno de Mesquita, Bruce., Alastair Smith., Randolph. M. Siverson and James. D. Morrow. 2003. "The Logic of Political Survival." Cambridge MA: The MIT Press.

Burnside, Craig and Dollar, David. "Aid, Policies, and Growth." *American Eco-*

nomic Review, September 2000, 90(4), pp. 847–68.

Chiang, Alpha C. 2000. *Elements of Dynamic Optimization*. Prospect Heights IL: Waveland Press.

Cingranelli, David L., and Thomas E. Pasquarello. 1985. "Human Rights Practices and the Distribution of U.S. Foreign Aid to Latin American Countries." *American Journal of Political Science* 29 (3): 539-63.

Dudley, Leonard and Claude Montmarquette. 1976. A Model of the Supply of Bilateral Foreign Aid. *American Economic Review* 64 (1):132-42.

Easterly, William. 2002. *The Elusive Quest for Growth: Economists' Adventures and Misadventures in the Tropics*. Cambridge MA: The MIT Press.

Feyzioglu, Tarhan, Vinaya Swaroop, and Min Zhu. 1998. "A Panel Data Analysis of the Fungibility of Foreign Aid." *World Bank Economic Review* 12 (January): 29-58.

Gleditsch, Kristian Skrede. 2002. "Expanded Trade and GDP Data." *Journal of Conflict Resolution* 46 (5): 712-724.

Greene, William H. 2003. *Economic Analysis*. 5th ed. Upper Saddle River, NJ: Prentice-Hall.

Heckman, J. 1979. "Sample selection bias as a specification error." *Econometrica*. 47: 153-161.

Heston, Alan., Robert Summers and Bettina Aten, Penn World Table Version 6.1, Center for International Comparisons at the University of Pennsylvania (CICUP), October 2002.

Hook, Steven W., and Guang Zhang. 1998. "Japan's Aid Policy since the Cold War: Rhetoric and Reality." *Asian Survey* 38 (11): 1051-66.

Kegley, Charles W., Jr., and Steven W. Hook. 1991. "U.S. Foreign Aid and U.N. Voting: Did Reagan's Linkage Strategy Buy Deference or Defiance?" *International Studies Quarterly* 35 (3): 295-312.

Lumsdaine, David H. 1993. *Moral Vision in International Politics: The Foreign*

Aid Regime, 1949-1989. Princeton, NJ: Princeton University Press.

Maizels, Alfred and Machicko K. Nissanke. 1984. "Motivations for Aid to Developing Countries." *World Development* 12(9):879-900.

Marshall, Monty G., Keith Jagers and Ted Robert Gurr. 2002. *Polity IV Project: Political Regime Characteristics and Transitions, 1800-2002*.

<http://www.cidcm.umd.edu/inscr/polity/>

McCormick, James M., and Neil Mitchell. 1988. "Is U.S. Aid Really Linked to Human Rights in Latin America?" *American Journal of Political Science* 32 (1): 231-9.

McGillivray, Fiona. and Alastair. Smith. 2000. "Trust and Cooperation Through Agent-Specific Punishments" *International Organization*. 54,4 Autumn 2000, p. 809-824.

McGillivray, Fiona and Alastair Smith. 2004. "The Impact of Leadership Turnover on Trading Relations Between States." *International Organization*. 58 Summer: 567-600.

McKinlay, Robert and Richard Little. 1977. A Foreign Policy Model of US Bilateral Aid Allocations. *World Politics* XXX (1):58-86.

McKinlay, Robert and Richard Little. 1978. A Foreign Policy Model of the Distribution of British Bilateral Aid, 1960-70. *British Journal of Political Science* 8 (3):313-331.

Meernik, James, Eric L. Krueger, and Steven C. Poe. 1998. "Testing Models of U.S. Foreign Policy during and after the Cold War." *The Journal of Politics* 60 (1): 63-85.

Morgenthau, Hans. 1962. "A Political Theory of Foreign Aid." *American Political Science Review* 56(2):301-9.

Noel, Alain, and Jean-Philippe Therien. 1995. "From Domestic to International Justice: The Welfare State and Foreign Aid." *International Organization* 49 (3): 523-

553.

Organization for Economic Co-operation and Development (OECD). 2003a. Geographical Distribution of Financial Flows - Part I (Developing Countries) Vol. 2003 release 01. Source OECD: International Development Statistics.

Organization for Economic Co-operation and Development (OECD). 2003b. Geographical Distribution of Financial Flows - Part II (Countries in Transition) Vol. 2003 release 01. Source OECD: International Development Statistics.

Poe, Steven C. 1991. "Human Rights and the Allocation of U.S. Military Assistance." *Journal of Peace Research* 28 (2): 205-16.

Rai, Kul B. 1980. "Foreign Aid and Voting in the UN General Assembly: 1967-1976." *Journal of Peace Research* 17 (3): 269-77.

Schraeder, Peter J., Steven W. Hook, and Bruce Taylor. 1998. "Clarifying the Foreign Aid Puzzle: A Comparison of American, Japanese, French, and Swedish Aid Flows." *World Politics* 50 (2): 294-323.

U.S. Agency for International Development (USAID) U.S. Overseas Loans and Grants, Obligations and Loan Authorizations July 1, 1945 - September 30, 2001. (<http://quesdb.cdie.org/gbk/index.html>)

US Department of Commerce. 2003. NIPA tables. Bureau of Economic Analysis. (<http://www.bea.gov/beatn/nipaweb/index.asp>).

Van de Walle, Nicolas. 2001. *African Economies and the Politics of Permanent Crisis, 1979-1999*. Cambridge: Cambridge University Press.

Wittkopf, Eugene R. 1972. *Western Bilateral Aid Allocations: A Comparative Study of Recipient State Attributes and Aid Received*. Beverly Hills, CA: Sage Publications.

Wittkopf, Eugene R. 1973. "Foreign Aid and United Nations Votes: A Comparative Study." *American Political Science Review* 67 (3): 868-88.

Table 1: The Determinants of Economic Aid.

Heckman Analysis of whether aid is given, and if so how much.	Model 1		Model 2		Model 3	
	Regression Equation: $\ln(\text{Economic Aid})$	Selection Equation: Is Any Aid Given?	Regression Equation: $\ln(\text{Economic Aid})$	Selection Equation: Is Any Aid Given?	Regression Equation: $\ln(\text{Economic Aid})$	Selection Equation: Is Any Aid Given?
Winning Coalition, W	0.331 (0.177)*	-1.318 (0.119)**	0.218 -0.16	-0.546 (0.115)**	0.233 (.176)	-1.554 (0.123)**
Selectorate, S	0.079 (0.094)	0.384 (0.095)**	0.101 -0.091	0.21 (0.100)*	0.111 (0.097)	0.361 (0.093)**
Resource <sub>B</sub>	0.484 (0.032)**	-0.665 (0.036)**			0.420 (0.052)**	-0.898 (0.045)**
$\ln(\text{GDP}_{t-1})$			0.468 (0.029)**	-0.859 (0.042)**		
Cold War	0.711 (0.103)**	-0.348 (0.103)**	0.678 (0.105)**	-0.372 (0.095)**	.253 (0.120)*	-0.300 (0.130)*
$\ln(\text{Population})$		0.574 (0.034)**		0.805 (0.044)**		0.678 (0.043)**
Resource <sub>A</sub>		0.35 (0.373)		0.253 -0.35		0.530 (0.370)
US share of World GDP		2.633 (1.158)*		2.373 (1.155)*		2.438 (1.170)*
Alignment with US, $\tau_B$					-0.580 (0.274)*	0.576 (0.423)
Cold War Alignment with US: Cold War * $\tau_B$					0.360 (0.276)	0.226 (0.429)
Contiguous					0.369 (0.133)**	-0.031 (0.091)
$\ln(\text{Distance})$					0.102 (0.099)	-0.003 (0.060)
$\ln(\text{Trade}_{t-1})$					0.089 (0.030)**	0.062 (0.021)**
Constant	-1.146 (0.408)**	1.727 (7.047)	0.514 -0.293	2.858 -6.676	-0.921 (.886)	1.383 (7.126)
Rho		-0.557 (.060)**		-0.631 (0.050)**		-0.438 (0.064)**
Observations		4885		4885		3843

Robust standard errors in parentheses

\* significant at 5%; \*\* significant at 1% (one tailed tests)

Table 2: Determinants of Economic Aid for OECD donors.

	Model 4	
	Regression Equation: ln(Economic Aid)	Selection Equation: Is Any Aid Given?
Winning Coalition, W	0.427 (0.156)**	0.038 (0.097)
Donor Winning Coalition, W <sub>A</sub>		4.793 (1.718)**
ResourceA	0.836 (0.122)**	0.371 (0.052)**
ResourceB	0.169 (0.062)**	0.075 (0.045)*
Ln(GDP <sub>t-1</sub> )	-0.572 (0.122)**	-0.193 (0.044)**
Former Colony	3.03 (0.422)**	0.812 (0.174)**
Cold War	-0.492 (0.213)*	-0.678 (0.129)**
US * Cold War	1.278 (0.354)**	-0.375 (0.200)*
Ln(PopulationB)	0.749 (0.092)**	0.304 (0.042)**
Ln(Aid from other states)	0.307 (0.073)**	
Constant	-7.698 (1.639)**	-7.263 (1.751)**
Observations	81256	

Robust standard errors in parentheses

\* significant at 5%; \*\* significant at 1% (one tailed tests)