

Journal of Development Economics 70 (2003) 381-402



www.elsevier.com/locate/econbase

Why conditional aid does not work and what can be done about it?

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Received 1 June 2000; accepted 1 February 2002

Abstract

This paper studies a simple reform that introduces ex post incentives for the donor to reward good policies—contrary to existing practices. Instead of committing aid to each recipient ex ante and making aid conditional on reform, the donor centralizes the disbursement decision by committing aid to a group of countries. The actual amount disbursed to each individual country would depend on its relative performance. This explicit linkage of the allocation and disbursement decisions has two important advantages as compared to present practices. First, it raises the opportunity cost of disbursing aid ex post, thereby giving the donor to make inferences about common shocks, which otherwise conceal the recipient's choice of action. This enables the donor to give aid more efficiently. © 2002 Elsevier Science B.V. All rights reserved.

JEL classification: D73; D80; F35 Keywords: Foreign aid institutions; Aid tournament; Conditionality; Budget-pressure

Over the past few years Kenya has performed a curious mating ritual with its aid donors. The steps are the following. One, Kenya wins its yearly pledges of foreign aid. Two, the government begins to misbehave, backtracking on economic reform and behaving in an authoritarian manner. Three, a new meeting of donor countries looms with exasperated foreign governments preparing their sharp rebukes. Four, Kenya pulls a placatory rabbit out of the hat. Five, the donors are mollified and the aid is pledged. The whole dance then starts again [The Economist (August 19, 1995)].

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Both donor and recipient have incentive systems which reward reaching a high volume of resource transfer, measured in relation to a predefined ceiling.... In many administrations, both bilateral and multilateral, the emphasis is on disbursements and country allocations. Non-disbursed amounts will be noted by executive boards or parliamentary committees and may result in reduced allocations for the next fiscal year.... Results are measured against volume figures, with no regards for the quality.... Besides, when the time has come to evaluate the actual outcome, most of those responsible for the project on both sides will have been transferred (Edgren, 1996, p. 11; former chief economist of the Swedish aid agency).

1. Introduction

Total aid in constant US dollars increased steadily throughout the post-war period, reaching a peak of US\$ 69 billion (in 1995 prices) in 1991. In a typical low-income country, foreign aid remains by far the primary source of external finance, amounting to 7-8% of GNP (World Bank, 1998).

What has this vast resource transfer achieved? Recent empirical research suggests that, on average, there is no relationship between aid and growth (Boone, 1996), but that aid has a positive impact on growth under certain conditions (Burnside and Dollar, 2000; Svensson, 1999).¹ However, foreign aid has not been systematically channeled to countries where those conditions prevail. Nor does aid seem to influence policy, which is the core of what conditionality is supposedly about (see Collier, 1997; Dollar and Svensson, 1998).

A recent World Bank report (Collier and Dollar, 1998) estimates that if aid is redirected towards poor countries with good policies, more than twice the number of people—80 million—could be lifted out of poverty for the same aggregate level of foreign aid. Consequently, there are potential large gains of reforming current aid practices and one such reform is analyzed below.

Why has not foreign assistance to a larger extent been disbursed to countries where these resources can be most effectively utilized (measured in terms of growth or poverty impact)? Clearly, one reason is that aid is given also for other reasons than poverty alleviation (Alesina and Dollar, 2000; Lahiri and Raimondos-Møller, 2000). In this paper, we explore a complementary reason, the so-called budget-pressure problem. Specifically, in most donor organizations, the allocation and disbursement decisions are separated. While the allocation process is naturally centralized (in many countries general guidelines are set by the parliament), the disbursement decision is decentralized (i.e., country- or project-specific).²

¹ Burnside and Dollar (2000) show that aid has a positive impact on growth in countries with sound macroeconomic policies, while Svensson (1999) finds that aid has a positive impact on growth in countries with an institutionalized and well functioning check on governmental power. Using different methods, Hansen and Tarp (2001) call in question the robustness of the Burnside and Dollar result. They find a weakly positive (unconditional) relationship between aid and growth.

² Interestingly, this set-up also characterizes most aid at the project level. The planning and initiation of a project are typically coupled with a commitment of funds to that particular project. Disbursement (of committed funds) is a subsequent decision.

This institutional setup has resulted in a strong bias towards "always" disbursing committed funds to the ex ante designated recipient, irrespective of the recipient government's performance and the conditions in other potential aid recipient countries. Thus, resources are not shifted towards countries where they can be effectively utilized; i.e., reforming countries, and ex ante "threats" of not disbursing committed aid if the recipient fails to reform; i.e., conditionality, is not credible. The bias, in turn, arises because the opportunity cost of a given aid budget (or a committed adjustment loan) for the disbursing donor agent is low.

Why is the opportunity cost low? Recent case study evidence points to several possible explanations. Studies of bilateral donor organizations have emphasized that, in practice, "spending the budget" has become a key goal in itself (Paldam, 1997; Karlstrom, 1997; Edgren, 1996). Large unused resources is a sign that the country department has a problem, why else can it not disburse its funds? Since the allocation of the overall aid budget across country departments is partly determined by the disbursement history, a country department failing to disburse the committed funds will most likely receive a smaller allocation the following year. The size of the budget, in turn, not only constrains the overall spending program of the country department, but also determines the status of the job (for general references to the theory of bureaucratic interests, see Wintrope, 1997; Moe, 1997; Niskanen, 1994). The quote in the introduction by the former chief economist of the Swedish aid agency neatly summarizes some of the key institutional features of the system.

Evaluations of the lending process within the World Bank have pointed towards similar incentives. Mosley et al. (1995) argue that the World Bank's country loan officers are under intense pressure to meet country disbursement targets notwithstanding how unpromising that government's subsequent implementation performance is. Apart from the "maximization of the budget" argument, they stress a coordination/free-rider problem; bearing in mind what other countries have got away with, Bank staff know that it will not be financially productive to make an example of one particular recipient who defaults on conditions by refusing to disburse the committed funds. Moreover, the enforcement of conditionality might be in conflict with other goals of the Bank, such as providing quick-disbursing finance so as to hinder a potential default on outstanding loans.³

The low opportunity cost of the committed funds hypothesis has a stark empirical implication, the disbursement decision should be independent of reform implementation. That is, the committed funds should be disbursed irrespective of the recipients' actions. We provide some preliminary evidence consistent with this hypothesis. Specifically, using data from around 200 structural adjustment programs, we find no link between a country's reform effort, or fulfillment of "conditionality", and the disbursement rate.

³ In principle, there exists a number of screening devices within the World Bank to counteract any pressure towards "irresponsible" lending, but these are weaker for program than project lending (Mosley et al., 1995). Moreover, many conditions attached to Bank adjustment loans are phrased in terms permitting a subjective assessment ('substantial progress', 'satisfactory performance') which, in turn, facilitates the tranche release of committed funds.

We study a simple reform that may improve the outcome from the donor's perspective. Our argument is based on the principle that the opportunity cost of aid must be internalized when deciding where to disburse foreign aid. A simple way of achieving this is to partly centralize the disbursement decision. Thus, instead of committing a fixed amount of aid, t, to each n recipients ex ante, and making aid conditional on reform or outcome, the donor links the allocation and disbursement decision by committing the aggregate amount (nt) to a group of countries, but where the actual amount disbursed to each individual country depends on its relative performance. Linking the allocation and the disbursement decision has two important advantages as compared to the present practices. First, it raises the opportunity cost of disbursing aid ex post, thereby giving the donor stronger incentives to reward good policies. Second, competition among recipients (in a sense an aid tournament) allows the donor to make inferences about common shocks, which would otherwise conceal the recipient's choice of action. This enables the donor to give aid more efficiently.

This paper is related to various strands of literature. The theory of yardstick competition and tournaments was developed by Green and Stokey (1983), Holmstrom (1982), Lazear and Rosen (1981), Mookherjee (1984) and Nalebuff and Stiglitz (1983). We apply this insight to foreign aid policy and show that an additional gain of linking the allocation and disbursement decision is that it constraints the donor's ex post incentives, thereby mitigating the time-inconsistency problem prevalent in present practices. Thus, contrary to the multiple-agent literature mentioned above where competition among agents only has a value insofar as it allows a better extraction of information by the principal (see Holmstrom, 1982), competition among the recipients benefits the donor, even though there is no common noise.

Others have studied the time-inconsistency problem in foreign aid policy in general (see e.g. Mosley et al., 1995; Svensson, 2000; Pedersen, 1996; Drazen, 1999).⁴ As in this paper, Mosley et al. (1995) argue that the present system is biased towards disbursing aid irrespective of the reform effort.

This paper is organized as follows. Section 2 presents a simple model, and analyzes conditional aid under commitment and discretion with separate allocation and disbursement decisions. The model suggests that the outcomes under commitment and discretion differ quite dramatically and Section 3 takes an initial look at some new data to test the implication of the "aid under discretion" scenario. Section 4 analyzes the effects of linking the allocation and disbursement decisions and Section 5, finally, concludes.

2. Theory

2.1. A simple model

Consider a donor endowed with an aid budget, 2t. The amount of resources earmarked for development aid by donor countries is often determined in the central budget

⁴ For a review, see Drazen (2000).

process, and in this context it is reasonable to assume it to be exogenous. The donor wants to assist two countries (recipients) $c = \{i, j\}$. The actual assistance is carried out by a country department (or country manager—we will use both terms interchangeably) in the donor organization. We assume that each country manager controls 50% of the total budget, i.e., *t*. Thus, the initial allocation between the pool of recipients is also taken as given.⁵

The country manager in charge of assistance to country c cares about poverty reduction.⁶ Poverty reduction could be quantified as the number of people lifted out of absolute poverty (above some threshold poverty line), or income growth for the bottom quintile of the income distribution, or the number of people (share) with access to basic health/education infrastructure. To encompass all different measures, we simply choose a reduced form specification where the extent of poverty reduction, denoted by pr, is a function of the amount of adjustment effort exerted (or the extent of policy reform) by the recipient, e_c , the amount of aid disbursed, a_c , and a stochastic component. There is plenty of empirical support for the assumption that the poverty reduction impact of aid depends positively, although not exclusively, on policy reform, broadly defined (see, for instance, World Bank, 1998). For analytical simplicity, we assume that pr can be approximated by the multiplicative function $pr_c = r(o_c)h(a_c)$, where $h(\cdot)$ is a strictly increasing concave function and o_c is the outcome, or "success of reforms". Outcome can be either successful (s) or unsuccessful (u). The marginal contribution of donations to alleviating poverty is positively related to the success of reforms; i.e., $r(s)h(a_c) > r(u)h(a_c) \forall a_c$.⁷ We normalize the return function such that r(u) = 1and r(s) = r > 1.

⁵ Most donors give aid to a subsample of the pool of potential recipients, where the selected subsample and each recipient's share of the total aid budget are determined according to some principle (recipients' needs, strategic interests, commercial ties, history, etc.). For some donors, these decisions are made outside the organization (e.g., by the parliament), for others they are partly internal. Our interest is in the latter part of the aid process; i.e., the "disbursement decision". We therefore take the initial allocation as given.

⁶ By letting the country manager be the principal and the recipient be the agent, we limit the focus to one part of the multi-tier principal-agent problem in foreign assistance. Typically, the government in the donor country determines funding (and partly the allocation across recipients) and delegates the responsibility to a donor agency. The management of the donor agency, in turn, designs a system for aid assistance. In most (all) donor agencies, this involves providing guidelines and funds to subdivisions/managers who handle the operational part of the aid assistance program. Since the incentive problem on which we focus—the budget pressure problem—is present in this last stage, we disregard the other layers of decision-making. Implicitly, however, we assume that the donor agency and the donor government also care about reducing poverty, with an objective function equal to the sum of the country managers' utility functions. Poverty alleviation is the stated objective of development assistance and therefore, it is a reasonable starting point that also has some empirical support (Alesina and Dollar, 2000). However, it begs the question, can the donor agency (or government) design contracts with the country managers so as to minimize the budget pressure problem, without reforming the way the agency works? We do not study such contracts here, however.

⁷ These assumptions have empirical justifications. Burnside and Dollar (2000) find that there are diminishing marginal returns to aid and that aid has a positive impact on growth in countries with good fiscal, monetary and trade policies. See also Svensson (1999) and Collier and Dollar (1998).

The manager's expected utility is,

$$W_m = E[pr_c] = E[r(o_c)h(a_c)],$$
(2.1)

where E is an expectation operator.

We also assume that the recipients derive positive utility of aid, but negative utility of adjustment effort. Recipient *c*'s quasi-linear expected utility is,

$$W_c = E[v(a_c) - \delta e_c], \tag{2.2}$$

where $v(\cdot)$ is an increasing and strictly concave function and $\delta > 0$ is the marginal disutility of adjustment effort. We normalize utility such that v(0) = 0.8

The recipients can choose between two effort levels, $e_c = \{0, 1\}$, or between a reform attempt (1) and not to reform (0). The success of a reform is positively affected by the reform effort. Let $q(e_c)$ be the probability of a successful outcome, then q(1) > q(0).

Neither the adjustment effort nor the success of reform are perfectly observable (by the donor). Instead, the donor observes a signal σ of the outcome. We believe this to be a reasonable characterization of most aid programs/projects. Both the adjustment effort and the level of poverty are multidimensional concepts that can typically only be observed with a lag. For example, while the recipient may be pushing forward with some (observable) reform measures, it is not uncommon that the recipient simultaneously implements other policies (partly unobservable) with the reverse objective.⁹ Contemporaneous information on the poverty reducing impact of aid programs/projects is scant in most recipient countries. Typically, this type of information is based on household survey evidence collected year(s) after the program was initiated.

To simplify, we assume that σ can only take two values, $\sigma = \{\bar{\sigma}, \underline{\sigma}\}$. Both the signal $\bar{\sigma}$ and the success of reforms are more likely if the recipient has made a reform effort. Let $z(\sigma_i|o_i)$ denote the probability of σ_i , given o_i . We assume $z(\bar{\sigma}|s) = z(\underline{\sigma}|u) = z$, $z(\underline{\sigma}|s) = z(\bar{\sigma}|u) = 1 - z$, and that z > q(1) > 1/2. It is convenient to define the vector of outcomes, $o = (o_i, o_j)$, and O as the set of all possible o.

2.2. Conditionality as it is suppose to work (i.e., an optimal contract with a single recipient)

As a reference point, assume that the country manager has access to a commitment technology and can design and execute a contract where aid is conditional on the signal (since outcome is not observable): $a(\bar{\sigma})$ will be disbursed if the signal is $\bar{\sigma}$ and $a(\underline{\sigma})$ will be disbursed if the signal is $\bar{\sigma}$. Let $p(o_c|\sigma_c)$ be the probability of o_c , given signal σ_c . The

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⁸ The qualitative results remain intact if we allow the recipient's utility to also depend on the success of reform (e.g., $W'_c = E[r(o_c)v(a_c) - \delta e_c]$). This would raise the incentives to reform and less incentives would then be required in the aid contract. To reduce notational complexity, we work with the simpler utility function given in Eq. (2.2).

⁹ See Coate and Morris (1996) for a formal treatment of such policy fungibility in the case of policy conditionality.

country manager faces the problem of increasing the probability of a successful reform by trying to extract as much policy reform as he or she possible can. That is

$$\max_{\{a_c\}} E[r(o_c)h(a_c)], \tag{2.3}$$

subject to the budget constraint $a_c \le t$; the IR-constraint (to ensure that the recipient will want to sign the contract) given in Eq. (2.4); and the IC-constraint (to ensure that once signing it should be optimal to reform) given in Eq. (2.5);

$$[q(1)z + (1 - q(1))(1 - z)]v(a(\bar{\sigma})) + [q(1)(1 - z) + (1 - q(1))z]v(a(\underline{\sigma})) \ge \delta$$
(2.4)

$$[2z-1](q(1)-q(0))[\nu(a(\bar{\sigma}))-\nu(a(\underline{\sigma}))] \ge \delta.$$

$$(2.5)$$

Assume that it is not too costly for the donor (the benefit is high enough) to induce the recipient to reform. A necessary condition is stated below. Proposition 1 then describes the optimal contract.

Proposition 1. Provided that r is sufficiently high, the optimal contract has $a(\bar{\sigma}) = t$ and $a(\underline{\sigma}) = v^{-1}(\varphi)$, where $\varphi \equiv [v(t) - \delta/[(2z - 1)(q(1) - q(0))]]$. Only the IC-constraint binds and the recipient chooses to reform.

Proof. Assume that only the IR-constraint binds. Since the country manager derives strictly positive marginal utility of aid, the maximization of Eq. (2.3) subject only to the IR-constraint results in aid flows $a(\bar{\sigma}) = a(\underline{\sigma}) = t$. That is, all aid is disbursed irrespective of the signal. However, this aid program will not satisfy the IC-constraint and therefore, it will result in no reform. Assume that the IC-constraint binds. Note that the left-hand side of Eq. (2.4) is strictly larger than the left-hand side of Eq. (2.5) for all $a_c \ge 0$. Thus, given that the IC-constraint binds, the IR-constraint cannot (bind). Second, since the donor assigns a higher probability of a successful reform if the signal is positive; i.e., $p(s|\bar{\sigma}) > p(s|\underline{\sigma})$, and the marginal product of aid is positively related to the success of reforms, it is optimal to disburse all aid if the signal is positive; i.e., $a(\bar{\sigma}) = t$. Exploiting this result and the IC-constraint Eq. (2.5) yields $a(\underline{\sigma}) = v^{-1}(\varphi)$.

It is optimal for the country manager to induce reform if the expected utility of inducing reform by withholding aid in some states is higher than the expected utility of not inducing reform and disbursing all aid irrespective of σ . This condition can be stated as,

$$\begin{split} r[q(1)[zh(t)+(1-z)h(v^{-1}(\varphi))]-q(0)h(t)] \\ + [(1-q(1))[(1-z)h(t)+zh(v^{-1}(\varphi))]-(1-q(0))h(t)] > 0 \end{split}$$

and holds provided that a successful reform significantly increases the marginal product of aid; i.e., r is sufficiently high.

As outcome is not perfectly observable, the donor will give less aid when the perceived likelihood of a successful reform is low in order to induce reform and hence, raise the probability of success ex ante. Note that $a(\sigma)$ is a negative function of δ —more incentives are required to induce a recipient with a higher marginal disutility of adjustment effort to implement policy reforms, and a positive function of $p(s|\bar{\sigma})$ —the easier it is (in expected

terms) to distinguishing successful reforms from unsuccessful ones, the less incentives are required to induce reform.

2.3. Conditionality as it seems to work (i.e., equilibrium with discretion)

Now, consider the situation in which the country manager cannot pre-commit to follow the policy-rule or contract described above. Then, once the signal is known (and the adjustment effort exerted), the country manager faces the problem of maximizing $E[r(o_c)h(a_c)]$ subject only to $a_c \le t$.

Proposition 2. In equilibrium under discretion, all aid is disbursed irrespective of the signal; i.e., $a(\bar{\sigma}) = a(\underline{\sigma}) = t$, and the recipient chooses not to reform.

Proof. Since the opportunity cost ex post of disbursing aid is zero, the solution to the maximization program is independent of the signal. From the IC-constraint Eq. (2.5), it follows that the recipient will not reform.

While the country manager (and donor) has clear incentives ex ante to reward good polices and thereby induce reform, such an aid program requires a strong commitment ability. In its absence, aid will be disbursed irrespective of reform effort, since the opportunity cost of disbursing committed aid is zero.

The donor's expected utility under discretion is

$$W_m^d = [q(0)r + (1 - q(0))]h(t),$$

which is lower than its expected utility under commitment.

3. Discussion

The results in Sections 2.2 and 2.3 suggest that the outcome under commitment and discretion with separate allocation and disbursement decisions differ quite dramatically. If the donor has access to a commitment technology, and given that aid is conditional on reform, we should observe that countries failing to implement promised reforms should receive less committed funds. However, if the donor cannot commit to a policy rule ex ante, the disbursement decision will be independent of the conditioning set (i.e., the reform implementation). In fact, in this case, the model predicts a 100% disbursement rate.

The next section considers a simple institutional reform which will improve the outcome in a discretionary environment from the donor's perspective. However, before proceeding, it is useful to take an initial look at the relationship between reform implementation and aid disbursements.

3.1. Specification and data

Existing studies of aid and reform almost exclusively rely on a case study approach. No doubt one reason for the lack of more systematic, quantitative studies is that is it hard to find the data needed for such a study: a measure of perceived reform implementation.

Our solution is to draw on information from a recent study on the determinants of around 200 structural adjustment programs (Dollar and Svensson, 1998 [DS]). As a reform outcome, DS use a binary variable reflecting the failure or success of World Bank supported reform programs, as determined (ex post) by the Operations Evaluation Department (OED) of the World Bank. Using this variable has advantages and disadvantages. The advantage is that it provides a consistent measure of whether reform programs succeeded or failed. The disadvantage is that the measure of success is subjective. Despite the subjective element of the OED evaluation, DS stress that there are two reasons why this is still an acceptable measure of success. First, OED's independence within the World Bank means that there is no necessary bias in the results. OED is independent of the Bank's senior management; it has a budget allocated directly by the Board of Directors and reports to them. In our sample, 36% of the reform programs are judged to have failed by OED; that is, not to have met their objectives. Historically, about one-half of the reform programs in Africa supported by adjustment lending have been judged to be a failure by OED. That assessment is overall consistent with the case study literature that has highlighted the poor policy performance of many African countries. The second reason for considering the OED measure to be an acceptable proxy for reform is that it is highly correlated with improvements in observed economic indicators, such as the inflation rate or the extent of the budget surplus. As shown in DS, the reform programs measured to be successful are, on average, associated with a reduction of almost 33 percentage points in the inflation rate 3 years after the end of the reform program. Likewise, the yearly budget balance as a share of GDP is 3.5 percentage points higher 3 years after a successful reform.¹⁰

We use a two-stage procedure to assess the question of whether the disbursement decisions depend on perceived reform outcome. First, we estimate the probability of reform by means of a probit model (following DS). Second, we use the estimated probability as a proxy for the perceived success of reform in explaining the difference between committed and disbursed funds. Formally, the two-step procedure can be stated as,

$$\pi_i = \operatorname{probit}(r_i = \beta'_x \, \mathbf{x}_i + \mathbf{v}_i) \tag{3.1}$$

$$\mathbf{sf}_i = \gamma \hat{\pi}_i + \beta_z' \mathbf{z}_i + \varepsilon_i, \tag{3.2}$$

where r_i is the binary reform proxy discussed above (reform); x_i is a vector of political determinants of reform (as identified in DS); sf_i is the share of committed funds disbursed

¹⁰ While the significant correlation between the OED assessment and some of the proximate objectives of reform that can be measured, notably inflation and budget control, increases our confidence that the OED measure actually captures policy reform, it also raises the question of why not simply use these objective indicators as a measure of the extent of policy reform. There are, however, three problems with that approach. First, the reform measures differ across countries. Some reform programs are very specifically aimed at reducing high inflation, while others aim at liberalizing trade in an environment of already stabilized inflation. Reduction in inflation would not be a good measure of success of a trade liberalization program. A second problem with using a measure of policy reform as an outcome variable is that the outcome is partly driven by policy and partly by exogenous shocks, and it is difficult to disentangle these shocks from policy effects. Third, there is a lag between policy change and change in outcome, which is also difficult to capture. This lag is also likely to differ between programs and implemented reform measures. It is precisely because it is difficult to find a good measure of policy reform that there are so few systematic cross-country empirical analyses of such reforms.

Dep. var.	с	demo	stability	ethnic	ethnic ²	tenure	tenure ²
reform	-0.098 (0.304)	0.585 (0.224)	-1.30 (0.330)	5.93 (1.43)	-6.51 (1.53)	-0.089 (0.043)	0.0033 (0.001)

Table 1Probit model of reform, 1980–1995

Standard errors in parenthesis. All variables except the constant (*c*) are significant at the 5% level. Two hundred twenty observations (reform episodes). Predictability (p>0.05)=0.75. log likelihood: -119.8. Variables defined in Appendix A.

during the reform period; $\hat{\pi}_i$ is the estimated probability of reform success; z_i is a vector of other controls influencing the disbursement decision, and v_i and ε_i are iid error terms.

DS show that a small number of political economy variables can successfully predict the outcome of an adjustment program 75% of the time. Their results suggest that successful reform is associated with democratic government (demo) and political stability (stability). High degrees of ethnic fractionalization (ethnic) are bad for policy reform and long-term incumbents (tenure) are not likely candidates for reform. The basic finding in DS is replicated in Table 1. We exploit the same set of political variables (x_i) to estimate Eq. (3.1). To estimate the second-stage equation, we also need data on committed and disbursed funds. Data on bilateral aid flows is available from Geographical Distribution of Financial Flows (OECD) and information on World Bank funding from DS. We use two measures: sft_i is the share of the total funds committed that was actually disbursed during the reform period, while sfwb_i is the share of World Bank commitments disbursed during the reform period. As additional controls in Eq. (3.2), we include the logarithm of initial GDP per capita (logGDPc) and the logarithm of initial population (logpop). Both variables have been shown to be highly correlated with aid flows (see, for instance, World Bank, 1998). Mosley et al. (1995) argue that an implicit goal of policy-based lending is to provide quickdisbursing finance so as to hinder potential default on outstanding loans. To control for this possibility, we also add the initial debt to GDP ratio (debt).

We started with 272 donor (World Bank) supported reform episodes during the period 1980–1995.¹¹ For roughly 200 of these reform episodes, we have been able to assemble data on several political–institutional factors, other exogenous variables, and aid flows. Data sources and summary statistics are reported in Appendix A.

3.2. Results

The key question is, what happens with the committed funds (corresponding to t in the model) when the recipient is perceived as failing to reform? The answer, depicted in Table 2, is "very little". As is evident, there is no significant relationship between the share of committed funds disbursed and the estimated reform effort.¹² In fact, the estimated reform

¹¹ A reform episode is defined as the period during which the loan conditions put forward by the World Bank should have been met.

¹² Reform effort is a generated regressor. As such, the estimates of the standard errors may be biased. However, under the null hypothesis that the estimated coefficient on reform effort is zero, the standard errors are unbiased. Thus, the *t*-statistic for the null hypothesis is not invalidated (Pagan, 1984). As a robustness test, we estimated Eq. (3.2) with $\hat{\pi}$ replaced by *r*. The qualitative result (with sft as the dependent variable) was unchanged.

Equation	(2a) sft	(2b) sfwb	(2c) sfc	(2d) log	(2e) log
Dep. var.				(sft)	(sfwb)
constant	1.23***	0.680***	1.94***	0.817***	0.509***
	(0.154)	(0.126)	(0.255)	(0.083)	(0.72)
estimated	-0.056	0.065	-0.088	-0.033	0.036
reform	(0.058)	(0.045)	(0.111)	(0.030)	(0.025)
logGDPc	- 0.010	-0.003	- 0.065**	-0.006	-0.001
-	(0.013)	(0.010)	(0.027)	(0.007)	(0.006)
logpop	- 0.018**	0.015**	- 0.038***	- 0.010**	- 0.009**
	(0.008)	(0.006)	(0.012)	(0.005)	(0.004)
debt	0.0004**	0.0002*	0.0003**	0.0002***	0.0001*
	(0.0002)	(0.0001)	(0.0001)	(0.000)	(0.000)
No.	208	209	182	208	209
R^2	0.12	0.05	0.17	0.12	0.05
S.E.	0.141	0.107	0.208	0.076	0.061
regression					

Table 2 Disbursement decision, 1980–1995

OLS estimation with White-heteroskedasticity-consistent standard errors in parenthesis. Estimated reform derived from Table 1. All variables defined in Appendix A. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

measure enters with the "wrong" sign, although close to zero. There is some evidence that smaller countries (measured by size of population) are more likely to receive committed funds and defensive lending; that is, countries with larger initial debt are less likely to experience cancellations of commitments, irrespective of the reform outcome. Column (2b) shows that the results are similar when only considering World Bank IDA lending.

A notable difference between overall aid (sft) and World Bank assistance (sfwb) is that the ratio between disbursement and commitment is much higher for IDA assistance. Eighty-two percent of the IDA programs are fully disbursed, as compared to 18% for the whole donor community.¹³ Although we can reject a 100% disbursement rate for the World Bank, the data suggests that nearly everything is almost always disbursed.¹⁴

The low disbursement rate for the whole donor community might, at first glance, seem to contradict the prediction of the model. As noted in Proposition 2, all aid is disbursed in the equilibrium under discretion. However, there are two reasons for why one should not expect to observe a one-to-one relationship between commitments and disbursement using overall aid flows. First, a reform episode is defined as the period during which the loan conditions put forward by the World Bank should have been met. This implies that the committed World Bank funds (used to derive sfwb) during the reform episodes are explicitly tied to the program. For the bilateral donors, aid is also given for many other reasons (not just to support a structural adjustment program) and the disbursement schedule may very well differ from that of the World Bank; i.e., part of what is committed during the period may be disbursed after the reform episode. Second, the data sources for IDA commitments and bilateral commitments differ. The IDA data is taken from DS who collected it directly from the

¹³ A fully disbursed aid program is defined as an aid program where at least 99% of the committed funds were disbursed.

¹⁴ Specifically, we cannot reject the hypothesis of a 97% disbursement rate for World Bank assistance.



Fig. 1. World bank loans: unsuccessful programs (LDCs).

Operations Evaluation Department of the World Bank. Committed IDA funds are funds approved by the Bank's Executive Board and thus, funds under the country manager's discretion. Bilateral aid commitments, however, are taken from the OECD-DAC database. It is well known that what is reported as commitments in this database is not identical to the actual funds made available to the donor agencies (and in particular to country managers). For both these reasons, we would expect to observe noticeable differences in the disbursement rate. What is important is that the data does not suggest that bilateral donors can better hold the recipients to the contract. For both bilateral and World Bank funding, the difference between committed and disbursed funds is uncorrelated with reform outcome. The disbursement behavior is further illustrated in Figs. 1–4.

A possible objection to the results reported above is that the dependent variable sft combines concessional and non-concessional sources of financing. Column (2c) depicts the results with the share of committed concessional funds disbursed as the dependent variable (i.e., bilateral ODA and concessional World Bank (IDA) lending), sfc. The results are very similar to those reported in column (2a). Columns (2d)-(2e) finally report the results of using the logarithm of sft and sfwb as dependent variables, and the results remain qualitatively unchanged.



Fig. 2. World bank loans: successful programs (LDCs).



Fig. 3. Bilateral aid: unsuccessful programs (all countries).

As a robustness test, we added additional variables to the disbursement regression (3.2): arms imports, regional dummies, and complementary debt measures. We find no evidence that these additional variables are of importance in the disbursement decision. Further, we added additional controls in the probit regression (3.1): measures of the initial economic conditions, and term-of-trade shocks. The resulting probability measure, however, still remained insignificant in the disbursement equation.

Thus, the preliminary evidence suggests that committed aid and/or concessional adjustment finance are disbursed irrespective of the reform effort. This finding is in accordance with the simple theoretical model described in Section 2.3 where the country department in charge of the disbursement decision faces a very low opportunity cost ex post of disbursing aid to the designated recipient.

4. Linking the allocation and disbursement decisions

The question asked in this section is whether it is possible to design institutions governing the disbursement of foreign assistance so as to push the discretionary equilibrium



Fig. 4. Bilateral aid: successful programs (all countries).

closer to the second-best equilibrium. The institutional reform we are considering is the following. Instead of committing a fixed amount of aid (t) to each recipient ex ante, and making aid conditional on reform or outcome, the aggregate amount (2t) is committed to a multiple of recipients. To take two examples, for a typical bilateral donor this implies that instead of earmarking a fixed sum of money to country c during the fiscal period, the donor proposes a larger aid budget to a group of (similar) recipients, but where the actual disbursement of aid to each country depends on its relative performance.¹⁵ For a typical World Bank loan, this implies that instead of getting a loan proposal for country c submitted and approved by the Executive Board, the Board would approve a larger amount to be lent to a group of countries, but where the actual amount to each individual country would depend on relative outcomes.

4.1. Equilibrium with competing recipients

As in the previous section, assume that the donor (country manager) does not have access to a commitment technology. The difference from the setup considered in Section 2.3 is that we now let the manager be in charge of the whole budget (2t). The manager's expected utility is $E[\Sigma_{c=1}^{2}r(o_{c})h(a_{c})]^{16}$

Once the reform choices have been made, the country manager faces the problem of disentangling shocks from performance. Let Ee_i denote the expected reform level of recipient *i*. We will analyze two cases, one with uncorrelated and one with correlated signals.

Consider first the case where the signals are uncorrelated; i.e., the probability of $\sigma_c = \overline{\sigma}$ is determined by independent trials for c = i, j with z ($\overline{\sigma}|s$) = z. The donor's problem is to determine the disbursement across recipients. There are a few things to note about this problem. First, if the signals are identical, the donor cannot separate the two recipients and therefore assigns the same probability of successful reforms. As a consequence, the optimal allocation of aid is to split the budget in equal halves.

Assume instead that the signals differ and that $Ee_i = Ee_j = 1$. If $\sigma = \overline{\sigma}$ in country *i* and $\sigma = \underline{\sigma}$ in country *j*, denoted by $(\overline{\sigma}, \underline{\sigma})$, we can use Bayes' theorem to determine the probabilities of each possible combination of o_i and o_j yielding this aggregate signal

$$p^{\mathbf{u}}(o_i = s, o_j = u \mid (\bar{\sigma}, \underline{\sigma})) \equiv p^{\mathbf{u}}(s, u \mid \bar{\sigma}, \underline{\sigma}) = p(s \mid \bar{\sigma})p(u \mid \underline{\sigma}) = \frac{q(1)z}{A_1} \frac{(1 - q(1))z}{A_2},$$

$$(4.1)$$

and similar for $p^{u}(u, s | \bar{\sigma}, \underline{\sigma})$, $p^{u}(s, s | \bar{\sigma}, \underline{\sigma})$ and $p^{u}(u, u | \bar{\sigma}, \underline{\sigma})$.¹⁷ Superscript u denotes uncorrelated signals and $\Lambda_1 \equiv q(1)z + (1 - q(1))(1 - z)$ and $\Lambda_2 \equiv (1 - q(1))z + q(1)(1 - z)$. Since $z > q(1) > 1/_2$, it follows that $p^{u}(s, u | \bar{\sigma}, \underline{\sigma}) > p^{u}(s, s | \bar{\sigma}, \underline{\sigma}) > p^{u}(u, u | \bar{\sigma}, \underline{\sigma}) > p^{u}(u, s | \bar{\sigma}, \underline{\sigma})$. That is, the most likely aggregate outcome given signal $(\bar{\sigma}, \underline{\sigma})$ is that *i* has reformed successfully while *j* has not.

¹⁵ There is an obvious analogue for project aid.

¹⁶ The assumption of an additative utility function is made for simplicity. The qualitative results hold for a more general utility function, at the cost of increased computational complexity.

¹⁷ Note that $p(u|\bar{\sigma}) = (1-q(1))(1-z)/A_1$ and $p(s|\underline{\sigma}) = q(1)(1-z)/A_2$ and that since the signals are uncorrelated, $p(o_i, o_i|\sigma_i, \sigma_i) = p(o_i|\sigma_i)p(o_i|\sigma_i)$.

Given $(\bar{\sigma}, \underline{\sigma})$ the donor's expost expected utility is

$$\sum_{\boldsymbol{\sigma}\in\boldsymbol{O}^{u}} p(\boldsymbol{\sigma} \mid \bar{\sigma}, \underline{\sigma})[r(o_{i})h(a(\bar{\sigma})) + r(o_{j})h(a(\underline{\sigma}))].$$
(4.2)

Let the equilibrium aid disbursement scheme be denoted by $[a^u(\sigma_i), a^u(\sigma_j)]$, and let $W_i^u(e_i=1|e_j=1)$ denote recipient *i*'s expected welfare from reform, given the equilibrium aid disbursement scheme and given that recipient *j* also reforms. Since each recipient is assumed to take the reform action of the other country as given when choosing *e*, the Nash equilibrium condition for reform for recipient *i* is

$$W_i^{\rm u}(e_i = 1 \mid e_j = 1) \ge W_i^{\rm u}(e_i = 0 \mid e_j = 1).$$
(4.3)

That is, it does not payoff to not reform, given that the other recipient reforms. Inserting the expressions for W_i^{u} yields condition C1.

$$(q(1) - q(0))[2q(1) - 1)\Gamma_1^{\mathrm{u}} + (1 - q(1))\Gamma_2^{\mathrm{u}} - q(1)\Gamma_3^{\mathrm{u}}] \equiv \psi_1^{\mathrm{u}} \ge \delta$$
(C1)

where

$$\Gamma_{1}^{u} \equiv (1 - 2z + 2z^{2})v(t) + z(1 - z)(v(a^{u}(\bar{\sigma})) + v(a^{u}(\underline{\sigma})))$$

$$\Gamma_{2}^{u} \equiv 2z(1 - z)v(t) + z^{2}v(a^{u}(\bar{\sigma})) + (1 - z)^{2}v(a^{u}(\underline{\sigma}))$$

$$\Gamma_{3}^{u} \equiv 2z(1 - z)v(t) + (1 - z)^{2}v(a^{u}(\bar{\sigma})) + z^{2}v(a^{u}(\underline{\sigma})).$$

The reform equilibrium is a unique equilibrium of the aid game if

$$W_i^{\rm u}(e_i = 1 \mid e_j = 0) \ge W_i^{\rm u}(e_i = 0 \mid e_j = 0).$$
(4.4)

That is, it is optimal to reform, given that the other recipient is not reforming. Inserting the expressions for W_i^{u} yields condition C2.

$$(q(1) - q(0))[(2q(0) - 1)\Gamma_1 + (1 - q(0))\Gamma_2 - q(0)\Gamma_3] \equiv \psi_2^{\mathsf{u}} \ge \delta.$$
(C2)

Proposition 3. Provided that conditions C1 and C2 hold, there exists a unique reform equilibrium $(e_i = e_j = 1)$ with uncorrelated signals where $a^u(\sigma_i) = a^u(\sigma_j)$ if $\sigma_i = \sigma_j$ and $a^u(\overline{\sigma}) > a^u(\underline{\sigma})$ if $\sigma_i \neq \sigma_j$.

Proof. If $\sigma_i = \sigma_j$, the donor cannot separate the two recipients and therefore, assigns the same probability of successful reforms. As a consequence, the optimal allocation of aid is to split the budget in equal halves. Consider next the aggregate signal $(\bar{\sigma}, \underline{\sigma})$. Maximization of Eq. (4.2) subject to $2t = a(\bar{\sigma}) + a(\underline{\sigma})$ yields the following first-order condition

$$\frac{[p^{u}(s,u \mid \cdot) + p^{u}(u,u \mid \cdot)] + r[p^{u}(u,s \mid \cdot) + p^{u}(s,s \mid \cdot)]}{[p^{u}(u,s \mid \cdot) + p^{u}(u,u \mid \cdot)] + r[p^{u}(s,u \mid \cdot) + p^{u}(s,s \mid \cdot)]} = \frac{h'(a(\bar{\sigma}))}{h'(a(\underline{\sigma}))}$$
(4.5)

Since r>1, it follows that $h'(a(\underline{\sigma}))>h'(a(\overline{\sigma}))$ and hence, $a(\overline{\sigma})>a(\underline{\sigma})$. Thus, even though aid is given under discretion, more assistance is provided to the country signaling positive performance. From Bayes' rule, it follows that this is the country most likely to have successfully reformed, $p^{u}(s, u|\overline{\sigma}, \underline{\sigma})>p^{u}(u, s|\overline{\sigma}, \underline{\sigma})$, and therefore has the highest expected marginal return to aid. The equilibrium aid vector in state $(\overline{\sigma}, \underline{\sigma})$ and, by symmetry, in state $(\underline{\sigma}, \overline{\sigma})$ is implicitly defined by Eq. (4.5) and the donor's budget constraint.

Given the equilibrium aid disbursement scheme, it follows from C1 and C2 that, consistent with the donor's expectations, the recipients will reform and that the equilibrium is unique. \Box

By introducing competition among the beneficiaries of foreign assistance, the opportunity cost of giving aid is internalized. As a result, more aid is channeled to the 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.

An interesting observation is that here, competition among the recipients has a value even though there is no common noise. As emphasized by Holmstrom (1982), competition among agents in a typical multiple-agent model only has a value insofar as it allows a better extraction of information by the principal. Here, on the contrary, competition among recipients also raises the opportunity cost of disbursing aid ex post, thereby giving the donor (or country manager) stronger incentives ex post to reward good policies.

Now, consider the other extreme, where the uncertainties facing the two recipients are correlated, in that identical outcomes yield identical signals. Thus, if $o_i = o_j$, $\sigma_i = \sigma_j$. Specifically, $z(\bar{\sigma}, \bar{\sigma} | s, s) = z$ and $z(\underline{\sigma}, \underline{\sigma} | s, s) = 1 - z$. When $o_i \neq o_j$, the signals are once more uncorrelated; i.e., the probability of $\sigma_c = \bar{\sigma}$ is determined by independent trials for c = i, j.

If the signals are identical, the optimal allocation of aid is still to split the budget in equal halves. Assume instead that the signals differ. From Bayes' theorem, given $(\bar{\sigma}, \underline{\sigma})$, the probability that $o_i = s$ and $o_j = u$ is

$$p^{c}(s, u \mid \bar{\sigma}, \underline{\sigma}) = \frac{(1 - q(1))q(1)(1 - z)^{2}}{(1 - q(1))q(1)(1 - z)^{2} + q(1)(1 - q(1))z^{2}} = \frac{(1 - z)^{2}}{(1 - z)^{2} + z^{2}},$$
(4.6)

where superscript c denotes correlated signals. Note that $p^{c}(s, u|\bar{\sigma}, \underline{\sigma}) > p^{u}(s, u|\bar{\sigma}, \underline{\sigma})$; that is, with correlated signals, the manager can more precisely assess the likelihood of a successful reform. Note further that the difference between the two probabilities is a function of z. When z is close to one, implying that the individual signal is highly informative, the additional gain in preciseness of correlated signals is small, as illustrated in Fig. 5.

Let the equilibrium aid disbursement scheme be denoted by $[a^{c}(\sigma_{i}), a^{c}(\sigma_{j})]$. The Nash equilibrium condition for reform is now

$$W_i^{\rm c}(e_i = 1 \mid e_j = 1) \ge W_i^{\rm c}(e_i = 0 \mid e_j = 1).$$
(4.7)

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Fig. 5. $p^{c}(s, u | \bar{\sigma}, \underline{\sigma}) - p^{u}(u, s | \bar{\sigma}, \underline{\sigma}).$

The reform equilibrium is a unique equilibrium provided that

$$W_i^{c}(e_i = 1 \mid e_j = 0) \ge W_i^{c}(e_i = 0 \mid e_j = 0).$$
 (4.8)

Inserting the expressions for W_i^c into Eqs. (4.7) and (4.8) yields conditions C1' and C2'

$$(q(1) - q(0))[(2q(1) - 1)v(t) + (1 - q(1))\Gamma_2^c - q(1)\Gamma_3^c] \equiv \psi_1^c \ge \delta$$
(C1')

$$(q(1) - q(0))[(2q(0) - 1)v(t) + (1 - q(0))\Gamma_2^{c} - q(0)\Gamma_3^{c}] \equiv \psi_2^{c} \ge \delta.$$
(C2')

Note that $\psi^c > \psi^u$ since $v(t) > \Gamma_1^c$.

Proposition 4. Provided that C1' and C2' hold, there exists a unique reform equilibrium with correlated signals where $a^c(\sigma_i) = a^c(\sigma_j)$ if $\sigma_i = \sigma_j$, $a^c(\bar{\sigma}) > a^u(\bar{\sigma})$ and $a^c(\underline{\sigma}) < a^u(\underline{\sigma})$ if $\sigma_i \neq \sigma_j$.

Proof. The donor's expost expected utility with the aggregate signal $(\overline{\sigma}, \underline{\sigma})$ is given in Eq. (4.2) with O^{u} replaced by $O^{c} = \{(s, u), (u, s)\}$. Maximization of the country manager's expost expected utility, subject to its budget constraint yields the following first-order condition

$$\frac{p^{c}(s,u \mid \cdot) + rp^{c}(u,s \mid \cdot)}{p^{c}(u,s \mid \cdot) + rp^{c}(s,u \mid \cdot)} = \frac{h'(a(\bar{\sigma}))}{h'(a(\underline{\sigma}))}.$$
(4.9)

The nominator on the left-hand side of Eq. (4.9) is strictly smaller than the nominator in Eq. (4.5), while the denominator on the left-hand side of Eq. (4.9) is strictly larger than that in Eq. (4.5). Thus, $a^{c}(\bar{\sigma}) > a^{u}(\bar{\sigma})$ and $a^{c}(\underline{\sigma}) < a^{u}(\underline{\sigma})$. The equilibrium aid vector with correlated signals in state ($\bar{\sigma}, \underline{\sigma}$) and, by symmetry, in state ($\underline{\sigma}, \bar{\sigma}$), is implicitly defined by Eq. (4.9) and the donor's budget constraint.

Given the equilibrium aid disbursement scheme, it follows from C1' and C2' that the recipients will reform and that the equilibrium is unique. \Box

Competition among recipients allows the donor to make inferences about common shocks, which otherwise conceal the recipients' choice of action. This reduces both type I

errors (disbursing $a(\underline{\sigma})$ to recipient *c* when $o_c = s$), and type II errors (disbursing $a(\overline{\sigma})$ to recipient *c* when $o_c = u$), and increases the donor's expected return from the aid program. Thus, when the signals are correlated, the donor's ability to distinguish shocks from performance improves. As a consequence, a more high-powered incentive-scheme is created where more aid (in expected terms) is disbursed to the country where it is effective. This, in turn, increases the return to reform.

Is the explicit linkage of the disbursement and allocation decisions optimal for the donor? The answer is yes. In fact, if the conditions in Proposition 4 (Proposition 3 with uncorrelated signals) hold, the expected return of the donor, $E[\sum_{c=1}^{2} r(o_c)h(a_c)]$, is typically higher with competing recipients than in the commitment scenario considered in Section 2.2. The intuition is simple. In the commitment scenario, with the aggregate signal ($\bar{\sigma}, \underline{\sigma}$), some aid is never disbursed in order to induce reform. With competing recipients, this aid would be shifted towards country *i*; i.e., the country where these resources can be most effectively utilized. The donor's gain from having competing recipients is thus twofold: all aid is disbursed when the signaled outcomes differ, and more aid is disbursed to the high return recipient.

5. Discussion

Recent empirical evidence suggests that aid has a positive impact on growth under certain conditions, but that foreign aid has not been systematically channeled to countries where those conditions prevail. We argue that this finding is partly driven by a common feature in the donor agencies' incentive system: the low opportunity costs of committed funds. As a result, there is a strong bias towards "always" disbursing aid to the ex ante designated recipient, irrespective of that recipient's performance and (irrespective of) the conditions in other potential aid recipient countries. This assertion finds strong support in the data.

In this paper, we have analyzed a simple reform that may improve the outcome from the donor's perspective. Instead of committing a fixed amount of aid to each recipient ex ante, and making aid conditional on reform or outcome, the donor would commit the aggregate amount to be given to a group of countries, but where the actual amount disbursed to each individual country would depend on relative performance. Explicitly linking the allocation and disbursement decisions has two important advantages as compared to the present practices. First, by creating a conflict of interest between the beneficiaries of foreign assistance, the opportunity cost of aid is internalized, thereby giving the donor (or country department) stronger incentives ex post to reward good policies. Second, competition among recipients allows the donor to make inferences about common shocks, which otherwise conceal the recipients' choice of action. This enables the donor to give aid more efficiently. A recent World Bank report (Collier and Dollar, 1998) estimates that if aid is redirected towards poor countries with good policies, more than 80 million people could be lifted out of poverty for the same aggregate level of foreign aid. Consequently, there are potentially large gains of reforming current aid practices, and this paper has studied one such reform.

We believe that the argument for reforming program funding also applies to project aid. Thus, under certain conditions, it might be optimal to pool the budget for different (but similar) projects instead of having separate budgets for each individual project.

Four objections against linking the allocation and disbursement decisions are worth stressing. First, it could be argued that competition between recipients introduces uncertainty about financial flows, which renders planning more difficult and makes fiscal spending too volatile. This may be true if making comparisons with how the aid system presently seems to work; i.e., commitments are always disbursed. However, this is not true if we compare it with the conditionality outcome as it is supposed to work. In fact, if the shocks facing the recipients are (highly) correlated, the uncertainties will be reduced by having the recipients compete in an aid tournament.

Second, it could be argued that the degree of reform implementation depends on domestic political economy forces, rather than on conditional aid. In fact, recent evidence suggests this to be the case (Burnside and Dollar, 2000; Dollar and Svensson, 1998). However, these studies analyze the impact of conditional aid (as it seems to work), not as it was meant to work. Therefore, as stressed in the paper, we should not expect any significant correlation between aid flows and policy reform. More important, the model primarily concerns the incentive structure within the donor organization. Even if the degree of policy reform is solely determined by domestic political economy forces; i.e., is independent of foreign assistance, linking the allocation and disbursement decisions will still be useful since this provides incentives for the donor to allocate/disburse aid to where it can be effective.

Third, the time-inconsistency problem analyzed above could be dampened in a dynamic setting. If the donor-recipient game is repeated an indefinite number of times, this might provide incentives for the manager not to pay out all funds if he observes a negative signal, in order to build a reputation and give the proper incentives for countries to undertake reform. But, typically managers in aid agencies regularly switch positions (to other country desks). Thus, building a reputation would require strong internal control and coordination over time in the donor agency, a presumption the data does not support. In fact, the disbursement pattern does not change over time.

Finally, collusion among recipients undermines the equilibria described in Section 4. An important assumption is thus that the recipients act non-cooperatively. We believe this to be an accurate starting point for analyzing problems in the current aid system. Collusion may be a more important issue when it comes to linking projects within a country, however. This is an important topic for future research.

A question partly left unanswered is, why is it that if the linking of the allocation/ disbursement decisions improves outcome, the donor community does not explicitly link these decisions? One answer is of course that the potential cost of tournament type aid schemes is perceived as being very high (for example the cost related to the political risk of creating competition between countries). However, the extent of competition between countries, and thus the potential cost, can be controlled by varying the share of aid disbursed through a tournament-type aid scheme. This also seems like a less important concern for project aid. A more plausible explanation is related to the change in the existing power structure within the donor agency/donor community implied by such a regime shift. In essence, the reform would reduce the discretionary power of many managers mainly in charge of the disbursement decisions. Moreover, by making the opportunity cost explicit in the decision process, the management would be required to make "tougher" choices. Recipient-specific interest groups (e.g., domestic firms, NGOs), and potentially the recipient government, may also oppose an institutional change that would imply aid flows conditional on performance, rather than ex post unconditional disbursements.

Acknowledgements

I am grateful for comments by William Easterly, Ray Fisman, Aart Kraay, Stefan Palmqvist, Torsten Persson, David Strömberg and a number of seminar participants. I would also like to thank an anonymous referee for very constructive suggestions, and Christina Lönnblad for editorial assistance.

Appendix A

Variable name	Definition					
debt	Debt to GDP ratio (World Bank Development Indicators, 1997)					
demo	Dummy variable taking the value 1 if the incumbent that signed the reform was put in power by a democratic election prior to the reform, 0 otherwise (Europa Yearbook					
actimated reform	(various years) from Dollar and Svensson, 1998)					
estimated reform	Index of athaplinguistic fractionalization 1060, manufing the probability that two					
etimic	randomly selected people in a country belong to different ethnolinguistic groups (Easterly and Levine, 1997)					
instability	Average number of governmental crises during the implementation of the program (Banks, 1994 from Dollar and Svensson, 1998)					
logGDPc	log of initial GDP per capita (WDI, 1997)					
logpop	log of initial total population (WDI, 1997)					
reform	Binary variable reflecting failure (0) or success (1) of World Bank supported adjustment operations as determined by the OED (World Bank). OED bases its ratings of program outcome on assessments of whether the reform design was appropriate in terms of reducing poverty and fostering growth in the private sector, and to what extent the stated policy goals have been met (Dollar and Svensson, 1998)					
sfc	Share of committed concessional financing (bilateral ODA and IDA lending) disbursed during the reform episode (Dollar and Svensson, 1998; Geographical Distribution of Financial Flows, OECD)					
sft	Share of committed aid (bilateral ODA and World Bank lending) disbursed during the reform episode (where the reform episode is the loan period as specified by the World Bank) (Dollar and Svensson, 1998; Geographical Distribution of Financial Flows, OECD)					
sfwb	Share of committed funds by the World Bank disbursed during the reform episode (Dollar and Svensson, 1998; Geographical Distribution of Financial Flows, OECD)					
tenure	Number of years that the incumbent that signed the reform has been in power (Europa Yearbook (various years) from Dollar and Svensson, 1998)					

A.1. Data description

	sft	sfwb	sfc	estimated reform	logGDPc	logpop	debt
Mean	0.854	0.964	0.806	0.667	7.40	16.4	93.3
Median	0.851	1	0.798	0.670	7.42	16.3	74.0
Max	1.44	1	1.63	0.950	8.96	20.6	831
Min	0.338	0.366	0.176	0.068	5.76	13.5	8.90
St.D.	0.148	0.108	0.225	0.200	0.760	1.38	79.6
No.	212	215	185	215	215	215	209

A.2. Summary statistics

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