Incentives in Development Lending: Technical cooperation

Josepa Miquel-Florensa*
Toulouse School of Economics (ARQADE)

June 5, 2010

Abstract

This paper models incentives and information asymmetries between the different participants in multilateral development banks' decision process, namely borrowing countries, managers and the board of governors (with borrower and non-borrower members).

We propose technical cooperation requirements as instruments for the board of governors to solve the moral hazard and adverse selection problems. We assume technical cooperation makes the probability of success not to depend on the agent's effort choice, as long as he provides effort, but on the principal's distribution of resources, and may also provide private benefits to the recipients. Moreover, the outcome of the agent's investment is a 'public good' since is enjoyed in a non-rival fashion by both Board and agents.

Using data on project performance reports from the IADB, we show that technical cooperation does have an impact on project results. Furthermore, we are able to differentiate for which projects, contract and recipients technical cooperation is more effective and relate the reported problems to the information asymmetries.

1 Introduction

Governance of Multilateral Development Institutions is an important part of the development aid public debate, and is attracting increasing attention in academia[1]. Lack of accountability and definition of responsibilities have been

*Email: pepita.miquel@tse-fr.eu I would like to thank Yuri Soarez for usefull comment and suggestions, Martin Naranjo and Matias Mednik for very interesting discussions on early stages of this project, and seminar participants at IADB for usefull coments. All errors remain my own.

[1] Among others, Easterly (2003) and Rowat and Seabright (2006) stress in their models the difficulty to measure output of aid agencies and the weak incentives faced by the several decision makers in the process. Hawkins et Al (2006) approaches delegation and agency problems from a political economy point of view. IMF (2008) and Mednik (2010) look in detail at the Governance structure at the IMF and IADB respectivelly.

highlighted as important contributors to the governance problem. A quick look at the websites of the Development Banks suffices to note their focus on funds disbursed rather than services delivered and/or outputs and ultimately development.

To analyze the incentive scheme, we need to look at the main players in the special governance structure of Development Banks are (1) the Board of Governors that has the authority to approve the loans proposed by the Management, (2) the Management that designs the projects and whose incentives are somehow aligned with lending portfolios sizes and (3) the Recipient Governments that, as members of the credit cooperative, can not be discriminated on interest rates and have their own political agendas.

Development lending faces two important information problems. On the one hand, it is difficult for the Development lenders to observe the preferences of the recipients over the different projects available. What will work for each given recipient is their private information, and even in the case of perfect revelation of these preferences, there are still a number of controllable and uncontrollable factors that influence the outcome of the projects implemented. On the other hand, it is necessary to provide the borrowers appropriate incentives to invest the lend funds and to exercise the appropriate effort to maximize the projects' returns and their probability of success.

In Development lending, these well-known information problems get an additional twist: the goals (and incentives) from the players involved at the different stages of the project are disaligned. Even if Development is a 'public good' enjoyable simultaneously by all the involved parties, and hence the piece-rate instrument is not feasible, the designers of the loan contracts have a private agenda, that includes among others lending volume, that is not always aligned with the development goals of the borrowing countries. Moreover, two peculiarities of multilateral lending institutions need to be noted. First, they are credit cooperatives, and hence it is not possible to discriminate among borrowers by offering different interest rates. And second, both borrowing and non-borrowing countries are part and voice on the Board, what leads to voting strategies not always aligned with project quality.

Given the governance structure of Development Banks, and given the political organization of the board, it is very rare that Management's proposals are not approved. Moreover, the instruments to provide incentives to recipient governments to perform effort in the use of the transferred funds are limited: interest rate discounts in case of success are not feasible in credit cooperatives, and threats to cut flows of funds if projects fail to show results are not credible[2]. We look at how these two information problems affect the success of the

[2]The lack of enforcement of contract conditions has been related to the Samaritan's Dilemma. This concept, introduced by Buchanan (1975), argues that he principal can not credibly commit to stop the relationship with the agent until the projects are accomplished, since it is common knowledge that he cares about the agent and the projects to be completed. In multilateral lending, the problem is worsened by the fact that both borrowers and lenders have a say on the funds allocations.

Killick (1998), Dreher (2002) and The World Bank (2005) present reviews of the literature

projects from two angles. We start modeling these problems from a principal-agent approach, looking at the different instruments available to each of the players and suggest constraints that could be included on the planning-approval process to align the objectives of all parts. We continue with the data available on projects implementation performance reports, to see how all the strategies of the different players and the characteristics of the contracts and the projects affect the success of the projects and the borrower's performance.

We differ from the standard principal-agent settings on three points: (i) The principal's utility is the manager's utility, and is independent of the success of the project implemented by the agent-borrower. It is widely agreed that principal-manager's utility does not always match with the recipients and donor's preferences. Hence, we give attention to the possible constraints the Board could impose on the projects to be considered so that is recipient's development outcome and not manager's lending volume what is maximized. (ii) The size of the probability of success does not depend on the agent's effort choice, as long as he provides effort, but on the principal's distribution of resources. And (iii) borrowers benefit from the success of the projects and on the capacity externality/private benefits provided by technical cooperation transfers. Hence, the outcome of the agent's investment is a 'public good' since is enjoyed in a non-rival fashion by both Board and agents.

Our theorethical model recommends greater technical cooperation transfers when information problems are important, and that these transfers should be greater the greater is the effect of the technical aid on the probability of success of the projects.

We find evidence that, as assumed in the theoretical model, technical cooperation attached to the projects has a positive effect on reducing the probability of commitment problems and increasing the probability of the donor doing a good tracking of the results. Also in accordance with the theorethical predictions, we find that sectors where it is relatively easier to evaluate the effectivity of the measures, like infrastructure or energy, have ceteris paribus better data tracking. In contrary, sectors like education with predictability are more likely to present commitment problems and contract conditions compliance delays. This highlights the importance of adverse selection of projects for sectors where there is a lot of local information and idiosyncratic risk affecting the project's success probabilities.

The paper is structured as follows. In the next section, we present the theorethical modeling of the main information problems on development lending. We continue with the special case of technical cooperation. We continue with the empirical analysis of the relationship between contract characteristics and projects returns. And last section concludes.

and examples of time inconsistency involving conditional aid contracts. The theory literature on time consistency is extense, including for example Matsuyama (1990) and Rey and Salanie (1990).

2 Modeling approach

Our objective is to look into the incentive schemes faced and instruments available to each of the individuals involved in the planning and implementation of Development Banks operations. We center, on the one hand, on the basket of products offered by the bank to each client. On the other hand, we look in detail into one of these products, technical cooperation, for its special characteristics in terms of affecting the risk of the operation(s) and its externalities to subsequent projects and to the sector capacity in general.

In this special setting, the choices, private information and incentive schemes of players of the game are:

(1) *Clients/ Loan recipients:*

Borrowing governments value development outcomes from the loans, since their reelection probability may be closely related to the projects success, but also receive personal benefits from the use of the transfers, specially of 'free funds' like technical cooperation[3].

Clients have private information on the development potential of the projects considered and take (unobservable by the management) decisions on the use of the borrowed resources.

(2) *Bank management:*

It is in the hands of the bank management to propose and design projects/contracts to be offered to the clients. Given the uniformity on the loan conditions, since credit cooperatives can not discriminate among clients on interest rates, and given the commitment problems involved in conditionality, the management has limited instruments to design mechanisms to overcome the moral hazard and adverse selection problems.

Management utility/rewards depend on lending volume and not only on results of the projects funded.

Management's effort on project design is unobservable by the Board, and may be also unobservable by the clients.

(3) *Board*[4]*:*

Decides on approval of the loans proposed by the management.

Can not always distinguish among the projects proposed by management the good ones, and is difficult also to evaluate how much effort was put on their preparation by management (and clients).

[3] How much they like these funds may depend on the procurement/disbursement rules attached to them, but for simplicity we assume that utility only comes from non-reimbursable transfers. The discussion on fungibility of funds is out of the scope of this paper.

[4] We look at the Board from the information assymetries point of view, treating it as a unique player and not getting into its internal dynamics. For more detailed information on Multilateral Banks Board's internal functioning see Mednik (2010).

Our **goal** is to study which constraints on management's resource allocation should be established to make the management project design problem as close as possible to the development maximizing. It is beyond argument that the projects that reach the board for consideration are likely to be very diverse, and that the board members may lack the necessary knowledge for evaluation and analysis of risk and implementation challenges that these projects may face in the future. Preestablished constraints to be satisfied by project proposals before submission may mitigate these evaluation problems[5].

Development banks offer their member borrowing countries a complex set of services. Given the disalignment of objectives, the interaction among all the products offered (that include among others guarantees, policy design and capacity building) raises an additional concern on the efficiency of the agreements proposed by the management: is it feasible for the borrower and/or the board to add constraints on the packages that include all these services offered? In which of these products should borrowing countries exert higher pressure, for example in planning or monitoring, before accepting the management's proposed agreement? And how will the optimal strategies of the borrowing countries in this regard vary thought time as successive stages of development are reached?

The interaction among all the products 'packaged' by the management in the country strategies can be seen from two perspectives. On the one hand, we have the bargaining between the multilateral institutions and the recipient countries in the definition of the 'joint country strategies'. Both the board and management face a multidimensional information problem: what works in each sector, and which are the preferences of the borrowers over the sectors[6]. The debt of the country, its relative size in the multilateral institution and the number and size of development partners acting in the country are likely to be key elements in the bargaining process, and they can ultimately determine the development prospects of the agreement attained. On the other hand, we can look at the problem from the borrower point of view and examine the actions in his hands to align objectives with the management that designs the country package/projects. It is interesting to think up to which point all the players in the process are able to include in the petitions conditions for the monitoring of results and constraints in funds allocations as to align incentives at every planning stage with development outcomes.

The literature on multitasking by the agent[7] argues that when tasks are competing for the agent's effort, it is difficult to provide high power incentives

[5] It needs to be noted that some countries may have special request for their board menbers for voting. We refer here not to quality controls at voting but as controls before being considered for vote.

[6] In the foreign aid literature, recipients' and donors' preferences over sectors have been sometimes infered by Government budget distribution among the ministries/sectors. See for example Noel and Therien (1995).

[7] In the literature, Holmstrom and Milgrom (1991) propose a static multitask model where the agent performs multiple tasks simultaneously. Sinclair-Desgagne (1999) obtains also in a static framework higher incentives by linking audits on the task to outcomes. A two periods multiple-task structure is presented in Meyer and Vickers (1997) where performance comparison is studied.

in any of them. In our case, we do not propose incentives on task performance but, more on the line of Sinclair-Desgagne (1999), we propose to put constraints on the outcome of the tasks, the projects presented for board consideration, for them to be considered as completed.

We center the modeling on one of the products offered by the bank's management: technical cooperation. The choice is due to two peculiarities of technical aid: it decreases the 'risk' of the project it is attached to, increasing their probability of success, but also generates positive externalities in the sector this project is implemented, in terms of improved capacity available for future projects. Moreover, technical cooperation provides private benefits to the recipients, what can make it a reward for less attractive projects from the client point of view. The goal is to study the effect of technical cooperation both on development indicators (as a measure of development outputs from the projects) and on existence of "implementation problems" during the project (as a measure of the success of this technical cooperation in providing the adequate capacity for project implementation).

Technical aid is a widely used instrument to improve the success of funded projects, and is mainly provided through grants. In the data we use, for the period 2000-2008 at the IADB, 93% of the technical cooperation projects approved where non-reimbursable, representing 60% of the technical cooperation funds approved.

We analyze the agency problems presented above in a principal (management) agent (clients/borrowers) framework. We look at the management's problem of allocating funds between loans and technical cooperation when his objective is to maximize lending and he needs to provide the agents incentives to invest the lend funds and to self-select into the contract tailored to their unobservable project returns. On the same setting, we suggest constraints the Board could consider for project approval aiming to align management objectives with client's development outcomes.

We want the model to be more general than for only one product: it could be applied to any other product complementarity. We differ from the standard principal-agent settings on three points: (i) The principal's utility is the manager's utility, and is independent of the success of the project implemented by the agent-borrower. It is widely agreed that principal-manager's utility does not always match with the recipients and donor's preferences. Hence, we give attention to the possible constraints the Board could impose on the projects to be considered so that is recipient's development outcome and not manager's lending volume what is maximized. (ii) The size of the probability of success does not depend on the agent's effort choice, as long as he provides effort, but on the principal's distribution of resources. And (iii) borrowers benefit from the success of the projects and on the capacity externality/private benefits provided by technical cooperation transfers. Hence, the outcome of the agent's investment is a 'public good' since is enjoyed in a non-rival fashion by both Board and agents.

2.1 Description of the model

The **principal** offers the agent a loan of size p that has to be returned with an interest rate r at the end of the period, and a flow of funds T in form of technical cooperation for a given project. The principal has a budget B for each type of agent to be allocated between project loan and technical cooperation.

The agent faces an investment cost Ψ, that we assume independent of the size of the loan, and, once investment is performed, the project is successful with probability π. Technical cooperation increases the probability of success of the projects once investment has been performed. This relation is given by the increasing and concave function $\pi(T)$.

Borrowers[8] have private information on the returns of the projects in case of success. We consider two types of agents: the ones that obtain high returns (w_h) and the ones that obtain low returns (w_l) in case of success, that are known to represent a proportion α and $(1-\alpha)$ of the applicants pool respectively. To avoid problems with limited liability, we assume that in case of failure of the project or when there is no investment, the agent gets return $w_f = r$, the agent is always able to pay back.

Agent's i expected utility from a contract (p_i, T_i) is

$$u(T_i) + \delta\left[\pi(T_i)u((w_{is} - r)\, p_i)\right] - \Psi \tag{1}$$

where w_{is} represents agent i return in case of success (for $i = h, l$) and δ denotes the time discount. We see that this utility is increasing both in the size of the loan and on the technical cooperation received. We assume that technical cooperation gives per-se utility to the agent, denoted by the increasing and convex function $u(T_i)$, which can be interpreted as the long term non-pecuniary benefits of improving for example service delivery mechanism, government structure, or simply as private benefits from the 'free funds'.

The **welfare maximizing** allocation is determined by

$$\max_{p_h, p_l, T_h, T_l} \alpha\left[\pi(T_h)u((w_h - r)\, p_h)\right] + (1-\alpha)\left[\pi(T_l)u((w_l - r)\, p_l)\right] \tag{2}$$

$$s.t.\ p_h + T_h = B_h \tag{3}$$

$$p_l + T_l = B_l \tag{4}$$

where B_i is the budget allocated to each type of project. For the adequate alignment of incentives of all players, the menu of contracts provided should be such that (1) the principal's objective function includes recipient's development outcomes, (2) it is in the agent's best interest to invest the received funds, and (3) agents self select to the contract targeted to their project returns.

The *incentive compatibility* constraint for agent i is given by:

[8] As borrowers we consider either two different countries with different returns, or two projects at same or different sectors of a given country. The presented formulation does not consider possible project interactions, more likely to appear under the latter assumption.

$$u(T_i) + \delta\left[\pi(T_i)u((w_i - r)\, p_i)\right] - \Psi \geqslant u(T_i + p_i) \tag{5}$$

and given the assumption that a budget B_i is allocated for each agent/project type i, we can rewrite (5) as

$$u(T_i) + \delta\left[\pi(T_i)u((w_i - r)\,(B_i - T_i))\right] - \Psi \geqslant u(B_i)$$

The contracts offered are *adapted to the agent's characteristics* (i.e. to project returns), and hence for each type i it needs to be true that

$$\begin{aligned} & u(T_i) + \delta\left[\pi(T_i)u((w_i - r)\, p_i)\right] - \Psi \\ \geqslant \quad & u(T_j) + \delta\left[\pi(T_j)u((w_i - r)\, p_j)\right] - \Psi \end{aligned} \tag{6}$$

i.e. agent i prefers the contract designed for him than agent j's contract.

We make the extreme assumption that manager's objective is to maximize lend funds. Without constraints, the manager's choice would be to allocate all the budget to loans. To avoid this biased allocation, the Board/borrowers could impose a constraint of the form $T_i = G(p_i)$: no project is considered for approval if a pre-determined function of the loan is not allocated to technical cooperation. Under this rule, the management's problem becomes:

$$\begin{gathered} \max_{p_h, p_l} \; p_h + p_l \\ s.t. \; p_h + G(p_h) = B_h \\ p_l + G(p_l) = B_l \\ u(T_l) + \delta\left[\pi(T_l)u((w_l - r)\, p_l)\right] - \Psi \geqslant u(T_l + p_l) \\ \pi(T_l)\left[u((w_l - r)\, p_l)\right] - \pi(T_h)\left[u((w_l - r)\, p_h)\right] \leqslant \frac{u(T_h) - u(T_l)}{\delta} \end{gathered}$$

We look at how moral hazard and adverse selection affect the shape of the optimal contract and which should be the shape of the $G()$ function under different settings.

Claim 1 *For a given budget for each type of projects, size of the loan is decreasing with its return in case of success, hence $p_l^* > p_h^*$, and technical cooperation is decreasing with project return $T_l^* < T_h^*$. Both p and T increase with the budget allocated to the project.*

Proof. Plugging the budget constraints, the first order conditions are:

$$\pi'(T_h)\left[u((w_h - r)\,(B_h - T_h))\right] = \pi(T_h)u'((w_h - r)\,(B_h - T_h))\,(w_h - r) \tag{7}$$

$$\pi'(T_l)\left[u((w_l - r)\,(B_l - T_l))\right] = \pi(T_l)u'((w_l - r)\,(B_l - T_l))\,(w_l - r) \tag{8}$$

and from (7) and (8) we see that size of the loan is decreasing with its return in case of success, $p_l^* > p_h^*$, and technical cooperation is increasing with project

return. Both technical cooperation and loan size increase with budget allocated to the project. This result is intuitive: the greater the project return, the smaller is the marginal utility of an extra unit of loan but the greater is the return of an increase in the probability of this big return realizing. ■

Claim 2 (Adverse selection: information rents) *When there is information rent and same budget is allocated to all projects, this information rent is for the low type.*

Proof. From Claim 1, we know that optimal allocation to technical cooperation is increasing with the project return. Let (T_h^*, T_l^*) be the full information allocations to technical cooperation. Then, for each type i it is true that $V(T_i^*, B_i, w_i) \geqslant V(T_i, B_i, w_i)$ for all feasible $T_i's$.

For the high type, $T_h^* > T_l^*$ and hence $u(T_h^*) + V(T_h^*, B, w_h) \geqslant u(T_l^*) + V(T_l^*, B, w_h)$, high type is not willing to claim the contract aimed to low types.

For the low type, $u(T_h^*) > u(T_l^*)$ and $V(T_l^*, B, w_l) \geqslant V(T_h^*, B, w_l)$. Low type may be willing to lie to get the high type package whenever extra-utility from technical cooperation compensates for the change in expected benefit from the project.

Hence, the principal needs to ensure that self selection constraint for the low type is satisfied. Either full information contracts are such that agents self-select, or the low type needs to be compensated with greater technical cooperation for him not to take high type contract. ■

Claim 3 (IC high not binding with MH and AS) *When budgets are the same for both projects, incentive compatibility constraint for the high type does not bind.*

Proof. Let $V(c_i, w_j)$ be the utility that contract aimed to agent type i provides to agent j, that is increasing in w_j. From the separating constraints for both types we obtain

$$V(c_h, w_h) \geqslant V(c_l, w_h) > V(c_l, w_l) \geqslant u(T_i + p_i) = u(B)$$

where B denotes (equal) budget allocated to each of the projects. This implies that high type's incentive compatibility constraint is not binding: high type gets a bonus to sign the contract and implement effort. ■

Claim 4 (Adverse selection) *When there is adverse selection, if low type agents get information rent, they receive a loan smaller than under complete information.*

Proof. From the first order conditions we get

$$[V_{P_l}(p_l, T_l, w_l)] = \frac{\gamma_1}{(1 - \alpha + \gamma_1)} u'(T_h) > 0$$

where γ_1 is the Lagrange multiplier of the high type binding self-selection constraint. This first order condition implies $p_l^{AS} < p_l^*$: low types get greater or

equal technical cooperation than under full information to give them incentives to self-select. Intuitively, to induce the low type to reveal information he receives a reward in form of greater technical cooperation. ■

Claim 5 (Moral hazard) *Optimal size of the loan is smaller or equal than under observable actions when use of the resources by the agent is unobservable by the principal.*

Proof. From the first order conditions we get

$$\begin{aligned} [V_{Ph}(p_h, T_h, w_h)] &= \frac{\lambda_1}{\alpha + \lambda_1} u'(T_h) > 0 \\ [V_{Pl}(p_l, T_l, w_l)] &= \frac{\lambda_2}{(1-\alpha) + \lambda_2} u'(T_l) > 0 \end{aligned}$$

where λ_i is the Lagrange multiplier for each incentive type's incentive compatibility constraint. This first order condition implies $p_l^{MH} \leqslant p_l^*$ and $p_h^{MH} \leqslant p_h^*$.

Smaller loans and higher technical cooperation increase the probability of success and the private benefit the agents obtain from T. Hence, once investment is unobservable it is necessary to decrease its risk provide greater private benefits to induce investment. ■

2.2 Results and policy implications

This model shows how high levels of technical cooperation compared to the full information benchmark may be necessary to provide the agents incentives to invest the received funds and to self-select to the contract aimed at their type.

We show that under full information, the distribution of funds that maximizes expected development returns implies higher technical cooperation is provided for high value projects. The intuition is that, for higher return projects, the increase in probability of success has higher effect on expected returns in comparison to increasing the size of the loan, as opposite of what happens for low return projects.

When project quality is unobservable, low types are the candidates for information rents. The principal needs to increase their technical cooperation allocations to stop low type agents to claim high type contract. To have a contract that induces low types to reveal their type it is necessary that the difference in technical cooperation between the contracts is compensated by higher expected development returns, and that is obtained with a smaller gap in technical cooperation compared with the full information situation. Intuitively, all agents are willing to claim high return projects if that implies higher private benefits, and to reduce this incentive to lie they should be provided higher technical cooperation.

When the agent's use of the lend funds is unobservable, we find that the incentive compatible contract provides smaller loans and greater technical cooperation for both types of agents. Agents need to be compensated for their

effort cost with higher private benefits from technical cooperation and a reduction of the risk faced.

These results highlight the need to include technical cooperation and its effect on the project's probability of success into the management's incentive scheme to ensure adequate incentives are provided to the agents to invest the transferred funds and to self-select to the contract that maximizes their development expected returns. We find that the constraint imposed on minimum technical cooperation should be an increasing and convex function of the size of the loan.

When technical cooperation is not productive, i.e. it does not affect the probability of success, part of the results presented hold true: technical cooperation helps to satisfy incentive compatibility constraint when projects are not highly valued by the agent, and different amounts would be optimal for information revelation when instead of project returns is agent's effort cost that is unobservable.

3 Empirical Evidence

To support the modeling approach, we looked into the available data to answer the following questions:

- Is technical cooperation really an instrument that increases the success of the projects, in terms of timely reaching their objectives? Does technical cooperation produce sectorial externalities in terms of increased capacity and hence decrease in implementation problems of contemporaneous and future projects?

- Can we find a linkage between project success, project contract conditions and implementation problems?

The main constraint found to answer these questions is the lack of clear definition and reliable data on outputs. The lack of measurable definitions of outcomes in many projects, together with the vague incentives of the responsible of the data collection, may raise concerns on the quality of the information available.

Another important quality concern on the data available is the lack of information about the risk of the projects and how the non-idiosincratic part of it could be minimized with the available tools. Even if PPMR (project performance monitoring reports) include questions on risk and responsibilities in implementation problems, this information is incomplete and presents inconsistencies that do not allow us to reach relevant conclusions.

We have data on PPMR for 324 projects. For each project, we create a unique score for each variable for three types of indicators of project problems[9]: performance on data collection[10], design (objectives agreed with the beneficiary

[9] For each project and variable we average the scores obtained at the different time reviews.

[10] On PPMR Monitoring and Evaluation part, it is asked "is the borrower maintaining performace data on agreed outcome/output indicators?"

and community political opposition) and implementation (counterpart funding shortfall, compliance delays on contract conditions, procurement difficulties and costs overruns)[11]. We have information on 64 PEF (Project Preparation and Execution Facilities), and their related projects on amounts and disbursement dates, but not information on the type of implementation problems that could generate these delays, or the attainment of the project's Development goals. When matched with PPMR information, we are left with 32 PEFs for the period 2003-2008.

Externalities in technical cooperation are likely to be important: the improved capacity of a sector in a country is likely to increase the success of posterior and contemporaneous projects on same sector-country. The information available on the projects is not sufficient to attribute 'accumulated capacity' by country-sector and attempt to measure the size of this externality. Moreover, only 3.4% of the matched dataset corresponds to reimbursable technical cooperation and 10.53% of the projects can be matched to a PEF.

Table 1 shows the summary of the reported problems, and Tables 2,3 and 4 look at the likelihood of each of these problems in relation to sector, recipient and contract characteristics. For 30% of the projects borrowers did not maintain performance data, even when the lack of monitoring and evaluation systems is almost negligible. It is relevant to analyze this number: why don't the borrowers keep track of the results from the loans that have to be returned? Does technical cooperation make this information compilation easier and increases the accountability for all participants? Looking at the data we see that performance data is more likely to be collected for sectors where measurability is easier, like infrastructure investments, and for contract structures linked to performance. We find that inter-agency coordination problems, concerns on performance by the counterparts and the existence of an M&E system have positive impact on the donor's indicator tracking. This is an expected result: if M&E system is in place is easier to collect the information, and if counterparts are deficient is in the borrower's interest to provide evidence on their performance problems.

On the other hand, we find that political opposition from the community has a negative impact on data tracking. This effect could come either from the project not being the adequate instrument to handle the problem, or from the problem not ranking high on the community priorities. In both situations the borrower has no interest on showing success on it, not even for electoral purposes. Whenever objectives are agreed with the beneficiary, we can expect inadequate instrument to be the driver.

We find that smaller projects are more likely to present compliance delays, and that the probability increases with the start delay of the project. That may reflect the interest given to the design and control of each project size. Surprisingly technical cooperation increases the probability of compliance delays, but we can not match the source of the delay with bad timing on the technical cooperation.

[11] PPMR's ask for critical factors/reasons for unsatisfactory implementation progress, improvable development objectives and risk profiles concerns.

4 Conclusions

We present a theorethical model on allocation of funds between loans and technical cooperation when there are moral hazard and adverse selection problems. We show that the optimal shares of funds allocated to technical cooperation are greater than the full information ones, and that these differences increase as the information problems become more important.

The underlying assumption of the theorethical model is that technical cooperation increases the probability of success of the projects. We check this assumption on a rich dataset on Project Performance Monitoring Reports from the IADB for the period 2003-2008, matched with Project preparation facilities (technical cooperation) data.

We find that technical cooperation decreases the probability of implementation problems, and that sector characteristics and coordination of partners also play an important role. Moral hazard, in terms of making the players accountable for result, and adverse selection, in terms of objectives agreed with beneficiaries and recipient's political opposition, are shown to play an important role on the performance of the projects.

References

[1] **Buchanan, J.M.** "The Samaritan's Dilemma." In Phelps, E. (Editor): *Altruism, morality and economic theory.* NY, Russell Sage Foundation.

[2] **Drehen, A.** "The Development and Implementation of IMF and World Bank Conditionality." *Discussion Paper HWWA* (2002).

[3] **Easterly, W.** "The cartel of good intentions: The problem of bureaucracy in Foreign Aid" *Journal of Policy Reform* 2003

[4] **Hawkins, D. et Al.** "Delegation and agency in international organizations" Cambridge Univ. Press (2006)

[5] **Holmstrom, B. and Milgrom,P.** "Multi-Task principal-agent analysis: Incentive contracts, asset ownership, and job design." *Journal of Law, Economics and Organization* (7) 1991.

[6] **International Monetary Fund, Independent Evaluation Office** "Aspects of IMF Corporate Governance, Including the role of the Executive Board". 2008

[7] **Killick, T.** "Aid and the Political Economy of Policy Change." With Gunatilaka, Ramani and Marr, Anna. Routledge (1998).

[8] **Matsuyama, K**. "Perfect Equilibria in a Trade Liberalization Game". *American Economic Review* 80(3) 1990

[9] **Mednik,M.** "Notes on the Governance Structure of the Inter-American Development Bank" 2010

[10] **Meyer, M and Vickers, J.** "Performance Comparison and Dynamic Incentives". *Journal of Political Economy* 105 (3) 1997

[11] **Noel, A and Therien, J-P.** "From domestic to international justice: the welfare state and foreign aid". *International Organization* (1995)

[12] **Rey, P and Salanie, B**. 'Long-term, Short-term and Renegotiation: On the value of commitment in contracting". *Econometrica* (1990)

[13] **Rowat, C. and Seabright, P.** "Intermediation by Aid Agencies" *Journal of Development Economics* 79 (2006)

[14] **Sinclair-Desgagne, B.** "How to restore higher-powered incentives in Multi-task agencies." *Journal of Law, Economics and Organization* 15 (1999).

[15] **The World Bank** Review of World Bank Conditionality. July 2005.

[16] **The World Bank** Conditionality Revised: Concepts, Experiences and Lessons (2005)

Table 1: Summary of PPMR reported project problems

	Observations	Percentage
Objectives agreed with beneficiary	247	96%
Borrower maintaining performance data	247	70%
Counterpart funding shortfall	322	3.70%
Community political opposition	322	2.48%
Contract conditions compliance delays	322	34%
Procurement problems	322	24.50%
Lack of M&E systems	322	1.86%
Inter-agency coordination	322	9%

Table 2: Regional Differences (probit)

	Procurement Problems	Community Political Opposition	Counterpart Funding Shortfal
Caribean	0.6641**	.-0.0633*	
Central, Mex, Pa & DR	.-0.4002**	.-0.0535**	.-0.6420*
Southern cone	.-0.4567**	.-0.04102*	.-0.3017
Barbados		.-0.0633	
Perc. Technical Coop.		-97075.23	
Ptc * Caribean		97075.23	
Ptc * Central, Mex, Pa & DR		-49367.42	
Ptc * Southern cone		-26024.52	
ref (Andean)	.-0.5244**	0.0633**	-1.44

Table 3: Sectoral differences (probit)

	Contract cond. compliance delays	Borrower maintaining performance data	Procurement problems
Agriculture Rural dev.	0.2759		
Financial mrk. Dev.			
Telecomunications			
Multisector credit	0.2759	0.11	.-0.5229
Science and technolog	0.2759	.-0.3186	
Urban dev. & housing	.-0.0777	0.37	0.32
Education	.-0.7708	.-0.3186	.-0.4729
Energy	0.0225	0.52	.-0.1701
Industry	0.2759		
Social Investment	.-0.0659	0.43	.-0.3876
Microentreprises		0.26	
Sanitation	.-0.6714	0.10	.-0.1608
Environment	.-0.7699*	.-0.2044	.-0.8056*
Private sector dev.	.-0.5657	0.14	.-1.2460**
Reform of the state	.-0.2877	0.75	.-0.5597*
Health	0.1362	0.46	.-0.5229
Transportation	0.3901	0.36	.-0.0301
Tourism			0.07
Perc. Technical Coop.	8.39e+07**	7.58e+07*	
Ptc * Urban Dev.	-7.67e+07	.-9.63e+07*	
Ptc * Education	-6.42e+07		
Ptc * Social Inv.	.-7.45e+07*	.-7.63e+07*	
Ptc * Sanitation	-4.21e+07	-9.50e+07	
Ptc * Environment	-6.24e+07	-6.84e+07	
Ptc * Reform state	.-8.16e+07*	.-7.43e+07*	
ref (agriculture)	.-0.2759	0.32	.-0.3186

Table 4: Type of loan (probit)

	Procurement problems	Contract conditions compliance delays
PBLS_PBP_EME loan		.-0.7701**
Reimbursable TC	.-1.3878	0.17
PercTechCoop	-8589777	2864210
Ptc * reimbursable TC	1.43e+07*	-2013271
ref (Investment loan)	.-0.8402**	.-0.3541**