A Theory of Aid Targeting and Capture

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Abstract

Given incentives to have as much budgetary freedom as possible, governments may be interested in capturing multilateral aid donations for their preferred uses. And while multilateral donors may withdraw funds from a country, they have a disincentive to do so because they want those funds to reach impoverished populations in need of assistance. Under certain conditions where these targeted populations are willing to and have the capacity to protest against being short-changed by their own government, however, domestic interest groups may constrain the government’s ability to capture donor funds. Using a formal model, this paper demonstrates that such constraints theoretically can check the government’s desire to capture international aid for itself. The model also reveals unexpected consequences for increasing protest costs and a credible commitment problem possibly faced by social groups at which donors target aid. An extension examines the behavior of a strategic donor. I conclude the paper with a list of empirical implications.

Note: This paper was the first chapter of my 2009 Columbia University dissertation entitled The Impact of Domestic Political Constraints on World Bank Project Lending. I currently am an assistant professor in the Department of Political Science at the University of Illinois at Urbana-Champaign. You can contact me at mwinters@illinois.edu.
The West spent $2.3 trillion on foreign aid over the last five decades and still had not managed to get twelve-cent medicines to children to prevent half of all malaria deaths. The West spent $2.3 trillion and still had not managed to get four-dollar bed nets to poor families. The West spent $2.3 trillion and still had not managed to get three dollars to each new mother to prevent five million child deaths (Easterly, 2006, 4).

Despite a 60-year history of multilateral aid provision to developing countries, there only has been limited success in achieving pro-poor outcomes. In most regions of the world, the number of people living in poverty has been either stagnant or increasing since 1980 (Chen and Ravallion, 2001, 2004, 2007). As the quotation above suggests, not only have impoverished people not seen their incomes increase, but they also have not obtained access to the goods and services that might improve the quality of their everyday life.

From a development perspective—as opposed to a geopolitical interests perspective—foreign aid can have two objectives. First, it is meant to catalyze economic growth and thereby help a country to develop, which in turn lifts people out of poverty. Second, aid can deliver goods and services directly to impoverished populations, improving their immediate quality of life and perhaps contributing to local economic growth.

While aid can provide goods and services, insofar as it usually must pass through several layers of government before it reaches its intended destination, it also can be susceptible to diversion. The purpose of this paper is to look specifically at aid that is supposed to reach some particular end-user—as opposed to aid that generally is supposed to fill savings or foreign exchange gaps (Domar, 1957; Chenery and Strout, 1966) or otherwise provide budgetary support—and to understand the factors that influence whether or not the aid actually does reach its intended destination. In the theory that follows, I propose that aid will reach the correct beneficiaries and be free from problems of corruption only if the targeted

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1 East Asia is the exception, where Chinese economic growth has lifted over 400 million people out of poverty (Chen and Ravallion, 2004).

2 As Dollar and Kraay (2002) demonstrate in cross-country data, the average income of the poorest quintile rises proportionately with the overall average income, confirming that growth is indeed good for the poor. As for the question of whether or not aid stimulates growth, this is heavily debated in the literature. For prominent entries, see Boone (1996); Burnside and Dollar (2000); Hansen and Tarp (2000); Collier and Dollar (2002); Easterly (2003); Clemens, Radelet and Bhavnani (2004); Roodman (2004); Rajan and Subramanian (2005); Roodman (2008); see also Easterly (2001, 2006).
population has a sufficient capacity to organize politically and to act to ensure delivery of the intended goods and services. To make my logic explicit, I will employ a formal model to explore the conditions under which a government will implement an aid program more or less faithfully according to the donor’s desires.

The formal results that I derive have several important implications. First, they suggest that domestic political actors can constrain the ways in which a national government makes use of aid funds, contingent on some minimum level of aid being targeted at a given group. Second, contestation or protest is a real possibility in a number of situations but only in countries where the probability of successful contestation is moderate and where the government prefers to gamble on allowing open contestation by the targeted interest group. But even when the costs of contestation are larger and actual protest does not occur, the threat of political contestation still can constrain the government. In addition, an extension to the basic model suggests that, if the donor acts strategically, then we will not see groups needing to resort to contestation at all, although this possibly involves the donor accepting a large amount of aid fungibility. Finally, the results suggest that interest groups face a credible commitment problem in some circumstances where they cannot commit to not contesting and therefore have a lower expected payoff than they might otherwise.

In the next section, I review some extant literature on aid provision and briefly compare it to the literature on domestic redistribution. Then, I establish the basic set-up of a game played by an international donor, a national government and a national interest group and offer several equilibrium solutions with unique characteristics. I describe these equilibrium solutions in terms of whether or not contestation occurs, how much aid money the government keeps for itself and how much money is disbursed to the interest group. I then present a second version of the game in which the donor plays strategically. I conclude the paper with a discussion of the empirical implications of the model.
1 Theories of Multilateral Aid Provision

Both bilateral and multilateral donors attach conditions to much of their aid. Because donors cannot in most cases directly disburse funds within a country but rather must enter into a legal agreement with the national government regarding the use of aid, there exists a principal-agent problem of delegation where donors supply both funds and conditions for the use of those funds to aid-receiving countries and then attempt to monitor the country’s adherence to the agreement. These conditions range from the requirements for policy reform that are tied to structural adjustment and budgetary support lending to the targeting criteria attached to nationwide projects to the expectation that aid intended for some specific project actually will be spent on that project.

There has been great variation in the extent to which national governments have implemented aid packages as stipulated. Quite often, it seems that governments have diverted aid funds to areas of the budget outside of the purview of the donor’s specifications or, more alarmingly, directly into private pockets. Perhaps most famously, Zaire’s Mobutu Sese Seko is rumored to have put millions of dollars in foreign aid directly into his own bank account while amassing a personal fortune that peaked at $4 billion (Collins, 1997, 1). Cross-country empirical research has demonstrated that governments spend aid on consumption goods rather than using it for productive investment purposes (Boone, 1996) and that countries in structural adjustment programs are unlikely to actually undertake extreme policy changes (World Bank, 1998; Easterly, 2005; Loud and Nielson, 2007). Within-country and cross-country studies also have identified a high degree of aid fungibility, indicating that governments shift aid to alternative purposes from those for which it was intended (or will shift their own revenues away from developmental ends in the context of foreign aid) (Pack and Pack, 1993; Feyzioglu, Swaroop and Zhu, 1998; Van de Walle and Cratty, 2005; Van de Walle and Mu, 2007).

Theoretical literature has provided explanations for why we would expect governments

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3See also Easterly (2006, 149-50).
to redistribute aid to a small political elite rather than to a broad segment of society (Boone, 1996; Adam and O’Connell, 1999; Bueno de Mesquita and Smith, 2007) and for why aid-receiving countries might have a perverse incentive to perpetuate poverty in order to prolong aid inflows (a moral hazard problem described by Svensson (2000b) and Azam and Laffont (2003)).

This theoretical literature has focused on the principal-agent relationship between altruistic international donors that want certain conditions met and national governments that want to avoid the strictures of these conditions in order to use the international resources for their own purposes. One strand of the literature thinks in terms of contracts, asking how the donor can design aid programs to meet governments’ incentive compatibility constraints in such a way that both parties get some of what they want (Azam and Laffont, 2003; Cordella and Dell’Ariccia, 2003; Hefeker, 2006). In these models, the donor has no second move—there is no opportunity for the donor to punish a misbehaving government. Other models look at the ability of the donor to withhold aid in the event of poor implementation patterns by the government, either in the present period or in some future period (Svensson, 2000b; Lahiri and Raimondos-Møller, 2004; Sharma, 2007). Both sets of models find that donors are rarely able to see their visions fully implemented by national governments.

Yet donors continue to lend under these circumstances because of their aversion to poverty and the continued suffering of impoverished populations. (And possibly because the professional incentive structures inside of donor organizations reward moving money out the door through project creation rather than the implementation of successful projects that have long-term developmental impacts (Easterly, 2002; Wane, 2004).) Ultimately, it has proven difficult for donors to commit to withholding funds in future periods for poor performance in the present. Aid, therefore, is alleged to make no difference—and possibly even

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4 For a general review of theoretical literature on foreign aid program implementation, see Paul (2006). Also see Drazen (2000, 601-12).
5 For a theory in which governments enter into aid programs—specifically IMF programs—because reformist elements in the government want to tie the government’s hands and commit to changing government policies, see Vreeland (2003).
to encourage—poor government performance (Knack, 2004; Djankov, Montalvo and Reynal-Querol, 2006).\textsuperscript{6} Since a government can expect aid in the future, it is not particularly careful in using it in the present. This picture is a bleak one: money from the developed world is wasted every year without having a positive impact on either the people that it is intended to help—that is, the poor—or on the governing structures of the developing world.

Mechanisms that scholars have suggested as possible solutions to the problem of aid credibility have tended to be international solutions. For instance, in the absence of better commitment technologies, superior outcomes for impoverished populations might be achieved either by using tied aid—aid that is required to be contracted out to firms in a donor country—or by creating an international donor with less aversion to poverty (Svensson, 2000b). In the first case, profit-maximizing firms in developed countries presumably will be willing to use legal means—and possibly extra-legal means, one might hasten to add—to insure that the contracts into which they have entered in recipient countries are fulfilled, while in the second case, the international agency will be more willing to punish a country for improper implementation, even if that implies a short-term sub-optimal outcome for the poor in that country.

The notion that incorporating a third party (i.e. firms from the developed world) into aid agreements will yield more successful implementation of aid programs and better outcomes from aid is similar to the idea that I present below, except that, in my theory, donors create credible constraints by engaging segments of the domestic population in the pursuit of their own entitlements, rather than by engaging foreign corporate actors. That is, my research locates a domestic credibility mechanism to ensure the proper use of foreign aid.

\textsuperscript{6}The findings in this literature match those from the “resource curse” literature (e.g. Sachs and Warner, 1995; Ross, 1999; Jensen and Wantchekon, 2004). Djankov, Montalvo and Reynal-Querol (2006), in fact, find that aid is \textit{worse} than oil in terms of its negative impact on the democratic performance of governments.
2 Domestic Constraints as an Alternative?

Looking only at the relationship between an international donor and a domestic government risks an incomplete assessment of the possibilities of successful provision of development aid. The threat to withhold future aid is not the only mechanism that might ensure government follow-through on aid agreements; activism on the part of political groups inside an aid-receiving country also can constrain the government’s ability to redirect or steal foreign funds or let them fall subject to corrupt practices. By recognizing how domestic factors lead to the realization of certain domestic distributions of aid funds given the expressed intentions of an international agency, we can gain an increased understanding of the circumstances under which aid will and will not reach its intended targets.

The key argument is that domestic interest groups who know that they are entitled to some amount of international aid will actively dispute government decisions about disbursements—conditional on the costliness of contestation and the returns to such contestation—if they do not receive some minimum level of resources. The implication is that multilateral aid is more likely to reach its targets if the targeted populations are capable of political action. Or, describing this theory more prescriptively, even when a multilateral donor lacks a credible enforcement threat at the international level to ensure aid delivery, perhaps aid can be targeted in such a way as to create a credible enforcement mechanism at the domestic level.

The domestic politics of aid receiving countries have been modeled in different ways. Boone (1996) and then Adam and O’Connell (1999) both propose that the government represents only some proportion of the citizenry—the government may be more or less elitist depending on the size of this proportion—and attempts to maximize utility for that segment of the population alone. A number of models assume that there is a rich group and a poor group in the country and that the government tries to maximize a weighted sum of their utilities (Svensson, 2000b; Azam and Laffont, 2003; Cordella and Dell’Ariccia, 2003; Lahiri and Raimondos-Moller, 2004; Hefeker, 2006). Lahiri and Raimondos-Moller (2004) offer a political contributions model in the style of Dixit, Grossman and Helpman (1997)
in which the rich in the aid-receiving country establish a contributions schedule according to which their political contributions to the government are dependent on their receiving a certain amount of the aid transfers that a donor makes; the poor are not given the option to make similar lobbying contributions.\textsuperscript{7} In these models, the poor—the ultimate population of concern in looking at aid disbursement—are provided neither with voice nor recourse: they merely take what the government gives them based on the government’s preference for giving to the poor, its reaction to the political capacities of the wealthy and its reaction to whatever enforcement powers a multilateral donor might have.

The political-economy literature on domestic redistribution gives us reason to believe that organized groups, depending on their relative size, strength and political position, can play a constraining role on governments (e.g. Weingast, Shepsle and Johnsen, 1981; Becker, 1983; Plotnick, 1986; Dixit and Londregan, 1995, 1996, 1998; Grossman and Helpman, 2001). These models suggest the possibility of endogenizing a domestic constraint placed by the poor on the developing country government when examining the interaction between the government and an international donor. My model below suggests that the strength of this constraint varies with both the actions taken at the international level \textit{and} the circumstances prevailing at the domestic level. Previous models posit that the government will or will not give money to the poor based on the size or political contributions of the favored group inside of the country. My model reveals that the government will or will not give some level of targeted funding to an impoverished group contingent on the capacity of that group to contest the government’s decision. The model describes distributional decisions made by the government and political and contestational decisions made by the poor. Where previous formal models of multilateral aid have minimized the role played by local aid recipients, my model centralizes this role.

I demonstrate that well-organized groups at which a multilateral donor targets aid are likely to receive a large proportion of the money to which they are entitled, while poorly orga-

\textsuperscript{7}Svensson (2000a) creates a related model in which a set of social groups compete for foreign aid rents by spending money in pursuit of the rents.
nized groups at which a donor targets aid are likely to receive less of the money intended for them. Groups at which donors target little money and that are not liked by the government are likely to receive almost none of the country’s aid money. I also show in the model that active contestation is not necessary for groups to constrain the government and achieve an accommodative outcome. Interestingly, when a group resorts to active contestation, it does so only because it cannot credibly commit to do otherwise. These results all have important implications for the conduct of multilateral aid provision.

3 The Basic Elements of an Aid Targeting Game

In this section, I establish the outline of an aid targeting game involving a multilateral donor, the national government of an aid-receiving country and an impoverished group within the same country. This ostensibly aid-receiving group has some capacity to protest against the government if it does not receive funding to which it is entitled under the terms of the donor’s program. Depending on the characteristics of the country, there is some probability that a protest will be successful. If the group chooses to contest the government’s decision, the government suffers some amount of harm. This harm is intended to be conceptualized broadly: in some cases, it might be an electoral or legislative cost imposed on the government, while in others, it might be costs related to civil unrest such as street protests, roadblocks or non-cooperation with government authorities.\(^8\)

3.1 Actors

The actors in the game are the multilateral donor, \(D\), a unified national government in an aid-receiving country, \(G\), and an impoverished group \(P\) in that same country. The model was created with the World Bank in mind but is presumed to be applicable to a range of

\(^8\)For a similar model that was created to illustrate why wealthy communities in Uganda received a larger percentage of school funds to which they were entitled than did poorer communities, see Reinikka and Svensson (2004).
multilateral—and perhaps even some bilateral—donors. The government is permitted to be of any regime type with the proviso that certain parameters in the model will be more likely to take on particular values depending on the regime type (e.g. the probability of successful contestation might be much higher in a democracy than in an autocracy); that is, I expect the mechanism in the model to apply across regime types, although the conditions that favor one equilibrium over another may vary with regime type. The impoverished group might be any one from a wide range of more or less organized social groups. For instance, the poor—broadly conceived—might be considered the only relevant group in the country. Or perhaps the relevant groups are urban slum-dwellers, sharecropping farmers and nomadic traders. Or groups might be coterminous with ethnic groups or regional groups. The extent to which a group thinks of itself as a group per se can be captured in the parameters of the model.

3.2 Order of Play

In the first stage, the donor provides the government with a total of 1 unit of aid, and announces the proportion of that aid, \( \hat{x} \in [0,1] \), that is targeted at the domestic interest group, \( P \). If we assume that there is only one relevant group in the country, then the rest of the aid can be treated as budgetary support. The government, in the second round, disburses part of the total aid to the group in the amount \( x \), keeping \( 1-x \) for itself. The

\[\text{9The main difference being that multilateral donors are assumed to give aid because of their interest in alleviating poverty, whereas bilateral donors often have specific foreign policy goals in mind (as in Bueno de Mesquita and Smith (2007)). There are arguments, however, that multilateral donors act in the geopolitical political interest of the developed countries and particularly the United States. See, for instance, Frey and Schneider (1986); Gwin (1997); Thacker (1999); Anderson, Harr and Tarp (2006); Anderson, Hansen and Markussen (2006); Barro and Lee (2005). For evidence that bilateral aid is politically motivated see, for example, Alesina and Dollar (2000) and Neumayer (2003).}\]

\[\text{10My usage is similar to that of Grossman and Helpman (2001) with regard to “interest groups.” In one of their models of special interest politics, any broad segment of the U.S. population with similar preferences is considered to be a special interest group. Here, I consider any group at which the donor targets aid to be the relevant group.}\]

\[\text{11In this version of the model, the level of targeted aid is specified exogenously. In section 6, I endogenize the donor’s decision regarding the aid level. This results in the elimination of one equilibrium outcome.}\]

\[\text{12In some ways, this mirrors the current trend in aid provision, which is in favor of more general budgetary support and less project-specific or sector-specific aid. For papers addressing the trade-offs between project aid and budgetary support, see Cordella and Dell’Ariccia (2003); Hefeker (2006).}\]
government disburses aid based on some exogenous preference for the group, $\gamma \in (0, 1)$.

In the third stage, the group decides whether or not to contest the government’s decision based on the amount of money that it has received and the information it has about the amount of money that it was supposed to receive. In the solution to the game, the group is assumed to be fully informed about the amount that the donor has been targeted at them—that is, $\hat{x}$. If the interest group chooses to engage in contestational action against the government because it has not received all of $\hat{x}$, it pays a cost, $c$, which is the cost of overcoming collective action problems in order to lobby representative institutions, to protest in the streets or to take other steps that might lead to redress of the group’s grievances.

If the group chooses to contest the outlay that it has received, this contestation will be successful with some probability, $\pi$, which is not modeled explicitly but depends on the characteristics of the country in question. If contestation is successful, the group receives the remainder of the money to which it is entitled, $\hat{x} - x$, and the government no longer has access to that money.\(^{14}\) Also, if the group decides to contest, the government suffers some amount of damage, $d$, which can be thought of as the amount of money that the government pays in electorally, legislatively or physically responding to the group’s protest; as reputational costs that the government suffers from having been exposed as not fulfilling its agreements with the donor; or even as the future costs of receiving less money from the donor.\(^{15}\)

### 3.3 Utility Functions

The utility function for the government captures its expected payoffs across the two cases where either the interest group contests ($I_C = 1$) or does not contest ($I_C = 0$) the govern-

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\(^{13}\)This exogenous preference can be taken as akin to the exogenous weighting of poor and rich utilities in the objective function of aid-receiving governments in other models (Svensson, 2000b; Azam and Laffont, 2003; Cordella and Dell’Ariccia, 2003; Lahiri and Raimondos-Møller, 2004; Hefeker, 2006). The preference might be thought of as having arisen based on political support or political contributions, or it might be due to more idiosyncratic factors, like ethnic identity or historical patterns of political support.

\(^{14}\)The protests explicitly are not about the distribution of domestic revenues. I assume that such a game already has played itself out. I am interested in what happens when aid money enters an economy in a targeted fashion.

\(^{15}\)As mentioned earlier, donors have had difficulties committing to withholding aid money, so the damage term is perhaps best conceived of as current costs suffered by the government within the domestic sphere.
ment’s disbursement decision. In the event that the group does contest the government’s disbursement, that contestation is only successful with probability $\pi$. Therefore,

$$U_G = (1 - I_C)[1 - x + \gamma u(x)] +$$

$$I_C[(1 - \pi)[1 - x - d + \gamma u(x)] +$$

$$\pi[(1 - \hat{x} - d) + \gamma u(\hat{x})]$$

where $u(x)$ is a continuous, twice differentiable function with $\frac{du}{dx} > 0$, $\frac{d^2 u}{dx^2} < 0$ and $\frac{du(0)}{dx} = 1$.

The first line of the function is the government’s utility when the interest group decides not to contest the distributive decision. The second and third lines together are the expected utility when the group does decide to protest and either will be successful ($\pi = 1$) or will not be successful ($\pi = 0$). This quasi-linear utility function suggests that the government’s marginal utility of keeping money for itself is constant, whereas the marginal utility of giving money to the group is decreasing as the group receives more money. The linear term makes sense in that aid money is not likely to form the majority of the government’s budget, so one dollar is just as important as the next dollar to the government, whereas the concave function makes sense in that the government is likely to reap its biggest rewards from crossing the threshold between relaying no aid and some aid to a social group and to receive less utility from each additional dollar that it gives to the group.\(^{16}\)

Note that government utility is strictly decreasing in $d$, the amount of damage that occurs in the event of contestation. Since the government cares both about itself and the interest group to some extent, its utility might be either increasing or decreasing in its disbursements to the interest group, depending on their level and the value of $\gamma$, its affinity for group $P$.

The social group’s utility is a simple linear function:

\(^{16}\text{Note, however, that the final condition, } \frac{du(0)}{dx} = 1, \text{ is necessary for there to be any sort of interior solution that is not under the threat of contestation. If the first dollar given to the group is not worth as much as a dollar retained by the government, then the government will have no incentive—besides the threat of contestation—to give money to the group.}\)
\[ U_P = x + I_C [(1 - \pi)0 + \pi(\hat{x} - x) - c] \] (2)

The first term is the amount of funding that the group receives from the government in the second stage of the game, and the second term is used to determine whether or not contestation is a worthwhile activity for the group. If the group can expect to receive more money, \( \hat{x} - x \), than it will have to spend, \( c \), in contesting the government’s decision, then some form of protest is worthwhile for the group. If the group decides to protest, then its utility is increasing in \( \pi \) and \( \hat{x} \) and decreasing in \( c \).

4 Solution to the Game

In this section, I look at the model as a complete information game, where the interest group is fully informed about the donor’s announced preferences for aid distribution, and all actors know each other’s preferences and can observe each other’s moves. The donor is treated as a non-strategic actor such that \( \hat{x} \) is supplied exogenously.\(^{17}\) Using the subgame perfect equilibrium solution concept, I solve the game through backward induction.

In the final stage of the game, conditional on the donor having provided some amount of aid and the government having disbursed some amount of money, the group will decide to contest the government’s decision if and only if the expected gains from contestation are greater than the expected costs. Therefore, a group will contest if

\[ x < \hat{x} - \frac{c}{\pi} \]

One option for the government in the second stage of the game, then, is to set the disbursement level at a given group’s indifference point for contestation, in which case

\[ x^* = \hat{x} - \frac{c}{\pi} \] (3)

\(^{17}\)I relax this assumption in section 6.
If the group receives any less than this indifference level of distributions, it will choose to contest the government’s decision.

Based on its anticipation of this move in the final stage, its tolerance for contestation and its preference for the group, the government will disburse funds in the second stage of the game. Let \( x^G \) be the solution to the first order condition on the government’s utility function when there is no contestation\(^{18} \) such that

\[
x^G \equiv \arg \max_x U^G \mid I_C = 0
\]  

(4)

In the event that this amount of money is above or equal to the group’s indifference point (i.e. \( x^G \geq x^* \)), then a status quo solution exists, and the government’s utility is

\[
U^G_{SQ} = 1 - x^G + \gamma u(x^G)
\]  

(5)

If, however, the government’s unconstrained solution is less than the group’s indifference point, then the group will choose to contest the government’s decision to give \( x^G \), meaning that the government will suffer damage and that, with some probability, \( \pi \), the government will have to disburse the full targeted amount. The expected utility to the government of this contestation solution is

\[
U^G_C = (1 - \pi)[1 - x^G - d + \gamma u(x^G)] + \pi[1 - \hat{x} - d + \gamma u(\hat{x})]
\]  

(6)

The government also has the option of accommodating the group by giving the group just enough money so that it will prefer not to contest the disbursement. If the government gives to the group at the group’s indifference point, \( x^* \), the government can guarantee that there will be no contestation by the group. In the case of accommodation, the government’s utility is

\[
U^G_C = (1 - x) - x + y(0) + \gamma u(x) - \gamma u'(x) = 0.
\]

When there is no contestation, \( U_G = 1 - x + \gamma u(x) \). This will be maximized for the value of \( x \) where \( \frac{\partial U_G}{\partial x} = -1 + \gamma u'(x) = 0 \). To see that there is a maximum, note that, by assumption, \( u'(x) > 0, u'(0) > 1 \) and \( \gamma > 0 \). The second order condition holds because, by assumption, \( u''(x) < 0 \).
\[ U_G^A = 1 - (\hat{x} - \frac{c}{\pi}) + \gamma u(\hat{x} - \frac{c}{\pi}) \] (7)

Therefore, when the government’s status quo level of funding is greater than the group’s indifference level of funding, \( x^G \geq x^* \), the government always will choose its most preferred solution, \( x^G \), and will receive utility \( U_G^{SQ} \) as in (5). When the government’s preferred solution is less than the group’s indifference point, \( x^G < x^* \), however, the government must choose between giving according to its preferences or giving at the group’s indifference point, which is the same as choosing between the utility levels \( U_G^C \), as in (6), and \( U_G^A \), as in (7). Therefore, the government will choose \( x^* \) whenever \( U_G^A(x^*) > U_G^C(x^G) \) and will choose \( x^G \) otherwise. If the government chooses \( x^* \), the group is satisfied at their indifference point and does not protest, whereas if the government chooses to disburse \( x^G < x^* \), then the group will contest the amount and will be successful in this contestation with probability \( \pi \). The group will pay the cost, \( c \), of contesting and will receive the missing money up to their targeted amount, \( \hat{x} \), if the protest is successful.\(^{19}\)

To see when the government would choose to accommodate the group rather than allow contestation, we can rearrange (6) and (7) so that accommodation is preferred to contestation when the following inequality holds:

\[ (\hat{x} - \frac{c}{\pi}) - [(1 - \pi)x^G + \pi \hat{x}] \leq \gamma u(\hat{x} - \frac{c}{\pi}) - [(1 - \pi)\gamma u(x^G) + \pi \gamma u(x^G)] + d \] (8)

The following proposition summarizes the equilibrium conditions.

**Proposition 1.** Given some level of targeted aid \( \hat{x} \), the government’s strategy is to disburse \( x^G \) either (1) when \( x^G \geq \hat{x} - \frac{c}{\pi} \) or (2) when \( x^G < \hat{x} - \frac{c}{\pi} \) and inequality (8) does not hold. If

\(^{19}\)Note that if \( x^G < x^* \), the government has no incentive to give at any level other than \( x^G \) or \( x^* \). If the government gives \( x < x^G \), then it is giving to the group at less than its most preferred level for the group. If it gives in the range \( x^G < x < x^* \) and the contestation is unsuccessful, then the government would have done better by giving only \( x^G \) because it will end up paying the group more than it prefers to without getting anything in return, since it has not met the group at its indifference point. And if the government gives \( x > x^* \), then it has paid the group off with more money than is required to guarantee no contestation and without any additional reward for doing so.
\( x^G < \hat{x} - \frac{c}{\pi} \) and inequality (8) does hold, then the government’s strategy is to disburse \( \hat{x} - \frac{c}{\pi} \) to the group. If the group receives \( x \geq \hat{x} - \frac{c}{\pi} \), then the group’s strategy is to not contest against the government; if the group receives \( x < \hat{x} - \frac{c}{\pi} \), then its strategy is to contest the government’s decision.

Proof. The proposition follows from the text. \qed

In the next section, I establish some conditions regarding the three possible equilibrium regions and explore the comparative statics implications of different parameter values with regard to which equilibrium obtains and also the amount of money that the social group targeted by the donor actually receives.

5 Comparative Static Results

With this model, I seek to answer the question under what conditions will groups receive more or less of the money to which they are entitled in an aid program intended for their benefit. That is, when do groups get aid, and when is that aid instead susceptible to capture? If the government has a strong preference for the group, then it is quite likely that the group will receive all of the money targeted at it by the donor and perhaps additional aid money, as well, taken from the general budgetary support funds. But when the government’s preference for keeping money for its own use are higher, then the range of targets that the government is willing to implement of its own accord becomes much smaller, and it becomes possible that the interest group might have to resort to active contestation in order to get more money. In this case, the amount of money that a group receives depends on the group’s capacity for contestation and the probability of successful contestation. Therefore, the first major conclusion below is that poorly organized groups are unlikely to receive the funds targeted to them. In addition, I find that increasing collective action costs make the appearance of contestation less likely but do not eliminate the domestic constraint on the government. Finally, I note that some interest groups suffer from a credible commitment problem where
they would prefer not to contest the government’s decision but ultimately need to do so because the government has chosen to withhold funding from them.

Given the three possible equilibria—a status quo solution, accommodation and contestation—I first consider over what ranges of parameter values each equilibrium holds and then the implications for the level of funds disbursed.

Figures (1) through (5) provide simulated illustrations of the equilibrium zones for specific parameter values and using a logarithmic function for \( u(x) \) (i.e. \( u(x) \equiv \ln(x) \)).\(^{20}\) (With a logarithmic function, from equation (4), the value of \( x^G = \gamma \).) Figures (1) through (3) show variation in equilibrium outcomes based on the costs of contestation and the amount of aid targeting, whereas figures (4) and (5) show variation based on the probability of successful contestation and the amount of aid targeting. The first three figures are useful for thinking about the variation within countries across social groups (in terms of their different capacities for collective action—the variable along the horizontal axis), whereas the latter two figures are useful for thinking about variation across countries (in terms of the responsiveness of the government to collective action—that is, the probability of successful contestation).

As the graphs show, when there is a low level of aid targeting, a high cost to contestation or a low probability of successful contestation, then the government will give some proportion of the total aid money to the group based on its own preferences, \( x^G \), without much concern for the group’s response. This is the status quo equilibrium. (In all of these examples, I set \( \gamma = .15 \), so any level of donor targeting \( \hat{x} \leq .15 \) will result in the status quo equilibrium.)

As all of the figures illustrate, once a sufficient level of targeting has been achieved, then it is possible to enter an accommodation equilibrium, where the group’s willingness to contest against the government constrains the government into providing for the group at its indifference point. A comparison of figures (1) and (2) reveals that as the probability of contestation being successful decreases, the region in which the accommodation equilibrium

\(^{20}\)Note that very similar graphs are produced when using a Cobb-Douglas utility function for the government, wherein its preferences are concave both in the amount of money that the group gets and in the amount of money that it gets to keep for itself.
Figure 1: A High Probability of Successful Contestation. Equilibrium regions are shown given $\gamma = .15$, $\pi = .50$ and $d = .05$ with $u(x) \equiv \ln(x)$

Figure 2: A Lower Probability of Successful Contestation. Equilibrium regions are shown given $\gamma = .15$, $\pi = .25$ and $d = .05$ using $u(x) \equiv \ln(x)$
Figure 3: A High Risk of Damage to the Government from Contestation. Equilibrium regions are shown given $\gamma = .15, \pi = .25$ and $d = .25$ with $u(x) \equiv \ln(x)$

Figure 4: Low Cost of Collective Action. Equilibrium regions are shown given $\gamma = .15, c = .05$ and $d = .05$ with $u(x) \equiv \ln(x)$
Figure 5: High Cost of Collective Action. Equilibrium regions are shown given \( \gamma = .15, c = .1 \) and \( d = .05 \) with \( u(x) \equiv \ln(x) \)

obtains shrinks, with the government more likely to either implement the project at its status quo level or else risk contestation. Figure (3) reveals that, when the possible damages suffered by the government during contestation increase, then the government is much less likely to allow contestation and so will accommodate the group over a greater range of targeting levels.

The following three remarks sum up some of the patterns observed in the figures.

**Remark 1.** The probability of the government being able to implement the status quo solution is strictly increasing in its preference for the group and the costliness of collective action for the group. It is strictly decreasing in the probability of successful contestation by the group and the amount of targeting by the donor.

**Proof.** From proposition 1, the government can implement the status quo solution without the risk of protest when \( x^G \geq \hat{x} - \frac{c}{\pi} \). This condition can be restated as \( x^G - \hat{x} + \frac{c}{\pi} \geq 0 \). The partial derivatives for the LHS of the equation are as follows: \( \frac{\partial (\cdot)}{\partial x^G} = 1 \) and \( \frac{\partial (\cdot)}{\partial c} = \frac{1}{\pi} \), which
are always positive, and \( \frac{\partial(\cdot)}{\partial \pi} = -\frac{c}{\pi^2} \) and \( \frac{\partial(\cdot)}{\partial x} = -1 \), which are always negative.  

**Remark 2.** When the probability of a successful protest is very low, the government always can implement its most preferred solution, leading to the status quo equilibrium.

*Proof.* From proposition (1), the government can implement its preferred solution whenever \( x^G \geq \hat{x} - \frac{c}{\pi} \). Rearranging this yields \( \hat{x}^{min} = x^G + \frac{c}{\pi} \), where \( \hat{x}^{min} \) is the minimum level of targeting that must occur for the government to be constrained into the accommodation equilibrium. Taking the limit of the expression as \( \pi \) goes to 0, we see that \( \lim_{\pi \to 0} x^G + \frac{c}{\pi} = \infty \), implying that there is no level of targeting at which the government is constrained when the probability of successful contestation is very low.

**Remark 3.** In all cases where the government would prefer to give more aid money to a group than the donor specifically targets at that group, it will do so.

*Proof.* From proposition (1), the government can implement its preferred solution whenever \( x^G \geq \hat{x} - \frac{c}{\pi} \). Rearranging this yields \( \pi^{min} = \frac{\hat{x} - x^G}{c} \), where \( \pi^{min} \) is the minimum level of probable protest success for the government to consider accommodation. Whenever \( x^G \geq \hat{x} \), the RHS of the equation is non-positive, implying that there is no level of probable protest success at which the government is constrained and forced to accommodate the group. The status quo solution always obtains.

Remark (1) describes variation both within countries and across countries. Within a country, a government is less likely to accommodate a group that pays high costs organizing for collective action. Across countries, governments that are likely to be susceptible to collective action are more likely to accommodate groups in the first place. That is, in a state where some form of contestation—electoral, legislative or contentious—is likely to result in change, the government is more likely to preempt such contestation through accommodation. As remark (2) describes, in countries where there is little probability of successful contestation (i.e. in the most authoritarian countries where citizens can make use neither of electoral nor contentious politics to express opposition to the government’s policies), no amount of
targeting will activate the desired constraint on the government, and the government always will implement its desired outcome. In both figures (4) and (5), these types of countries are located at the left-hand side of the graphs, and in these countries, the domestic constraint mechanism simply cannot be made operative.

Remark (3) suggests that a group that is strongly preferred by the government—perhaps because it is of the same ethnicity as the dominant leaders in the government or otherwise is valuable for supporting the government’s continued hold on power—will receive a substantial portion of the aid money given to the country, regardless of targeting levels.

5.1 The Government’s Choice to Gamble on Protest

The contestation equilibrium is one that the government chooses by not giving enough funds to the group to satiate it; the group therefore opts to contest the government’s decision. As figure (2), for instance, shows, contestation occurs when the cost of collective action is low to moderate and when the level of targeting by the donor is moderate to high. As figure (4) shows, contestation is likely to occur in countries where the probability of successful contestation is moderate to low. In countries where the probability of successful contestation is very high, in contrast, the government expects to have to pay the group anyway and so just accommodates in the first place.

The location of the contestation equilibrium region suggests that the government is, in effect, gambling by allowing protest of some form. Because the donor has targeted more money at the group than the government wants to disburse to the group, the government chooses not to meet the group at its indifference point but rather risks the probability of successful contestation—in which case it will have to disburse the full amount targeted at the group—against the probability that contestation will fail and the group will only receive the original disbursement by the government. When the cost of collective action for the group becomes sufficiently high, it becomes less costly for the government to meet the group at its indifference point, and the government is more willing to do so. And if the probability
of successful contestation increases within a country, then the government also becomes unwilling to risk having to pay out the full amount of money and so accommodates the group before contestation occurs.

As can be seen in figures (1) through (3), as the cost of collective action paid by the interest group increases, the space over which the government can implement its preferred, status quo solution without threat of protest increases. This is as we would expect. In addition, however, at levels of aid targeting where the government previously might have chosen to risk contestation, it opts not to do so, preferring instead to pay off the interest group. This results from the fact that the interest group will settle for less money in situations where the costs of collective action are higher. The government, instead of choosing to gamble on the possibility of a successful protest, simply decides to disburse to the group at its indifference point and accept the constraint. The following remark captures this formally.

**Remark 4.** When the government is deciding between disbursement at the group’s indifference point, as in (3), and disbursement at the government’s preferred level, $x^G$, knowing that the latter will lead to protest, increasing costs of protest, $c$, for the group make the accommodative solution the more likely outcome.

**Proof.** In making this decision, the government compares $U^C_G$ from (6) to $U^A_G$ from (7). We rearrange inequality (8) so that the government will prefer the accommodative solution if

$$U^A_G - U^C_G > 0.$$  

We can take the partial derivative with respect to $c$, which is

$$\frac{\partial (\cdot)}{\partial c} = \frac{1}{\pi} - \frac{\gamma u'(\hat{x} - \frac{c}{\pi})}{\pi}.$$  

This derivative is positive since $\gamma$ and $u'(\cdot)$ are both positive and less than 1, making the first term of greater magnitude than the second.

This result demonstrates that, while rising costs of contestation increase the area in which the government simply disburses as it sees fit, these rising costs also decrease the area in which an interest group might have to resort to active contestation. And, as I show below, active contestation results in a lower expected payout than accommodation. Overall then, a higher cost of collective action might lead to a superior outcome for the group because
the ratio of the area of parameter values in which the government accommodates the group relative to the area in which the group is forced to contest the disbursement is larger, even though the ratio of the combined area of accommodation and contestation relative to the status quo equilibrium is smaller. The reason why the government is willing to payoff a group that faces higher costs—given the same government preferences, the same level of targeting and the same probability of successful contestation that otherwise would lead to active protest—is that it is cheaper to do so because the increased costs of contestation mean that the government can satisfy the interest group at a lower disbursement level.

Compare two disfavored groups who have the same probability of successfully contesting a disbursement and threaten to do the same amount of damage to the government in the event that protest is successful. One group, however, faces much higher costs of collective action because it is more geographically diffuse and does not have a history of organizing against the government. The government will choose to disburse to this latter group at the constrained level defined by the group’s indifference point, whereas it will opt to gamble on short-changing the group with the lower collective action costs, letting it protest but betting on the odds that the protest will not lead to additional disbursement. The cost of paying off this more organized group is much higher because the group has a history of and a capacity for collective action.

This means that, when contestation occurs, it is likely to be a more well-organized group protesting. This is not simply because the group pays lower costs to engage in collective action, but it is also because the group’s indifference point is greater than what the government cares to directly cede from the aid revenues. For a less well-organized group, however, the mechanism is still in place, but they accept a lower proportion of the funds targeted at them as a sufficient condition for not contesting the government’s decision. While a group with very low organizational costs will accept only a very large proportion of the aid intended for it as sufficient, a group with high costs is satisfied to receive even a small portion of the money to which it is entitled according to the donor.
5.2 Disbursements to the Interest Group

From the above, the model reveals that scenarios exist in which groups would either wish to be weaker than they are or else to have less money targeted at them. This is a result of expectations about gains from contestation and the way in which the government decides to gamble on contestation. Since contestation is not guaranteed to result in full disbursement of aid to the group, the expected returns to contestation are often lower than the gains that a group would receive if the government were to accommodate the group. As figure (2) above shows, for situations where the donor targets a significant amount of funds at a group with low collective action costs, the contestation equilibrium is a likely outcome. Figure (6) shows that the expected amount of funds received in this contestation equilibrium is lower than the guaranteed amount under the accommodation equilibrium.\textsuperscript{21} If a group that finds itself in a contestation equilibrium had only slightly higher costs of collective action, then it would find itself in an accommodation equilibrium and would expect more aid funds in equilibrium.

This happens because groups for which contestation is low-cost have higher indifference points that the government needs to satisfy in order to avoid contestation. At some point, the cost of collective action becomes so low that the group demands more than the government is willing to pay, and the government opts instead to gamble on contestation, as described in the last section. This results in the group having a lower expected level of funding at the end of the game.

Similarly, as figure (7) shows, a group at which the donor has targeted a large proportion of funds might find itself in a contestation equilibrium, whereas if the donor had targeted only a slightly smaller amount of funds at it, it would be in an accommodation equilibrium under which it actually would expect to receive more aid funds, despite the lower level of targeting. This is because the high level of targeting makes the funds intended for the group

\textsuperscript{21}It must be emphasized that this is the expected amount of funds. The group might receive either all of the money to which it is entitled (minus the cost of contestation) or else just $x^G$ (again minus the cost of contestation).
Figure 6: **EXPECTED PAYOFFS TO THE INTEREST GROUP ACROSS VARYING COSTS OF CONTESTATION.** The equilibria are determined given $\gamma = .15, \pi = .25, \hat{x} = .6$ and $d = .05$ with $u(x) \equiv \ln(x)$
too attractive for the government to leave alone.

In both cases—where collective action is cheap and where the donor targets a large proportion of aid at the group—the interest group could receive more money if it could credibly commit to not contesting the government’s decision, but being unable to do so, the expected value of contestation for the group is lower than the amount of funding they would receive in the accommodation equilibrium that obtains when the likelihood of protest is lower. Therefore, posing a more substantial threat to the government or being more favored by the international donor can lower a group’s expected payoff. However, as figure (6) shows, the expected value of contestation does rise inside of a contestation equilibrium as collective action becomes less costly, and as figure (7) shows, the expected value of contestation also rises inside of a contestation equilibrium as the level of targeting increases.

The following remark describes this credible commitment problem and the difference between the accommodation and the contestation equilibria.
Remark 5. Within the accommodation and contestation equilibria, the amount of money that the group receives is increasing both in the ease of organizing collection action and in the level of targeting.

If a small decrease in the costs of collective action leads a group to find itself in the contestation equilibrium instead of the accommodation equilibrium, it will at first expect to receive less money than it was receiving under the accommodation equilibrium.

Proof. See the appendix.

Therefore, there exist a range of parameter values for which interest groups will be forced into protesting simply because they have the capacity to do so—that is, because the costs of collective action are relatively low—even though they would prefer to receive the constrained payoff that the government would give to a group with similar characteristics but a higher cost of organizing. This is an unexpected result from the model.

6 Extension: Strategic Play by the Donor

One possible extension to the game is to have the donor anticipate the government’s strategy—and also the group’s strategy—when making its targeting decision. Whereas until now, I have assumed a non-strategic donor, I now endow the donor with the capacity and desire to look down the game tree and choose a targeting level based on anticipated outcomes.

Assume that the donor has an ideal point, $x^D$. This is the amount of money that the donor would like to see the targeted group get. It does not necessarily want the group to get more than this amount because that implies that resources are not reaching some other group or are not being spent on national priorities about which the donor cares. Therefore, assume that the donor loses utility when the ultimate outcome deviates from its ideal point in either direction. Although the result below does not depend on the specific functional form, I will assume that the donor suffers a linear loss in utility from deviations.
\[ U_D = -|x^D - x| \]

where \(x\) indicates the final amount of money received by the group.

Because collective action is costly, the government always has a certain capacity to take money intended for the group. Therefore, the donor will target at a level such that the ultimate equilibrium outcome is at its ideal point if this is possible. This means that the donor will target more money at the group than it expects the group to get. It also means that, when the donor plays strategically, contestation is never an equilibrium outcome. Because the expected value to the group of contestation always is lower than when the government simply accommodates the group, the donor will target in such a way that the government has an incentive to accommodate rather than gamble on contestation. These results are summarized in the following proposition.

**Proposition 2.** If the donor’s ideal point is less than the government’s ideal point, then the donor will set the target at its ideal level, and the group will receive money according to the government’s preferred outcome. If the donor’s ideal point is greater than the government’s ideal point, then the donor will set the target such that the government disburses money at the donor’s ideal level if this is possible. If it is not possible, the donor will set the target at a level such that the government just prefers accommodating the group to allowing contestation, resulting in a disbursement to the group somewhat below the donor’s ideal point.

*Proof.* See the appendix.

Figure (8) provides a simulated representation of the proposition (again substituting a logarithmic function into the government’s utility function as \(u(x)\)). The thick line representing the donor’s equilibrium best response strategy shows that the donor will target in such a way to avoid contestation in the region where contestation is likely, even if this means targeting at a level below the donor’s ideal point.\(^\text{22}\) Eventually, the donor is able to target in

\(^{22}\text{This, of course, assumes risk neutrality on the part of the donor} \). A risk-acceptant donor might allow
Figure 8: **DONOR’S STRATEGY IN EQUILIBRIUM.** The dark line represents the equilibrium targeting level $\hat{x}^*$, given $x^D = .4$, $\gamma = .15$, $\pi = .25$ and $d = .05$ with $u(x) \equiv \ln(x)$. The original equilibrium regions also are pictured for these parameter values. At the left, the donor reduces its targeting so that the contestation equilibrium is avoided.

such a way as to yield an accommodation equilibrium, but soon the cost of collective action for the group becomes so high that the donor must target all of the aid going to the country to that particular group in order to approach its ideal disbursement level.

The results for this extended version of the model regarding the cost of collective action and the probability of successful contestation are the same: as the former falls and the latter rises, the targeted group can expect to see more of the aid disbursed to it in equilibrium. Allowing the donor to play the game strategically results in the elimination of one equilibrium type, as the donor’s strategic move ensures that contestation does not take place. An interesting consequence of this extension is the fact that, given resource constraints, the donor may wish to target aid less often at weaker groups, since the difference between the value of the target and the amount actually received by the group is increasing as a group becomes weaker, implying that the donor itself becomes somewhat constrained.

contestation to happen because of the gamble that the group has a certain probability of getting all the money targeted at it.
7 Empirical Implications of the Model

The model presented above makes a number of claims about the way that aid targeting works. It makes predictions about the amount of aid diversion that we will see based on targeting levels, collective action costs and the likelihood of successful contestation. Here I list as hypotheses some of the empirical implications that emerge from the model, referencing relevant remarks and propositions.

\[ H_1: \] Governments are more likely to divert aid from groups with less organizational capacity (i.e. groups with higher costs of collective action) (Remark 1).

\[ H_2: \] Governments are more likely to divert aid insofar as the probability of successful contestation is lower (Remarks 1 and 2).

\[ H_3: \] Governments are more likely to divert aid when the level of donor targeting is low (Remark 1).

\[ H_4: \] Groups favored by the government may receive more aid money than the donor targets at them (Remark 3).

\[ H_5: \] As the cost of collective action rises for a group, the government is more likely to be able to satisfy that group and avoid contestation (Remark 4).

\[ H_6: \] If groups are forced to contest against the government for aid funds, they expect to receive fewer funds, all else being equal (Remark 5).

\[ H_7: \] If the donor acts strategically, there will be no contestation in equilibrium (Proposition 2).

8 Conclusion

The solution to the formal model above offers several important observations for answering the question of how donor targeting can constrain national governments from capturing
international aid funds or letting those funds fall subject to corrupt practices.

First, the model reveals that those groups that can contest the government’s decision effectively in the political arena will receive more money at a given targeting level. In situations where protest is highly unlikely to be successful—because of the group’s difficulty in overcoming the collective action problem among its members or because of the government’s complete lack of responsiveness to civil society—the status quo equilibrium always will obtain: the government will never change the proportion of aid that it disburses, and the group never will be able to organize a protest of any kind against this injustice.

Second, I have demonstrated that when only small amounts of aid are targeted at groups, the government will give to those groups purely in line with its own preferences. That is, the government will give some proportion of the total aid money—targeted and non-targeted—to the group based on how much it likes the group and will keep the rest for itself. Therefore when only small amounts of aid are targeted, the government will not be constrained. Even when the government is constrained by the domestic interests activated by the donor’s targeting strategy, the government always will opt to siphon off a given percentage of the money intended for the group, although marginal increases in aid targeted at a group will result in marginal increases in the absolute amount of money disbursed to that group.

Third, the model shows that increasing costs of collective action make it easier for the government to disburse to the group at some level such that the group will choose not to contest the government’s decision. This means that, where we observe protest, it is likely to be undertaken by a well-organized group with a low cost of mobilization that is demanding from the government a significant share of the aid to which it is entitled. Insofar as the government likes to appropriate money for itself, it will prefer to gamble on the possibility that contestation by this group will not yield full disbursement. Of course, the extension to the model in which the World Bank plays strategically calls into question whether we will see protest at all in equilibrium: it suggests that we will not.
One important idea to take away from the model is that the lack of obvious contestation on the part of a social group does not mean that the government is not being constrained in terms of the disbursements that it makes to the group. In many situations, the government prefers to disburse a somewhat larger amount of the targeted money in exchange for avoiding the threat of protest or contestation by the group. In these cases, the group—while not receiving all of the international aid money to which it is entitled—does receive a larger portion than an unconstrained government would provide.

Finally, the model has produced an unexpected result by revealing that some groups will face a credible commitment problem when it comes to deciding not to protest. Cases exist where it is better for the group to receive the government payoff at which it will not protest but, because the group has a sufficiently high capacity for collective action, the government does not want to meet the group’s indifference level and the group cannot credibly commit to accepting less money, such that it finds itself in a situation in which it must protest. In these circumstances, it is as if the government makes the group run the gauntlet in order to receive money that has been targeted at it, leaving the group with a lower expected payoff than if it were a weaker group. If the group could commit to accepting less money, then the government would be willing to pay it off at the corresponding level, which is indeed higher than the group’s expected outcome from contestation.

9 Appendix

9.1 Proof of Remark 5

The first part of the remark can be shown easily by looking at the partial derivatives of the amount of money disbursed under accommodation, \( x^A = \hat{x} - \frac{c}{\pi} \), which are \( \frac{\partial x^A}{\partial \hat{x}} = 1 \) and \( \frac{\partial x^A}{\partial c} = -\frac{1}{\pi} \). (Remember that lower costs of collective action imply increased ease of organizing such that the payoff increases with a decrease in \( c \) given the sign on \( \frac{\partial x^A}{\partial c} \).)

To see that the expected protest payoff is increasing in the probability of contestation
success and the amount of targeting within the contestation equilibrium, the relevant partial
derivatives, given the expected payoff from contestation, \( x^C = \pi\hat{x} + (1 - \pi)x^G - c \), are
\[ \frac{\partial x^C}{\partial c} = -1 \], which again implies that lower costs of collective action result in higher payoffs
within the equilibrium, and \( \frac{\partial x^C}{\partial \hat{x}} = \pi \), which is positive by the bounds on \( \pi \) and so indicates
that increased targeting results in increased payoffs within the equilibrium.

To prove the second half of the remark, I show first that a decrease in \( c \) at the point
where the government is indifferent between accommodation and contestation results in the
contestation equilibrium. Then I show that the contestation equilibrium payoff to the group
in this circumstance is less than the accommodation equilibrium payoff.

Let \( c^* \) be such that \( U^C_G(c^*) = U^A_G(c^*) \). From equation (6), we can see that the government’s
utility from contestation does not depend on \( c \). From equation (7), we can derive the partial
derivative \( \frac{\partial U^A_G}{\partial c} = \frac{1}{\pi} + \gamma u'(\hat{x} - \frac{c}{\pi})(-\frac{1}{\pi}) = \frac{1}{\pi}(1 - \gamma u'(\hat{x} - \frac{c}{\pi})) \). Since \( \gamma \) and \( u'(\cdot) \) are both
positive and less than 1, the entire expression is positive, indicating that the utility from
accommodation will decrease if \( c \) decreases. Therefore, for \( c' < c^* \), \( U^C_G(c') > U^A_G(c') \), and the
government chooses to allow contestation.

To see that the payoff is lower, we need to prove that \( \pi\hat{x} + (1 - \pi)x^G - c' < \hat{x} - \frac{c^*}{\pi} \) where
\( c' = c^* - \epsilon \). Let \( \epsilon \to 0 \). Then, we can rearrange the inequality to be \( \hat{x} - x^G > \frac{c^*}{\pi} \). To see that
this is true, recall that \( c^* \) is the value of \( c \) that makes equations (6) and (7) equal. Therefore,

\[ 1 - (\hat{x} - \frac{c^*}{\pi}) + \gamma u(\hat{x} - \frac{c^*}{\pi}) = (1 - \pi)[1 - x^G - d + \gamma u(x^G)] + \pi[1 - \hat{x} - d + \gamma u(\hat{x})] \]

Rearranging this equation yields

\[ (1 - \pi)(\hat{x} - x^G) - \gamma[u(\hat{x} - \frac{c^*}{\pi}) - (1 - \pi)u(x^G) - \pi u(\hat{x})] - d = \frac{c^*}{\pi} \]

The first term is positive. By virtue of the fact that the three terms inside the square
brackets represent an evaluation of a concave function minus the convex combination of the
same function evaluated at one lower value (\( x^G < \hat{x} - \frac{c^*}{\pi} \)) and one higher value (\( \hat{x} > \hat{x} - \frac{c^*}{\pi} \)),

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the middle term is negative, and then the third term is obviously negative. Therefore, 
\[(1 - \pi)(\hat{x} - x^G) > \frac{c^s}{\pi}\] must be true. And since \((1 - \pi) < 1\), then \((\hat{x} - x^G) > \frac{c^s}{\pi}\), indicating that the payoff is lower under contestation.

### 9.2 Proof of Proposition 2

Let \(x^G\) be the government’s ideal point, as defined in equation (4). In the event that \(x^D < x^G\), if the donor were to target such that \(\hat{x} > x^G\), then the accommodation equilibrium defined in proposition (1) might be obtained; however, the donor could achieve higher utility by targeting such that \(\hat{x} \leq x^G\). Since, according to proposition (1), the ultimate outcome for targeting \(\hat{x} \leq x^G\) will be \(x^G\), it does not really matter at what level the donor targets. Therefore, let the donor target \(\hat{x} = x^D\) where \(x^D < x^G\), and the equilibrium outcome will be the status quo equilibrium with \(x^* = x^G\).

In the event that \(x^D \geq x^G\), the donor may be able to target such that an outcome superior to the status quo equilibrium defined in proposition (1) is achieved. There are four possible cases when \(x^D \geq x^G\).

First, as described in remarks (3) and (2), there is a minimum value of \(\pi\) below which the government always will be able to implement its most preferred outcome, resulting in the status quo equilibrium. If \(\pi < \pi^\text{min}\), then donor targeting is irrelevant, and so regardless of what the donor targets, the equilibrium outcome will be the status quo equilibrium with \(x^* = x^G\).

Second, the proof for remark (2) establishes a value \(\hat{x}^\text{min}\) below which the government will not accommodate the group. Let \(x^*^\text{min}\) be the equilibrium disbursement when targeting is at the level \(\hat{x}^\text{min}\). If \(x^D = x^*^\text{min}\), then the donor will target \(\hat{x} = \hat{x}^\text{min}\), and the equilibrium will be the accommodation equilibrium with \(x^*^\text{min}\). If the donor targets less than this, then the government will implement its status quo equilibrium with \(x = x^G < x^D\), which results in negative utility for the donor. If the donor targets more than this, then the government will implement the accommodation equilibrium with \(x^* > x^D\), which also results in negative
utility for the donor.

Third, let $x^{*\text{max}}$ be the equilibrium disbursement when equation (8) holds with equality. That is, $x^{*\text{max}}$ is the amount of money disbursed by the government in the accommodation equilibrium when the government is just indifferent between the accommodation and contestation equilibria. And let $\hat{x}^{\text{max}}$ be the amount of targeting necessary for the government to be just indifferent between accommodation and contestation as defined by proposition (1). Then if $x^D \geq x^{*\text{max}}$, the donor will target $\hat{x} = \hat{x}^{\text{max}}$, and the government will implement the accommodation equilibrium with $x^* = x^{*\text{max}}$. If the donor targets less than this, then the government will disburse $x^* < x^{*\text{max}}$, and the donor receives less utility than if the government had disbursed $x^* = x^{*\text{max}}$ by virtue of the fact that $x^D \geq x^{*\text{max}}$ such that the $x^*$ in question is even further from the donor’s ideal point, resulting in less utility for the donor. If the donor targets more than this amount, then the government will implement the contestation equilibrium, and by remark (5), we know that the expected value of $x$ under contestation will be less than it would have been under accommodation for a constant value of $\pi$, resulting in less utility for the donor.

Finally, if $x^D \in (x^{*\text{min}}, x^{*\text{max}})$, then the donor can target $\hat{x} \in (\hat{x}^{\text{min}}, \hat{x}^{\text{max}})$ such that $x^* = x^D$. This is true by virtue of the fact that $x^*$ as defined in equation (3) is monotonically increasing in $\hat{x}$ and that $c$ and $\pi$ will be constant for a given case of targeting. Given that the donor wants to achieve $x^* = x^D$, we can rearrange equation (3) to see that $\hat{x} = x^D + \frac{c}{\pi}$. In this scenario, the government implements the accommodation equilibrium, disbursing $x = x^* = x^D$. If the donor targets either more or less, the value of $x^*$ adjusts accordingly, moving away from $x^D$ and causing a loss in utility for the donor.
References


