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Poverty and Governance

The Contest for Aid

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Abstract

Countries compete with one another for funds distributed by nongovernment organizations (NGOs). We examine the competition over poverty and governance conducted by a NGO in the allocation of its funds among potential recipient countries. The NGO in its decisionmaking process also takes into account the initial conditions of each potential recipient, including the current quality of governance and wealth (poverty). For example, all else equal, the poorer country will have a higher probability of obtaining funds; or, the better the applicant's governance, the greater are its gains. Moreover, the maximum aid a country can obtain depends on its wealth. Investment in good governance, the wealth/poverty status of the applicant, and its current quality of governance will in conjunction determine the funds potential recipients can expect to obtain. We also consider recent changes in the levels of these factors in our attempt to understand the roles these factors play in the competition for aid, and the outcome for the quality of governance.

Keywords: nongovernment organization, NGOs, aid, competition

JEL classification: O10, O19, F35, C23, O47, E21

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Acronyms

DAC   Development Assistance Committee (of the OECD)

NGO   nongovernment organization

ODA   official development assistance

1 Introduction

A major goal of foreign aid has become the encouragement and development of a proper set of institutions, including the legal framework of the society and its social conventions. In the language of the current discussion, the goal is to encourage 'good governance'. At the heart of the argument supporting the good governance criterion in aid allocations is the claim that aid is effective only in an appropriate policy environment; otherwise, it will be diverted by corrupt bureaucracies and self-interested governments. Although not universally embraced, a stylized fact of development policy considers 'good governance' to be a necessary pre-requisite on order for foreign aid to become generally effective in achieving development goals.

Good governance can also be perceived as a long-term goal. According to this view, various stop-gap aid allocations may be effective for reaching short-run development goals but over the longer term, continuous economic improvement requires proper administration, a well-functioning legal system, etc. Here we can view the situation as one in which aid-giving has multiple objectives—short-run and long-run goals, where the long-term objectives are achieved through the pursuit of good governance. The existence of multiple objectives may give rise to the necessity of making specific decisions where the aid budget is to be allocated, for example, for achieving short-run or long-run objectives. Even when there is only one goal (the elimination of poverty, for example), there may be trade-offs between meeting this goal in the short and the long run.

We adopt this perspective here. Aid is intended by the donors as encouragement for spending so that it produces current benefits, and develops the capacity to continue providing benefit in the long run. But there is only so much aid that can be allocated. We examine how a donor can structure the aid award in order to meet its multiple goals.

Our donor is a nongovernment organization (NGO). During the 1990s donor governments and multilateral institutions began to rely heavily on NGOs for allocating aid and for implementing their aid projects/programmes.[1] The NGO must decide how to allocate its aid among potential recipients, taking into account both short-run and long-run objectives. Under certain conditions, the NGO will establish a contest for aid funds among potential recipient countries. What we examine on the donor's side in particular is the design of the contest and its implications for governance among the potential recipients. The NGO, faced with multiple objectives, may find it optimal to discriminate against some potential recipients, which at times could mean that aid is awarded to the richer country and denied to the poorer.

The literature on the appropriate goals of foreign aid has taken several turns, as discussed by McGillivray et al. (2005), Heckelman and Knack (2005), Lahiri and

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[1] During the 1990s the number and roles of international NGOs participating in the foreign aid process grew by 19.3 per cent. For all the Development Assistance Committee (DAC) countries, official development assistance (ODA) to NGOs increased from US$928 million in 1991-92 to US$1246 million in 2002, up by 34 per cent, or an increase from 1.59 per cent to 2.14 per cent of all DAC-ODA over the same period. For the United Kingdom, where this shift is quite stark, the ODA funding to NGOs went from US$21 million to US$226, a jump of 976.2 per cent, bringing all UK ODA up from 0.65 per cent in 1990-91 to 4.6 per cent in 2002. See Epstein and Gang (2006), for an analysis of the role of NGOs in the aid process.

Michaelowa (2006), and Mavrotas and Villanger (2006). We examine how donors can distribute aid in an efficient way while acknowledging the goal of establishing good governance in the long run. This can be done through an aid contest: recipient countries need to know that aid is allocated by the donor to the country investing in good governance. This concept has previously been presented in the literature, most notably by Lahiri and Raimondos-Moller (1997) and Svensson (2003). Our setup is somewhat different and deserves attention (earlier papers do not use the contest function).

In section 2, we present the basic elements of our model. The contest over NGOs funds is described in section 3, while section 4 examines total (aggregate) investment in good governance. In section 5 we consider a discriminating NGO and section 6 concludes.

2   Basic model

There are many paths an NGO can follow in pursuing its objective of helping those in need. For example, an NGO could give cash to the governments of the countries on greatest need, enabling the recipient to distribute the funds as appropriate. Another option is for the NGO to promote good governance in potential recipients, based on the premise that good governance in itself will help the needy. NGOs allocating funds to potential recipient countries with substantial poor populations could use these resources to try to reach the needy directly while at the same time encouraging the aided countries to invest in good governance.

Assume the NGO has an F amount of aid funds to allocate to two potential needy countries, $i = 1, 2$. The wealth of country i is given by w_i and this country has a marginal productivity level $M(w_i)$ for each dollar of aid it obtains. Generally, the marginal productivity of aid decreases with the wealth of the country: the additional aid dollar has a smaller impact in the wealthier country has than in the poorer country. On the other hand, the argument can be made that there are circumstances under which it is the wealthier country that will achieve a larger marginal benefit from each aid dollar. In our analysis below, we consider both cases.

The NGO can decide to allocate a proportion P_i of the funds it has to distribute to country i (and $1-P_i$ to the other country). If this is the distribution decision, then the value of the funds received by country i equals $P_i M(w_i) F$ and the value received by country j equals $P_j M(w_j) F = (1-P_i) M(w_j) F$.

The NGO can also create a contest under which each country has to invest in good governance in order to receive aid. The nature of the contest is that in equilibrium the proportion of funds directed to each country is a function of its allocation of resources towards good governance. Denote the resources allocated to good governance by country i to be x_i. The net payoff to country i investing resources in good governance at a level of x_i and receiving NGO funds at a level of $P_i M(w_i) F$ equals:

$$u_i = P_i M(w_i) F - x_i \qquad i = 1, 2 \tag{1}$$

The proportion of funds the country receives from the NGO, P_i, is a positive function of the resources invested in good governance, x_i, and is negatively related to the good-

governance investment of the other country, x_j. Thus, the proportion of funds country i receives is a function of the resources invested by both countries. It is positively affected by the investment of country j: $P_i(x_i, x_j)$ so that

$$\frac{\partial P_i(x_i, x_j)}{\partial x_i} > 0, \ \frac{\partial P_i(x_i, x_j)}{\partial x_j} < 0 \text{ and } P_i + P_j = 1.$$

As is commonly assumed in the recent political economy literature,[2] let the objective function of the NGO be a weighted average of net payoff/social welfare, $(u_1 + u_2)$, and investment in good governance, $(x_1 + x_2)$ of the potential recipient countries:

$$NGO(.) = \alpha(u_1 + u_2) + (1 - \alpha)(x_1 + x_2) \tag{2}$$

The parameters α and $(1-\alpha)$ are the weights assigned to social welfare in the short run (not taking into account the effect good governance may have in the long run on the country) and the contestants' investment in good governance which will affect social welfare in the long run.[3]

If the NGO creates a contest between countries (see Epstein and Nitzan 2006, 2007), the countries will try to maximize their net payoff and determine their optimal investments in good governance (x_1^*, x_2^*). Given their investments in good governance, the NGO determines the proportion of funds obtained by each country, (P_1^*, P_2^*). Thus the NGO determines the funds to be contested, while the decision regarding the potential recipients who receive aid funds depends on their own and others investments in good governance. The contest is not in absolute terms. Namely, the NGO does not set a goal according to which those that invest above a certain level will be awarded aid funds. What the NGO does is to allocate the resources it has, F, as a function of each country's investment relative to what both countries invested in good governance. Given the investment in good governance, the proportion of funds each country will obtain is determined, and thus the net payoffs, each country's short-term social welfare, $(u_1^* + u_2^*)$ can be calculated. In such a case the value of the NGO's objective function as a result of the contest equals:

$$NGO^c(.) = \alpha\left(P_1^* M(w_1)F - x_1^* + P_2^* M(w_2)F - x_2^*\right) + (1 - \alpha)(x_1^* + x_2^*) \tag{3}$$

On the other hand, the NGO may decide to distribute its funds between two applicant so that each receives a proportion of the funds without consideration of their good governance investments. The NGO can divide the funds so that each country is

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[2] See, for example, Epstein and Nitzan (2006, 2007); Grossman and Helpman (2001); Persson and Tabellini (2000).

[3] We need to note two additional modelling issues, the linearity of x and the timing of the game. The linearity of x both in (1) and in (2) is very convenient (this can be seen by substituting (1) into (2)). More comprehensive modelling of how x affects the recipient and the donor would not have changed the main story of the paper. The timing of the game is as in previous aid-contest models: recipient countries first choose their behaviour, taking into account the reaction of the donor, and then the donor decides the allocation of aid; i.e., the NGO acts as a follower. As is well known, the main problem of such behaviour is time-inconsistency for the recipient country.

allocated *the proportion it would have received if a contest had been generated* as a function of investment in good governance, $\left(P_1^*, P_2^*\right)$.

Therefore, if the NGO does not create a contest, preferring instead to divide its aid funds according to $\left(P_1^*, P_2^*\right)$, the total net benefit for the recipients (the social welfare of the countries in the short run) equals $P_1^* M(w_1)F + P_2^* M(w_2)F$. Plugging this value into the NGOs' objective function (as given in (2)) while setting the good governance investment to zero $\left(\left(x_1^*, x_2^*\right) = (0, 0)\right)$, the value of the NGO's objective function equals:

$$NGO^{nc}(.) = \alpha\left(P_1^* M(w_1)F + P_2^* M(w_2)F\right) \tag{4}$$

The NGO creates a contest only if the value of its objective function in doing so is at least as high as it would have obtained without the contest and at the same time had divided the funds in the same proportions as in a contest:

$$NGO^c(.) \geq NGO^{nc}(.) \tag{5}$$

From (3), (4) and (5) we obtain that the following must hold in order for the NGO to create a contest:

$$\alpha\left(P_1^* M(w_1)F - x_1^* + P_2^* M(w_2)F - x_2^*\right) + (1-\alpha)\left(x_1^* + x_2^*\right)$$

$$\geq \alpha\left(P_1^* M(w_1)F + P_2^* M(w_2)F\right). \tag{6}$$

Rewriting inequality (6) we find that a contest is created by the NGO if the following condition holds:

$$\frac{\alpha}{(1-\alpha)} \leq 1 \tag{7}$$

Namely, the NGO creates a contest among countries if the weight assigned by the NGO to the short-run social welfare, $\left(u_1^*, u_2^*\right)$, denoted by α, and the affect of the long-run via good-governance investment, $\left(x_1^*, x_2^*\right)$, denoted by $1-\alpha$: $\frac{\alpha}{(1-\alpha)}$, is smaller than a unit. Thus the condition of creating a contest is that the value of the weight assigned by the NGO to the short-run social welfare, $\left(u_1^*, u_2^*\right)$, α, is less than or equal to $\frac{1}{2}$. We may conclude that,

Proposition 1: If the NGO is concerned with good governance at least to the same degree it is concerned about the present value of its current donations (the social welfare in the short run), then it prefers to create a contest for funds among potential recipients. The outcome of the contest is a function of the investment in good governance by countries wishing to receive NGO funds.

This result states that if the NGO assigns at least the same weight to the effect the donations have on the current social welfare of the receiving countries as it does to the

investment these recipients make in good governance, the NGO will create a contest among countries.[4]

3   The contest over NGOs funds

Let us now consider the competition created by the NGO between two countries over the receipt of the aid funds available for distribution. In other words, we assume that conditions exist which make it worthwhile for the NGO to create a contest rather than merely assign each country a proportion of the available aid funds, i.e., $\alpha \leq \frac{1}{2}$.

In order to consider such a contest, we must define a contest success function. Following Epstein and Gang (2006),[5] consider a variant of the Tullock (1980) non-discriminatory contest success function in which winning is a function of investment in good governance:

$$P_1 = P_1\left(x_1, x_2\right) = \frac{x_1}{x_1 + x_2} \ ,$$

$$P_2\left(x_2, x_1\right) = 1 - P_1 = \frac{x_2}{x_1 + x_2} \ .$$

(8)

Each country investing in good governance obtains resources from the NGO. Investment in good governance has both negative and positive short-run effects. The short-run negative effect arises from expenditure, whereas the positive effect comes from the resources obtained. Since we assume that investment of these resources in good governance is made only in order to secure funds from the NGO, the countries are not concerned about the investment's long-run effects; otherwise they would have invested in good governance without any connection to the funds they may receive. In the event that they do invest in good governance, then the created contest is an increase in investment resulting from the receipt of NGO funds. The net payoffs for the two countries investing resources $\left(x_1, x_2\right)$ in good governance to obtain NGO funds equal:

$$u_1 = \frac{x_1}{x_1 + x_2} M\left(w_1\right) F - x_1,$$

and,

$$u_2 = \frac{x_2}{x_1 + x_2} M\left(w_2\right) F - x_2.$$

(9)

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[4] This result has similar flavour to that presented by Epstein and Nitzan (2006, 2007) where they consider the conditions under which a politician will create a contest between different interest groups. In Epstein and Nitzan, the alternative to a contest is to vote in favour (with probability one) in favour of the interest group that has the most to gain from obtaining the appropriate legislative

[5] Epstein and Gang (2006) consider a contest in which the lobbying efforts by countries determine the proportion of funds each will receive. In this paper we do not consider the effect of lobbying on the proportion of funds distributed by the NGO to each country.

Each country invests in good governance so as to maximize its net payoff, taking into account the effect good governance has on the allocation of NGO funds. The first-order conditions are given by:[6]

$$\frac{\partial u_i}{\partial x_i} = \frac{x_j}{(x_1 + x_2)^2} M(w_i) F - 1 = 0 \quad \forall i, j = 1,2 \ i \neq j \tag{10}$$

Solving the first-order conditions for both players, the Nash equilibrium investment of both players in good governance equals:

$$x_1^* = F \frac{M(w_1)^2 M(w_2)}{(M(w_1) + M(w_2))^2} \quad \text{and} \quad x_2^* = F \frac{M(w_1) M(w_2)^2}{(M(w_1) + M(w_2))^2} \tag{11}$$

From the definition of the contest success function (as defined in (8)) and the equilibrium investment in good governance (as presented in (11)), the equilibrium proportion of funds each country obtains from the NGO equals:

$$P_1^* = \frac{M(w_1)}{M(w_1) + M(w_2)} \quad \text{and} \quad P_2^* = \frac{M(w_2)}{M(w_1) + M(w_2)} \tag{12}$$

Country 1 will invest more resources in good governance and will receive a larger proportion of the funds awarded by the NGO if it holds that the marginal benefit from the funds in country 1 is greater than that of country 2, $\frac{M(w_1)}{M(w_2)} > 1$.

Thus,

Proposition 2: If the marginal productivity of the obtained funds decreases with the wealth of the countries (for $w_2 \geq w_1$ it holds that $M(w_1) \geq M(w_2)$,) then the poorer country will invest more resources in good governance and will receive a larger proportion of the funds awarded by the NGO: $x_1^* \geq x_2^*$ *and* $P_1^* \geq P_2^*$.

4   Total (aggregate) investment in good governance

Total investment in good governance by both countries, from (11), is:

$$x_1^* + x_2^* = F \frac{M(w_1) M(w_2)}{(M(w_1) + M(w_2))} \tag{13}$$

Let us now consider the case where the NGO chooses two countries to compete for its aid funds, i.e., when $\alpha \leq \frac{1}{2}$, so we care about both (x_1, x_2). Would the NGO prefer that

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6   It can be verified that the second order conditions are satisfied.

the two countries are more or less alike in terms of their wealth? In order to answer this question, we have to determine what exactly is the NGO objective. Let us start by considering a scenario in which the NGO prefers to maximize the total value of the resources invested by the two countries in good governance. In this case, the NGO sets the weight assigned on the social welfare (in the short run) to zero: $\alpha = 0$.

Assume that country 1 is poorer than country 2, thus $w_1 < w_2$. We wish to consider what happens to the total value of the resources invested in good governance by the two countries when, instead of country 1, a different—and slightly more wealthier—country, is chosen to compete against country 2. What we are really examining is the case in which the wealth of country 1 has been increased. Mathematically this means taking the derivative of the total investment in good governance with regard to the wealth of country 1. If this derivative is positive, this means that increasing the wealth of country 1 increases aggregate investment in good governance, whereas a negative derivative indicates that increasing the wealth of country 1 decreases aggregate investment in good governance. Formally,

$$\frac{\partial \left(x_1^* + x_2^* \right)}{\partial w_1} = \frac{\partial M(w_1)}{\partial w_1} \frac{FM(w_2)}{M(w_1) + M(w_2)} \tag{14}$$

Thus, $Sign\left\{ \dfrac{\partial \left(x_1^* + x_2^* \right)}{\partial w_1} \right\} = Sign\left\{ \dfrac{\partial M(w_1)}{\partial w_1} \right\}$.

Proposition 3: The wealthier the country, the lower the marginal productivity of the NGO funds, then the NGO prefers having two extreme countries competing for the funds: the poorest competes with the wealthiest of the countries.

Consider next the case in which the NGO is concerned not only with the total good-governance investment but also with the current benefits that accrue to the countries directly from the funds they receive. In other words, we need calculate the value of NGO's objective function as defined (3).

Before proceeding to the value of the objective function, let us first calculate the net payoff of the different countries in equilibrium. From (9), (11) and (12) we obtain the net payoff of the different countries when investing in good governance equals:

$$u_i^* = \frac{M(w_i)^3}{\left(M(w_1) + M(w_2) \right)^2} F \quad i = 1,2 \tag{15}$$

As we can see, the country having the higher marginal benefit, $M(w_i)$, from the NGO funds, will have a higher net payoff.

Using (11) and (15), we can now calculate the equilibrium value of the NGO objective function as defied in (3):

$$NGO^c(.) = F \frac{\left(\alpha M(w_1)^2 + (1 - 2\alpha) M(w_1) M(w_2) + \alpha M(w_2)^2 \right)}{M(w_1) + M(w_2)} \tag{16}$$

Let us now consider how an increase in the wealth of country 1 affects the value of the NGO objective function:

$$\frac{\partial NGO^c(.)}{\partial w_1} = F\frac{\left(\alpha M(w_1)^2 + 2\alpha M(w_1)M(w_2) + (1-3\alpha)M(w_2)^2\right)}{[M(w_1)+M(w_2)]^2}\frac{\partial M(w_1)}{\partial w_1} \tag{17}$$

We have shown that in order for the NGO to create a contest between the countries, it must hold that the weight it assigns to the investment in good governance is at least 0.5: $(1-\alpha) \geq \frac{1}{2}$. Using this fact together with (17) we conclude,

Proposition 4:

1. If the wealthier country has a lower marginal productivity with regard to the use of the funds it obtains from the NGO, $\frac{\partial M(w_1)}{\partial w_1} < 0$, then the NGO prefers to have two extreme countries competing for the funds: the poorest with the wealthiest.

2. On the other hand, the wealthier the country, the higher the marginal benefit it can obtain from the NGO funds $\frac{\partial M(w_1)}{\partial w_1} > 0$, then the term $\left(\alpha M(w_1)^2 + 2\alpha M(w_1)M(w_2) + (1-3\alpha)M(w_2)^2\right)$ may be negative. Thus under this condition, $\frac{\partial M(w_1)}{\partial w_1} > 0$, it is not clear whether the NGO prefers the extreme countries in terms of wealth to compete against each other or with countries at similar wealth levels.

5   A discriminating NGO

In the discussion above we considered the case of a non-discriminating contest success function under which each country obtains funds from the NGO relative to its investment in good governance: $P_i(x_i, x_j) = \frac{x_i}{x_i + x_j}$ $i, j = 1,2$ $i \neq j$. Namely, a unit of investment made by each country has the same value in the contest success function.

The question we now pose is: would the NGO benefit by creating a contest that can discriminate between the two countries? In other words, should the NGO create a contest that takes into account the wealth of each country in the contest success function? Currently our outcome is a function of the wealth of the countries (the investment levels and the proportion of the aid fund each country receives, $\left(x_1^*, x_2^*\right)$ and $\left(P_1^*, P_2^*\right)$, respectively. Our concern now is whether we should build into the contest success function the ability to discriminate with regard to each country's wealth. Let us consider a discriminating contest success function in the following way:

$$P_i(x_i, x_j) = \frac{d\,x_i}{d\,x_i + x_j}   i, j = 1,2   i \neq j \tag{18}$$

where d is a constant known to both countries. If $d<1$, then country j has an advantage over country i. Namely, each unit invested by country j has a higher value in the contest success function than the same unit invested by county i. Similarly, if $d>1$, then country i has an advantage over country j. In the case where $d=1$ both countries place the same value on their investment in terms of the contest success function. This is the case we examined above. We now wish to see what is the optimal level of d (discriminating value) that the NGO sets and whether this value is a function of the wealth of the different countries. Here, d is determined endogenously.

Given the new contest success function, the countries' net payoffs equal:

$$u_1 = \frac{dx_1}{dx_1 + x_2} M(w_1) F - x_1 \text{ and } u_2 = \frac{x_2}{dx_1 + x_2} M(w_2) F - x_2 \tag{19}$$

Each country invests in good governance so that it maximizes its net payoff. The first order-conditions are given by:[7]

$$\frac{\partial u_1}{\partial x_1} = \frac{dx_2}{(dx_1 + x_2)^2} M(w_1) F - 1 = 0,$$

and, $\tag{20}$

$$\frac{\partial u_2}{\partial x_2} = \frac{dx_1}{(dx_1 + x_2)^2} M(w_2) F - 1 = 0.$$

Solving the two first-order conditions for both players, we obtain that the Nash equilibrium investments equal:

$$x_1^* = F \frac{dM(w_1)^2 M(w_2)}{(dM(w_1) + M(w_2))^2} \text{ and } x_2^* = F \frac{dM(w_1) M(w_2)^2}{(dM(w_1) + M(w_2))^2} \tag{21}$$

and the proportion of aid each country obtains in equilibrium equals:

$$P_1^* = \frac{dM(w_1)}{dM(w_1) + M(w_2)} \text{ and } P_2^* = \frac{M(w_2)}{dM(w_1) + M(w_2)} \tag{22}$$

Consider the effect this new contest success function (which allows for discrimination) has on the total amount of investment in good governance. From (21), total equilibrium investment in good governance equals (by both countries):

$$x_1^* + x_2^* = Fd \frac{M(w_1)M(w_2)(M(w_1) + M(w_2))}{(dM(w_1) + M(w_2))^2} \tag{23}$$

What is the optimal discrimination level that maximizes aggregate investment in good governance by both countries? In answering the question, we assume that the NGO is only concerned with the good-governance investments of both countries, without

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7   It can be verified that the second order conditions are satisfied.

concern for the direct benefit the funds will have on the recipients. In other words, the weight set by the NGO on the net benefits of the countries is zero and that the weight set by the NGO on the good-governance investments equals to one, $1-\alpha=1$, as described in equation (3).

The first-order condition for maximizing (23) with regard to the discriminating index d equals:[8]

$$\frac{\partial\left(x_1^*+x_2^*\right)}{\partial d}=-Fd\frac{M\left(w_1\right)M\left(w_2\right)\left(dM\left(w_1\right)-M\left(w_2\right)\right)\left(M\left(w_1\right)+M\left(w_2\right)\right)}{\left(dM\left(w_1\right)+M\left(w_2\right)\right)^2}=0 \qquad (24)$$

Solving (24) we obtain that optimal discrimination level equals:

$$d^*=\frac{M(w_2)}{M(w_1)} \qquad (25)$$

We therefore can conclude that,

Proposition 5: Consider the case where the wealthier country has the lower marginal productivity of the funds obtained from the NGO: for $w_1<w_2$ it holds that $M(w_1)>M(w_2)$. In order for the NGO to maximize total (aggregate) investment in good governance for both countries, the NGO must discriminate against the poorer country. This helps the wealthier country have a higher chance of obtaining funds and, by doing so, increases total (aggregate) investment in good governance.

Now let's consider the more general case where the NGO wishes to maximize its objective function as was presented in (2):

$$NGO(.)=\ \alpha\left(u_1+u_2\right)+\left(1-\alpha\right)\left(x_1+x_2\right) \qquad (2)$$

Using (18), (21) and (22) together with (2), (2) becomes:

$$NGO(.)\ =\ F\frac{\alpha d^2M\left(w_1\right)^3-\left(-1+\alpha\right)dM\left(w_1\right)^2M\left(w_2\right)-\left(-1+\alpha\right)dM\left(w_1\right)M\left(w_2\right)^2+\alpha M\left(w_2\right)^3}{\left(dM\left(w_1\right)+M\left(w_2\right)\right)^2} \qquad (26)$$

Let us now consider the discrimination level that will maximize (26). The first-order condition is give by:[9]

$$\frac{\partial NGO(.)}{\partial d}=\ FM(w_1)M(w_2)\frac{\left(-1+3\alpha\right)dM(w_1)^2-\left(-1+\alpha\right)(d-1)M(w_1)M(w_2)+\left(1-3\alpha\right)M(w_2)^2}{\left(dM(w_1)+M(w_2)\right)^3}. \qquad (27)$$

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[8]   It can be verified that the second order condition is satisfied.

[9]   It can be verified that the second order condition holds.

Solving the first-order condition, $\dfrac{\partial NGO(.)}{\partial d} = 0$, we find that the optimal level of discrimination is:

$$d^* = \frac{M(w_2)}{M(w_1)} \frac{(\alpha-1)M(w_1)+(3\alpha-1)M(w_2)}{(\alpha-1)M(w_2)+(3\alpha-1)M(w_1)} \tag{28}$$

We can see that if the NGO is only concerned with good governance, $\alpha = 0$, we obtain the result presented above in (25), $d^* = \dfrac{M(w_2)}{M(w_1)}$. In the case that the NGO does not care at all about good governance and only is concerned with the correct net welfare of the countries ($\alpha = 1$) then the optimal discrimination equals $d^* = \left(\dfrac{M(w_2)}{M(w_1)}\right)^2$. In other words the NGO will increasingly discriminate between the two countries. Therefore,

Proposition 6: If the NGO is concerned only about good governance it will discriminate against the poorer country. However if the NGO also is concerned about the current wealth of the countries, it will discriminate even further against the poorer country.

Notice that the discrimination value of *d* is a function of the weight sent by the NGO:

$$\frac{\partial d^*}{\partial \alpha} = \frac{2M(w_2)(M(w_1)^2 - M(w_2)^2)}{M(w_1)((\alpha-1)M(w_2)+(3\alpha-1)M(w_1))^2} \tag{29}$$

Thus, $Sign\left\{\dfrac{\partial d^*}{\partial \alpha}\right\} = Sign\left(M(w_1)^2 - M(w_2)^2\right)$.

Increasing the weight assigned to the welfare component, α may increase or decrease the discrimination index. If the poorer country receives higher marginal productivity from the funds obtained from the NGO, $w_1 < w_2 \Rightarrow M(w_1)^2 > M(w_2)^2$ then increasing α will increase the discriminating value *d* and make the two countries more equal in terms of the effect the investment in good governance has on the contest success function.

6   Conclusion

Countries compete with one another for funds distributed by nongovernment organization. We model the aid allocation decision where the NGO has announced that good governance is a criterion for receiving aid. Potential recipients must compete for aid funds. The structure of the competition is important to the donor NGO in terms of achieving the long-term goal of good governance as well as short-run goals.

Our modelling and results are somewhat different though in the spirit of two earlier papers on aid. Lahiri and Raimondos-Moller (1997) demonstrate that self-interested and altruistic donors behave differently with regard to aid allocation decisions and that recipients react to donors' policies in order to increase their share of the aid budget.

Svensson (2003) introduces competition among the beneficiaries of foreign assistance, with the result that more aid is channelled to a country where the likelihood of a successful reform is higher and aid is relatively more effective. This shift of aid towards successfully reforming countries raises the incentives to reform.

In its decisionmaking the NGO in our modelling also takes into account the initial conditions of each potential recipient, including the current quality of governance and wealth (poverty). For example, all else equal, the poorer country will have a higher probability of obtaining funds; or, the better the quality of governance in the applicant the more it gains. Moreover, the maximum aid a country can obtain depends on its wealth. Investment in good governance, the wealth/poverty status of the applicant, and its current quality of governance will, together, determine the funds potential recipients expect to obtain. We outline the roles these factors play in the competition for aid, and the outcome for the quality of governance.

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