Public-Private Partnerships for the Provision of Public Goods: Theory and an Application to NGOs[*]

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Keywords: Public Goods, non-governmental organizations, incomplete contracting, partnerships.

JEL classification: D23, H4, L3, O12

Public-Private Partnerships for the Provision of Public Goods : Theory and an Application to NGOs*

Timothy Besley
London School of Economics
London WC2A 2AE

Maitreesh Ghatak
University of Chicago
Chicago IL 60637

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Abstract

This paper analyzes the role of public and private responsibility in the provision of public goods. We emphasize that a typical public good will require many different inputs which raises the possibility of partnerships to exploit comparative advantages of different parties. But hold-up problems due to contractual incompleteness in specifying tasks discourage separation of ownership and management. We extend our analysis to examine the role of project design or "ideology" as a separate non-contractible input, and the possibility of crowding out in the form of a less caring government being elected because of the presence of private providers. The main application developed here is to NGOs in developing countries which, in the last two decades, have been increasingly involved in various capacities in the provision of a wide range of public goods and services.

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1

1 Introduction

The last two decades have seen a dramatic change in the division of responsibility between the state and the private sector for the delivery of goods and services.[1] Yet academic understanding lags behind practical initiative in this area. Nowhere is this more true than in the provision of public goods. Public economics textbooks focus predominantly on variants of the Lindahl-Samuelson rule with little attention paid to the institutional structure of public goods delivery. Yet, in the real world, there has been a huge change in emphasis, with increased involvement of private agencies in the delivery of public goods. This is particularly striking in developing countries where non-governmental organizations (NGOs) now supplement, and in some cases have displaced, the traditional role of the state.

This paper provides a framework for analyzing the role of public and private responsibility in the provision of public goods. While there is a large literature on private procurement (see, for example, Laffont and Tirole (1996)), the usual assumption is that private sector providers are profit seeking. We emphasize that much private sector activity in the public good sphere is *value-driven* - non-profit organizations are frequently motivated by the desire to help the beneficiaries of public goods, who are typically the poor. This provides a direct rationale for including non-profits in the analysis of the provision of public goods - since they value a public good their valuation should be taken into account in its allocation.

Also, the literature on public goods has taken a monolithic view of the technology of public goods production. We emphasize that a typical public good will require many different inputs. This raises the possibility of mixed responsibilities or *partnerships* for public good provision. This resonates with an emerging theme in the economic development literature (Fiszbein and Lowden, 1999) which argues for the virtues of such solutions in terms of pooling of resources and division of tasks among organizations according to their relative strength.

Two main forces shape the structure of partnerships. First, comparative advantage in provision of certain inputs dictates that the most efficient provider should provide an input. Second, hold-up problems due to contractual incompleteness in specifying tasks discourage separation of ownership and management of the project. We show how the interplay of these forces determines the structure that is chosen. We extend our analysis to examine the role of project design as a separate non-contractible input ("ideology"), and the issue of endogenous determination of the preference of the government. The latter introduces the possibility of crowding out in the form of a less caring government being elected in equilibrium because of the presence of private providers.

Our analysis borrows heavily from the incomplete contracting or property rights literature pioneered by Grossman and Hart (1986) and Hart and Moore (1990). Building on early insights due to Coase and Williamson, this literature emphasizes

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[1]See Shleifer (1998) for an interesting commentary on these issues.

how ownership may matter when contracts are incomplete and hence subject to rene-gotiation. The paper is particularly related to Hart, Shleifer and Vishny (1997) who apply these ideas to whether the government is likely to contract out service provision to a private agency. However, they do not allow private providers to be value driven. Together with the public or quasi-public good nature of the projects, this feature drives the main results of this paper regarding the division of ownership and management in the undertaking of public projects. The analysis is also related to the extensive literature on private provision of public goods as reviewed, for example, by Rose-Ackerman (1996). This has emphasized how private provision by non-profit institutions can supplement public allocations of public goods, and in particular, how the non-profit status of these institutions is a device to overcome informational and contractual problems.[2] However, the possibility of partnerships has not, to our knowledge, been investigated in that literature which generally considers a technology with a single input.

The main application developed here is to the role of NGOs in assistance to the poor in developing countries. Recent years have seen the state delegate the responsibility of providing many social welfare and development services to NGOs in many Asian and Latin American countries. According to UNDP (1993), there are more than 50,000 NGOs working at the grass-roots level in developing countries whose activities have affected the lives of 250 million individuals. The rich variation in the organizational forms involved in the provision of public goods and services, and in particular, the increasing importance of partnerships between governments and NGOs have been highlighted by various field studies (e.g., Farrington and Bebbington, (1993) and Fizbein and Lowden, (1999) for Latin America, and Farrington and Lewis, (1993) for Asia).

The remainder of the paper is organized as follows. In the next section, we lay out the model. Section 3 discusses the main institutional alternatives that we consider for provision of the public project. In section 4, we suggests some useful extensions of the basic model. Section 5 applies the framework to NGOs in developing countries. We discuss how well the model casts light on the trend towards greater NGO involvement in that context. Section 6 concludes.

2 The Model

Consider an economy comprising N citizens. There are two goods – a private consumption good and a discrete public project over which valuations are heterogeneous. Citizen i is endowed with w_i units of the private consumption good. The public project requires two inputs: a continuous input y with price normalized at one unit of private consumption and a discrete input $x \in \{0, 1\}$ which costs c units of private consumption. We assume that given the nature of the technology, y must be chosen

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[2]See Glaeser and Shleifer (1998) for a recent contribution to this literature.

ahead of x. The input y represents resources specific to the project supplied by the manager and will be referred to, henceforth, as the scale of the project. Examples include building an extension system to serve farmers or monitoring and screening technologies for micro-lending programs. The benefit from the project is denoted by

$$b(x, y) = \begin{cases} \alpha\phi(y) & \text{if } x = 1 \\ 0 & \text{if } x = 0. \end{cases} \tag{1}$$

Thus, input x is essential for the project to yield a benefit, such as specific technology or knowledge (as in agricultural extension), infrastructure, or even credibility and clout.[3] We assume that $\phi(y)$ is smooth, increasing and concave with $\phi(0) > 0$, and $\phi'(0) = \infty$. If the government provides x, then $\alpha = 1$ whereas if a coalition of private agents provides it, $\alpha = \beta$ where $\beta \gtrless 1$. Thus, β can be interpreted as a measure of comparative advantage in x production. Let $\alpha^* = \max\{1, \beta\}$.

Preferences are quasi-linear and for citizen i are given by

$$a_i + \theta_i b(x, y), \tag{2}$$

where a_i denotes private consumption. We suppose, without loss of generality that $0 \leq \theta_i \leq 1$. To be concrete, we imagine that there is a group of direct beneficiaries from the project for whom $\theta_i = 1$. Given the application that we have in mind, we shall often refer to this group as the "poor". The other citizens are motivated to provide the public good either through altruism or through some other external benefit from the project and, therefore, have $\theta_i \leq 1$.

It is useful to review the level of provision that maximizes social surplus. If the project goes ahead, then the input y should be chosen such that

$$\sum_{i=1}^{N} \theta_i \; \alpha^* \phi'(y^*) = 1. \tag{3}$$

Defining $h(\eta) \equiv \arg\max_{y \geq 0}\{ \eta\phi(y) - y\}$, the socially optimal provision level is $h\left(\alpha^* \sum_{i=1}^{N} \theta_i \right)$.[4] At the Lindahl-Samuelson optimum, the supply of inputs to the public good should reflect comparative advantage. Thus, the government provides x if $\beta \leq 1$ and a coalition of private agents provides x otherwise. Define $V(\kappa, \eta) \equiv \kappa\phi(h(\eta)) - h(\eta)$.[5] Then the project should go ahead if and only if

$$V\left(\alpha^* \sum_{i=1}^{N} \theta_i, \; \alpha^* \sum_{i=1}^{N} \theta_i \right) - c \geq 0. \tag{4}$$

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[3]The importance of credibility and clout have been emphasized as a key input from the government in Fiszbein and Lowden's (1999) study of successful Latin American public-private partnerships.

[4]It is easy to check that for $\eta > 0$, $h(\eta)$ is strictly positive and is strictly increasing in η.

[5]It is easy to check that $V(\kappa, \eta)$ is strictly increasing κ for all η and is strictly increasing in η for $\kappa \geq \eta$.

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A constitution provides for the election of a citizen with the power to tax. Some fraction (possibly one) of the citizens are taxpayers. Let N_T denote the number of taxpayers. We assume that any costs incurred by the government in providing the public project are uniformly distributed over that group. Let the citizen who controls policy under the rules of the constitution be denoted by θ_k. Below, we will discuss what happens when this citizen is determined endogenously.

Let T be the resources committed to the project by the government and let t be any direct transfer of money from the private sector to the government. We assume that such transfers find their way into tax reductions. In this sense, our model contrasts with a lobbying model where the policy maker keeps any transfers that the private sector makes (see Besley and Coate, 1998). Then, the government's payoff, assuming that the project goes ahead, is

$$\theta_k \; \alpha\phi(y) + \omega_k - (1+\mu)\frac{T-t}{N_T}. \tag{5}$$

where $\mu > 0$ denotes the marginal cost of public funds. For analytical purposes, it is slightly more convenient to rescale these preferences and work in terms of the payoff

$$\theta_g \; \alpha\phi(y) + \omega_g - (T-t) \tag{6}$$

where $\theta_g = \frac{N_T\theta_k}{(1+\mu)}$ and $\omega_g \equiv \frac{N_T\omega_k}{(1+\mu)}$. Thus, because the cost of public provision is spread over all tax payers, it is as if the policy maker has a payoff from public provision of N_T times his valuation deflated by the cost of public funds. Naturally enough, governments with high costs of public funds will care less about public projects. Henceforth, we shall refer to (6) as the government's payoff.

In addition to the government there can be private action to provide the public project. We suppose that this organized through a group of citizens other than k, denoted by Ω, who are organized as a non-governmental organization (NGO).[6] In this paper private sector provision is synonymous with NGO provision. A private contractor is a special case where all members of the NGO have $\theta_i = 0$, but $\beta > 1$. In this case there is no difference between an NGO and a profit maximizing firm. However, the most interesting case to study for the context that we have in mind is where the NGO cares directly about the project. We allow the NGO to provide resources to the government to pay for the project to go ahead. They also have a technology for the provision of x and y.

We assume that this group acts in a Coasian manner and maximizes its joint surplus with any costs of its actions distributed over the members of that group. This rather optimistic assumption allows us to ignore the thorny issue of collective action.[7] We also take as given the group of citizens who are organized in this way. Both of these issues require attention in future work. However, they create a useful

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[6] Our NGO is defined as caring about the project outcome and hence is (implicitly) not-for-profit.

[7] We also abstract from the important issue of fund-raising on the part of NGOs.

starting point for the context that we have in mind. Moreover, the problem at hand would be an important part of the larger problem where group membership and organization are also studied.

Let C be the cost of the inputs provided by the NGO, $\theta_n = \sum_{i \in \Omega} \theta_i$ and $\omega_n \equiv \sum_{i \in \Omega} \omega_i$. We assume that the cost of these inputs is shared in some unspecified way across members of the NGO. Then the NGO's payoff if the project goes ahead is

$$\theta_n \; \alpha\phi\left(y\right) + \omega_n - C - \gamma_T T - \left(1 - \gamma_T\right) t \tag{7}$$

where $\gamma_T = \#\Omega/N_T$ is the fraction of NGO members who are also taxpayers. For our first pass, it greatly simplifies the analysis to suppose that $\gamma_T = 0$.[8] Dealing with the case where $\gamma_T > 0$, adds algebraic not conceptual complications. Our next task is to consider the set of alternative institutional set-ups by which the public project is provided.

3 Institutional Alternatives

The institutional alternatives that we study vary according to who owns the project (in the sense of owning the non-human assets specific to the project), who manages it (i.e., supplies the input y) and who supplies complementary inputs. We study this in a contracting framework where the NGO and government choose the mode of contracting that best suits their joint interests. We also allow transfers between these parties to facilitate this process. Ownership of the project is separately important from management or supply of other inputs because it defines default outcomes if the government and NGO renegotiate any agreement that they have reached. At one extreme is pure government provision where the government provides all inputs and owns all assets. At the other extreme is the case of pure voluntaryism where the NGO provides all aspects of the project as well as owns it. In between, there can be separation of ownership and management of the project.

3.1 Pure Government Provision

The benchmark case for future reference is pure government provision. In that case the government chooses the investment unilaterally and whether or not to proceed

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[8]This could be justified by appealing to some combination of the following arguments. First, we can assume that the NGO consists of outsiders, such as Oxfam aid-workers, who do not pay local taxes. Second, it would be approximately true in a large economy where a small fraction of the population belongs to an NGO. Third, we could extend the model to one where there was a large number of small public projects, so that the NGO would not perceive its tax burden to be altered appreciably by whether or not the particular project it is involved in was funded. Fourth, we could extend the model to suppose that the government has a fixed stock of tax revenue set by political limits, with all expenditures that are not spent on productive projects being consumed by the politicians. Reductions in public funding on projects then translate into increases in political consumption rather than tax cuts.

with the project. It is clear that in this case, only the government's valuation of the project counts. So the government sets

$$\theta_g \phi'(y) = 1 \tag{8}$$

or $y = h(\theta_g)$. Under pure government provision the project goes ahead if and only if $V(\theta_g, \theta_g) - c \geq 0$ where $V(\cdot)$ is defined above. Thus, provided that the government receives sufficient surplus from the project, it commits positive investment levels and the project goes ahead. The joint surplus of the government and the NGO in this case is $V(\theta_g + \theta_n, \theta_g) - c$.

3.2 Pure NGO provision

Pure NGO provision parallels pure government provision except that only the NGO's valuation of the project counts. So the NGO sets

$$\theta_n \beta \phi'(y) = 1 \tag{9}$$

or $y = h(\beta\theta_n)$. Under pure NGO provision the project goes ahead if and only if $V(\beta\theta_n, \beta\theta_n) - c \geq 0$. Thus, paralleling the pure government provision above, provided that the NGO receives sufficient surplus from the project, it commits positive investment levels and the project goes ahead. The joint surplus of the NGO and the government in this case is $V(\beta(\theta_g + \theta_n), \beta\theta_n) - c$.

3.3 Partnerships

We refer to any situation where the government and the NGO both provide finance and/or inputs into the project as a partnership. Partnerships may vary according to who provides different inputs and owns the project. We begin by studying a benchmark where there are no limits on contracts between governments and NGOs. In this case property rights are irrelevant. We then study a more realistic case with limits on contracting.

3.3.1 First Best Partnerships

Suppose then that the government and the NGO can negotiate the scale of the project to maximize their joint surplus. We assume that they can commit to y before the project is undertaken and that transfers between both contracting parties are possible. Joint surplus maximization implies first that the partnership will always choose the efficient supplier of x, i.e., the government if $\beta < 1$ and the NGO if $\beta > 1$. Second, $y^* = h(\alpha^*(\theta_g + \theta_n))$ which is higher than the level of y under either pure

government or pure NGO provision.[9] Third, the project will go ahead if

$$V(\alpha^* (\theta_g + \theta_n), \ \alpha^* (\theta_g + \theta_n)) - c > 0. \tag{10}$$

Hence the project will be undertaken under a larger range of parameter values than either pure government or pure NGO provision. While the increase in y generated by surplus maximizing partnership is better for the two contracting parties, it is less clear from a social point of view. Taking the perspective of the beneficiaries of the project for whom $\theta_i = 1$, the result is clear. They prefer anything that raises y and has efficient provision of x. Thus, the result gives a firm underpinning to the idea that NGO involvement in public projects can help the beneficiaries :

Result 1 *First best partnerships dominate pure government and pure NGO provision.*

We can say nothing specific about the ownership structure underlying this kind of arrangement – perfect contracting implies that ownership is irrelevant. This is well understood in a variety of contexts (see Hart, 1995 for an overview).

This result underpins the recent strong interest in NGO involvement in public projects witnessed the world over. NGO involvement exploits two benefits. The first derives from a direct application of the theory of public goods due to Lindahl and Samuelson. As an interested party, the NGO values the project. Thus, it has a willingness to pay that should be taken into account in providing the good. In particular, the NGO will be willing to finance an increase in y over the case of pure government provision. Second, a partnership exploits any comparative advantage in production with the most efficient provider of x being chosen.

The involvement of an NGO in a public project maximizes the joint surplus of the NGO and the government. However, can lead to a fall in *overall* surplus. This depends upon how far the government's preference is from the average valuation of the project. In a world where the government is dominated by individuals with low attachment to project's that benefit the poor, then raising the well-being of the poor may also raise total surplus. However, NGO involvement can lead to overprovision of projects from a social surplus point of view.

3.3.2   Second Best Partnerships

We now consider a more realistic model of partnerships with contracting imperfections. Specifically, we follow the burgeoning literature, reviewed in Hart (1995), in supposing that the contract reached between a government and an NGO is incomplete. Here, this entails two key features. First, the scale of the project y cannot be

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[9]The joint surplus of the NGO and government is maximized by choosing y to satisfy

$$(\theta_g + \theta_n) \alpha\phi(y) - y.$$

specified ex ante. This seems natural in our context — investments in schools, credit programs, environmental protection and preventive health care, etc. are extremely complex. Indeed the inherent difficulty of monitoring performance in these activities is believed to be the main source of government failure as well as the non-viability of contracting them out to private firms (World Development Report, 1997, pp. 25).[10] Second, there is the possibility of renegotiation after investments have been made in which the more efficient provider of x (the government if $\beta < 1$, and the NGO if $\beta \geq 1$) decides whether or not to commit the input. The timing of the model is as follows:

- **Stage 1:** The government and NGO decide whether to form a partnership specifying responsibility for provision of inputs and ownership of the project.

- **Stage 2**: If a partnership is formed then the manager decides on y which is henceforth sunk and cannot be changed.

- **Stage 3**: The government and the NGO bargain over whether to continue with the project with transfers being possible. At this point the supplier of x decides whether or not to commit its input to the project.

Consider the case where the owner of the project and the manager are different. We assume that if the owner takes over the project completely if bargaining breaks down, then each party only enjoys a fraction λ of the surplus from the input provided by the manager. The parameter $1 - \lambda$ can be interpreted either as the cost of delay, or following Hart, Shleifer and Vishny (1997), that part of the return to the manager's investment that is embodied in its human capital and cannot be realized if it is fired. Also, if the NGO is the owner of y then in the event of a bargaining breakdown with the government the (gross) payoff from the project gets multiplied by β.

Notice that we are departing from the standard assumption in the literature that the choice of the investing party is fixed. Rather, one way of interpreting our model is that different people (the government and the NGO) can be given access to the project and hence can invest in it. Access (in the sense of Rajan and Zingales, 1998) is the ability to work with a critical resource (the project in our case) that allows the manager to specialize his human capital to the resource. So even if he has no residual control rights over the project (i.e., the physical assets involved) given his residual right to withdraw his human capital, access gives the manager a critical resource that he controls, namely his specialized human capital, and hence, is a source of bargaining power.[11]

Partnerships will be described by three letters: ijk. The first refers to the ownership of the project, the second to management, and the third to the supply of

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[10]The report contrasts this with the successful experience of delegating some aspects of management of infrastructure to private contractors (e.g., road management in Brazil delegating, water supply in Guinea, and ports in Malaysia).

[11]We thank Oliver Hart for this observation.

x. Thus, pure voluntaryism and pure government provision appear in this notation as NNN and GGG respectively.

We conduct our analysis under the assumption that $\lambda \min \{\theta_g, \beta\theta_n\} \phi(0) - c > 0$. This guarantees that the cost of the input x is not so high relative to project benefits that either the NGO or the government would want to abandon the project if it is forced to proceed unilaterally. It would be straightforward to analyze the cases when this fails, but it would create a tedious multiplication of cases. We discuss at the end what happens in the pure contracting case where θ_n is equal to zero.

The model is solved backwards. The ownership structure is important in defining the default payoffs in the stage 3 bargaining game where we use the Nash bargaining solution. Let $(g_0(y), n_0(y))$ denote these default payoffs in general. The key role of ownership of the project in each instance is to determine who chooses whether to go ahead with the project and supply x in the event that bargaining breaks down. After y has been sunk, if the two parties are able to reach an agreement then $\alpha(\theta_n + \theta_g)\phi(y) - c$ is the amount of ex post joint surplus. Given the bargaining procedure in stage 3 of the model, the supply of x will always be from the efficient provider to maximize *ex post* joint surplus – the government if $\beta < 1$ and the NGO if $\beta > 1$. Thus,

Result 2 *A public-private partnership will choose the efficient provider of x regardless of the ownership of the project and the provision of y.*

Hence, a necessary condition for pure voluntaryism to be chosen is that $\beta > 1$ and for pure government provision is that $\beta < 1$. The amount of ex post joint surplus if bargaining between the two parties does not break down is $\alpha^*(\theta_n + \theta_g)\phi(y) - c$. Whenever, $\beta < 1$, the government supplies x, and whenever $\beta > 1$ the NGO supplies it. The ownership of the project determines the disagreement payoffs of the two parties. If the parties fail to come to an agreement, the efficient provider of x will not necessarily be chosen.

We adopt the accounting convention that the supplier of x also bears the cost of x. Let t denote the amount of *ex post* net transfer from the NGO to the government, and let $\delta = 1$ if $\alpha^* = \beta$ (NGO supplies x) and $\delta = 0$ if $\alpha^* = 1$ (government supplies x). Then the equilibrium level of transfers using Nash bargaining is

$$
\begin{aligned}
t &= \arg\max_z \{ \alpha^*\theta_n\phi(y) - \delta c - z - n_0(y) \}\{ \alpha^*\theta_g\phi(y) - (1-\delta)c + z - g_0(y) \} \\
&= \frac{\alpha^*(\theta_n - \theta_g)\phi(y) + g_0(y) - n_0(y) + (1-\delta)c - \delta c}{2}
\end{aligned}
$$

The net of transfer *ex post* payoffs for the government and for the NGO are :

$$
\alpha^*\theta_g\phi(y) - (1-\delta)c + t = \frac{(\theta_g + \theta_n)\ \alpha^*\phi(y) + g_0(y) - n_0(y) - c}{2} \tag{11}
$$

$$
\alpha^*\theta_n\phi(y) - \delta c - t = \frac{(\theta_g + \theta_n)\ \alpha^*\phi(y) + n_0(y) - g_0(y) - c}{2}. \tag{12}
$$

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Four cases arise depending on alternative configurations of ownership and management of the project.

Case 1: The government owns and manages the project. In the event of disagreement the government also supplies x (hence $\alpha = 1$). The disagreement payoffs are therefore $g_0(y) = [\theta_g \phi(y) - c]$ and $n_0(y) = [\theta_n \phi(y)]$. Substituting these disagreement payoffs in (11), we get the government's *ex ante* payoff in this case:

$$\frac{(1 + \alpha^*)\theta_g + (\alpha^* - 1)\theta_n}{2}\phi(y) - y - c.$$

Accordingly, $y = h\left(\frac{(\alpha^*+1)\theta_g + (\alpha^*-1)\theta_n}{2}\right)$.

Case 2: The government owns the project but the NGO manages it. Now in the event of disagreement the government supplies x (hence $\alpha = 1$) and moreover, since the manager (the NGO) does not own the project, the disagreement payoffs are $g_0(y) = [\lambda\theta_g \phi(y) - c]$ and $n_0(y) = [\lambda\theta_n \phi(y)]$. The NGO's payoff in stage 2 is, using (12),

$$\left(\frac{(\alpha^* + \lambda)\theta_n + (\alpha^* - \lambda)\theta_g}{2}\right)\phi(y) - y$$

and hence $y = h\left(\frac{(\alpha^*+\lambda)\theta_n + (\alpha^*-\lambda)\theta_g}{2}\right)$.

Case 3 : The NGO owns and manages the project. Now in the event of disagreement the NGO supplies x (hence $\alpha = \beta$). The default payoffs in this case are $g_0(y) = [\beta\theta_g \phi(y)]$ and $n_0(y) = [\beta\theta_n \phi(y) - c]$. At stage 2 the NGO chooses the scale of the project to maximize

$$\left(\frac{(\alpha^* + \beta)\theta_n + (\alpha^* - \beta)\theta_g}{2}\right)\phi(y) - y - c$$

and so $y = h\left(\frac{(\alpha^*+\beta)\theta_n + (\alpha^*-\beta)\theta_g}{2}\right)$.

Case 4 : The NGO owns the project but the government manages it. Now in the event of disagreement the NGO supplies x (hence $\alpha = \beta$) and moreover, since the manager (the government) does not own the project, the disagreement payoffs are $g_0(y) = [\beta\lambda\theta_g \phi(y)]$ and $n_0(y) = [\beta\lambda\theta_n \phi(y) - c]$. At stage 2 the government chooses the scale of the project to maximize

$$\left(\frac{(\alpha^* + \beta\lambda)\theta_g + (\alpha^* - \beta\lambda)\theta_n}{2}\right)\phi(y) - y$$

and so $y = h\left(\frac{(\alpha^*+\beta\lambda)\theta_g + (\alpha^*-\beta\lambda)\theta_n}{2}\right)$.

The results on the equilibrium choice of y are summarized in Table 1. The key parameters are the degree to which the manager's investment in the project is

embodied in his human capital and is lost if he is fired $(1 - \lambda)$, the extent of comparative advantage (β), and the relative valuations of the project (θ_n, θ_g). Reducing asset specificity, raising β and project valuations all raise the equilibrium level of y. However, we are mainly interested in the relative performance of the different institutional arrangements chosen at stage 1. To rank joint surplus, observe that all arrangements deliver a level of y below the joint surplus maximizing level. Moreover, the ranking depends solely on the level of y, with the arrangement that yields the largest y being preferred.

The results are summarized in Table 2. For each mode of provision, the equilibrium level of y can be expressed as a weighted average of the valuation parameters of the government and the NGO:

$$y = h(\frac{(\alpha^* + \varepsilon)}{2}\theta_n + \frac{(\alpha^* - \varepsilon)}{2}\theta_g)$$

where $\varepsilon \in [-1, 1]$. The optimal form of provision can be determined by comparing y across the various institutional alternatives.

While Result 2 tells us that the efficient provider of x is always chosen (in equilibrium) under all possible institutional arrangements, Result 3 pins down the provider of y.

Result 3 *A public private partnership will choose the party with the highest valuation of the project as its manager.*

Result 3 follows from the public good nature of the project, and the bargaining protocol we have adopted. The disagreement payoff is equal to a fraction of each party's valuation (i.e., $\theta_i \phi(y)$). Using Nash bargaining, the equilibrium payoff is a weighted average of the valuations of the two parties, with the manager's valuation receiving the greater weight. Since the manager chooses y and bears the full marginal cost of it, the party with the higher valuation should be made the manager. The full array of possibilities is presented in detail in Table 1.

Next we determine who should own the project. Here, we have the following result:

Result 4 *A public-private partnership will allocate ownership of the project to the party who, as manager, will have the highest the disagreement payoff in the ex post bargaining game.*

The greater is the disagreement payoff of the manager, the higher is his equilibrium payoff in the bargaining game in stage 3. The manager's disagreement payoff is a positive fraction (determined by β and/or λ) of his individual payoff from the project and the greater is this payoff, the stronger is his incentive to supply y. The disagreement payoff, as we know, depends on who owns the project. If the manager also owns the project then his disagreement payoff will depend only on its relative

efficiency in supplying x itself (determined by β). If the supplier of x is given ownership as well, then the disagreement payoff of the manager will depend on how much the productivity of its investment depends on his continued presence (determined by λ).The full array of possibilities is again seen from Table 1.

In summary, there are two main forces. If the investment in the project is largely embodied in the human capital of the manager, the ownership of the project and management should be the same. If not, then the hold-up problem is worsened, more so the greater is the specificity of the investment, $1 - \lambda$. The second effect favors granting ownership of the project to the party with comparative advantage in x production, more so the greater is $|1 - \beta|$. In cases where these effects contradict each other, then granting ownership depends upon who can do best in the disagreement situation – the lower the disagreement payoff of the manager, the greater is the transfer the other party can extract from it, and the worse the incentives to supply y.

Results 2-4 allow us to explain Table 2. First consider the case $\theta_n > \theta_g$. By Result 3, the NGO should be the manager. For $\beta \geq 1$ the NGO should own the project and supply x. By Result 2, the only reason to involve the government would be if $\beta < 1$. If the NGO owns the project then the disagreement payoff of the NGO is increasing in how good it is in supplying x relative to the government, i.e., how high is β. If the government owns the project then the disagreement payoff of the NGO is increasing in how good the government is in using the y the NGO put into the project without the NGO's participation, i.e., how high is λ. Hence if $\lambda > \beta$ the government should own the project and if $\lambda < \beta$ then the NGO should own the project. Second, consider the case $\theta_g > \theta_n$. By Result 3, the government should be the manager. For $\beta \leq 1$ the government should supply x by Result 2. For $\beta > 1$,the NGO should supply x. Who should own the project? If the government owns the project then the disagreement payoff of itself does not depend either on β or on λ. In contrast, if the NGO owns the project then the disagreement payoff of the government is increasing in both β and λ. If β and λ are small, in particular, if $\beta\lambda < 1$, the former ownership structure is better, while if $\beta\lambda > 1$ the latter is better.

Two important implications the Results 2-4 are worth noting. First,

Result 5 *Both pure government and pure NGO provision will be chosen for some parameter values.*

This contrasts with the complete contracting case where a partnership is always optimal for both parties. Pure government provision arises when the NGO values the project less than the government and has a comparative disadvantage in production of the input x. Pure private provision is chosen at the opposite extreme where the NGO has a comparative advantage in x production and values the project more highly.

Second, ownership of assets related to the project matters. If there is little specificity of investment (i.e., λ is close to 1), then the party with the comparative

advantage in x production will own the project since this reduces the loss of surplus due to hold-up. However, as specificity increases (λ gets closer to zero), the owner and manager will be the same, regardless of who has the comparative advantage in supplying x. If both parties are equally efficient at supplying x (i.e., β is close to 1) then the party who values the project more should supply y as well as be the owner.[12]

If the valuation of one of the parties is so low that $\lambda \min \{\theta_g, \beta\theta_n\} \phi(0) < c$, then our results require modification. Consider, for example, the "pure contracting" case where the NGO gets no value from the project per se, i.e., $\theta_n = 0$. In this case, NGO ownership will always result in the project not going ahead if bargaining breaks down. Thus, NGN partnerships will never be chosen. However, the government will always choose to contract with the NGO to provide x when $\beta > 1$, while retaining ownership and management of the project. A similar reasoning applies when $\theta_n > \theta_g = 0$: in this case GNG partnerships are never chosen, but the NGO will contract with the government to supply x when $\beta < 1$. This result is summarized as:

Result 6 *If one party does not value the project at all, its only potential role is as a supplier of x.*

3.3.3 Transfers and Welfare Implications

Under modes of provision that involve some form of partnership, transfers between the two parties will take place in equilibrium from the party that cares more about the project (the manager) to the other party (the owner or, the supplier of complementary non-contractible inputs). Table 3 shows the extent of the (ex post) transfers between the two parties.

Ex ante transfers between the two parties are likely to take place as well. Their magnitude will depend on the distribution of *ex ante* bargaining power among the two players. If the government has all the bargaining power in the first stage, which could be justified if their were many potential NGOs with whom it could contract, then the government will specify an up-front transfer (positive or negative) to ensure that the

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[12]The results can be generalized to a scenario where both inputs are continuous variables. Consider a situation where the production function of the public good is $\phi(x,y)$ and the cost of supplying each input is unity. Assume that the government can supply x only, and the NGO can supply y only. If the parties manage to reach an agreement then the payoff of i is $\theta_i\phi(x,y)$. If the government owns the project and a bargaining dispute leads to the firing of the NGO, only a fraction λ of the fruits of the investments are realized, and the disagreement payoff of i is $\theta_i\lambda\phi(x,y)$. Under government ownership the investment levels are characterized by the equations $\left(\frac{1+\lambda}{2}\theta_n + \frac{1-\lambda}{2}\theta_g\right)\phi_y(x,y) = 1$ and $\left(\frac{1-\lambda}{2}\theta_n + \frac{1+\lambda}{2}\theta_g\right)\phi_x(x,y) = 1$. The corresponding expressions for the case of NGO ownership are the same if we replace λ by μ. It is then clear that the party that best manages the project without the continued presence of the other party in the post-investment stage should own the assets. Hence if $\lambda > \mu$ then the government should own the public good, otherwise the NGO should own it. Notice that μ here is very similar to β in our model. In our model, both parties can supply x and the relative efficiency of the NGO is β. Here only the government can provide x, and μ captures the NGO's ability to make use of the x sunk by the government in the event of a bargaining breakdown.

NGO gets a payoff of exactly $\theta_n \phi(h(\theta_g))$. Even if the optimal mode of provision is NNN, some government transfer to the NGO may be required if

$$\theta_n \beta \phi(h(\beta\theta_n)) - h(\beta\theta_n) - c < \theta_n \phi(h(\theta_g))$$

which is possible even if $\theta_n > \theta_g$ and $\beta > 1$.[13]

Turning to welfare, it is clear that the project beneficiaries (those with $\theta_i = 1$) are better off from NGO involvement. This follows from the observation that joint surplus of the government and the NGO is higher only if the output of y is greater. However, there can be no automatic presumption that total social surplus is enhanced by permitting private participation in the provision of the public project. Suppose, for example, that the median group also has mean preferences in which case social surplus is maximized at θ_g provided that $\beta \leq 1$. In that case contracting with an NGO will lower social surplus even if it benefits the poor. However, there are a range of circumstances in which total social surplus increases. Let $\overline{\theta}$ be the average valuation of the project in the population. Then, partnerships are valuable for certain if $\beta\overline{\theta} > \beta\theta_n > \theta_g$ and $\beta < 1$. This is likely to be a situation where a large fraction of the population is poor and disenfranchised. Then any partnership will move the level of y towards its social surplus maximizing value.

4   Political Economy Issues

This section considers two main complications of the model that are likely to be important in applying the results in concrete settings. First, we consider how government preferences might be determined endogenously in an election. Second, we consider the possibility that government and NGOs have different ideologies as well as having different preference intensities for the project.

4.1   Elections

We have not yet been specific about what preferences in the population are likely to be represented by government. We will explore this in a specific context where it is possible to say something concrete about the outcome. We take as our background framework the model of representative democracy developed in Osborne and Slivinsky (1996) and Besley and Coate (1997). In this model citizens are elected to deliver policies in a policy process modeled as a three stage game: entry (where there is a small entry cost), voting and policy implementation.

To be concrete, we suppose that the population is comprised of four groups. There are two groups of taxpayer citizens – the caring and uncaring. The uncaring have

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[13]The discussion about the transfer between the government and the NGO assumes that pure government provision yields positive social surplus, which follows from $\lambda \min\{\theta_g, \beta\theta_n\} \phi(0) - c > 0$. If $\theta_g = 0$, then so long as $\theta_n > 0$, pure NGO provision will take place and the NGO would not receive any transfers from the government.

$\theta_i = 0$ and the caring have $\theta_i = \theta_1 > 0$. There is an externally organized NGO comprised of M people with preferences $\theta_2 > 0$. Being external, the NGO members do not have voting rights. Finally, there is a third group – the poor – who are citizens with voting rights who do not pay taxes. They are also the project beneficiaries with $\theta_i = 1$.

We focus on the case where neither group of taxpayer citizens is in the majority, although they do form a majority acting in consort. Then a caring taxpayer who stands for office is a Condorcet winner, and we would expect his preference to be dominant regarding pure government provision.[14] This would be supported as one candidate equilibrium where a caring taxpayer runs unopposed (see Besley and Coate, 1997, Proposition 2). Which of the cases from the last section is relevant, then depends upon whether $\frac{N_T\theta_1}{(1+\mu)} \gtrless M\theta_2$, i.e., the relative size and valuations of the NGO and taxpayer group.

We now investigate whether is an incentive for the median citizens to delegate decision making to an uncaring taxpayer. If the latter were elected, then the NGO will undertake the project and the payoff to a caring taxpayer will be:

$$\beta\theta_1\phi\left(h\left(\beta M\theta_2\right)\right). \tag{13}$$

If a caring taxpayer were elected, then the payoff to a caring tax payer, assuming pure government provision, is

$$\theta_1\phi\left(h\left(\frac{N_T\theta_1}{1+\mu}\right)\right) - \frac{h\left(\frac{N_T\theta_1}{1+\mu}\right) + c}{N_T}. \tag{14}$$

Note that where $\beta = 1$ and $\frac{N_T\theta_1}{(1+\mu)} = M\theta_2$ or $\theta_g = \theta_n$, (13) is strictly greater than (14). Also in this case, the outcome under all modes of provision in table 1 is the same. The caring taxpayers are better off when an uncaring taxpayer is chosen in this situation. This is also true of uncaring taxpayers. Hence an uncaring citizen will be elected and pure private provision will take place This is an example of strategic delegation.[15] Appendix A shows that this argument generalizes to cases where $\frac{N_T\theta_1}{(1+\mu)} \neq M\theta_2$.

Thus the existence of an NGO can change the type of government that citizens desire – a citizen who cares less about the project may be elected to bring forth NGO provision.

4.2   Ideology

We now study the effect of allowing the manager of the project to choose, apart from the scale of the project, another input that determines the payoffs of the two parties from the public good which we call ideology. This might reflect the weights

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[14] It is easily checked that a majority of citizens prefer an caring taxpayer to an uncaring taxpayer, and a caring taxpayer to a poor person.

[15] This result is similar to some of those presented in Besley and Coate (1998).

that each party attaches to particular beneficiary groups (e.g. men versus women), a view about how the project impacts on the environment or whether education should contain a religious component. As we discuss in the next section, such issues are frequently encountered in situations where NGOs function in practice.

Suppose that $r \in \{0, 1\}$ represents the ideology and that choosing a particular ideology is costless. We assume that the NGO prefers $r = 1$ and the government prefers $r = 0$. We assume for the moment that the project beneficiaries (i.e. those for whom $\theta_i = 1$) do not care about the project design — their payoff is $\alpha\phi(y)$ for $r \in \{0, 1\}$. To fix ideas, we focus on the case where $\theta_n > \theta_g$ and $\beta < 1$ so that the NGO should be the manager and the government the supplier of x in the model without ideology. It is easy, but tedious, to generalize the results to all modes of provision.

We view ideology as value-subtracting, i.e., designing the project according to the taste of one party diminishes the payoff of the other party so as to lower the joint payoff from the project. In addition, it is non-contractible and is chosen by the manager. The NGO's benefit from the project (if it goes ahead) is

$$n(y, r) = \{q(1 - r) + r\}\theta_n\phi(y)$$

while that of the government is

$$g(y, r) = \{qr + (1 - r)\}\theta_g\phi(y)$$

The parameter $q \in (0, 1)$ captures the degree of homogeneity in tastes between the government and the NGO.[16] Thus, q might represent the fraction of beneficiaries the NGO cares about when the government runs the project and vice versa. Alternatively the government may value the fraction of time that a NGO devotes to teaching mathematics in a school (q), but may receive zero (or negative) value from the fraction of teaching time $(1 - q)$ devoted to a particular religion or ideology. [17]

Without ideology, our model predicts a partnership with the NGO being the owner if $\beta > \lambda$ and otherwise, the government. As a benchmark, let us note that if the government is the manager then it is going to choose $r = 0$ and $y = h(\theta_g)$. The resulting level of joint surplus under GGG is $V(q\theta_n + \theta_g, \theta_g)$. If the NGO is the

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[16] As in models of organizational hierarchy in which the manager's skill enters multiplicatively in the production function (e.g. Rosen, 1981), we assume that the choice of project design enters multiplicatively in the (gross) benefit from the particular input in question. The parameter q is similar to what Aghion and Tirole (1994) refers to as congruence of objectives.

[17] In a recent paper Kremer and Sarychev (1998) argue that education is publicly provided rather than publicly funded, even when there is evidence showing private schools are more efficient, because people have preferences over non-contractible aspects of the education of *other* people's children. They argue that the most important of these non-contractible aspects of education is likely to be ideology. For example, it is possible to require schools to teach evolution or the history of the Civil War but it is hard to verify in what light these things are taught to students. Indeed, in the US, the growth of the Catholic school system is attributed to the feeling that the majority (Protestant) view of religion and morality was being imposed through public schools (Spring, 1982).

manager it is going to choose $r = 1$ and the level of joint surplus under alternative modes of provision with the NGO as the manager will be $V\left(\beta\left(\theta_n + q\theta_g\right), \beta\theta_n\right)$ under NNN, $V(\theta_n + q\theta_g, \frac{q\theta_g(1-\beta)+\theta_n(1+\beta)}{2})$ under NNG, and $V(\theta_n + q\theta_g, \frac{q\theta_g(1-\lambda)+\theta_n(1+\lambda)}{2})$ under GNG.

With non-contractible project design it is easy to check that the choice between NNG and GNG partnerships is still governed by whether $\beta \gtrless \lambda$. However, three important differences emerge.

First, the greater is taste heterogeneity, the less the scope for public-private partnerships. Even if $\theta_n > \theta_g$ and $\beta < 1$, pure government provision may dominate any form partnership.[18] Intuitively, there are two main reasons. Since ideology is value subtracting, the joint surplus within a partnership will be reduced even if the NGO cares more about beneficiaries. In addition, ideological conflict blunts increases in y. The introduction of ideology implies that each party values marginal units of y more *when it can control project design* than the other party.

The second effect of introducing ideology is the possibility that beneficiaries may lose from NGO involvement. Specifically, there is a critical value of $\theta_n, \underline{\theta} \in (\theta_g, \tau\,\theta_g)$ where $\tau \in [1, 2]$ such that for $\theta_n \in (\underline{\theta}, \tau\theta_g)$, a GNG partnership will be chosen even though y would have been higher under pure government provision (see footnote 18). The NGO is willing to pay for involvement sufficiently to compensate the government for doing so while not actually delivering higher benefits. This kind of agency problem is worsened by supposing that the poor also dislike the NGO's ideology.[19] The converse would be true were the NGO better in tune with sentiments of the poor. However, if introducing ideology does not lower joint valuation but merely causes a mean preserving spread in the valuations of the government and the NGO, then it increases the supply of y when the manager can control project design. As a result, the range of parameter values for which partnerships are likely to emerge expands and the poor are always better off.[20]

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[18]To see this, assume that $\lambda > \beta$ so that GNG partnerships are preferred to NNG partnerships. GNG is preferred to GGG if and only if $V\left(q\theta_g + \theta_n, \frac{q\theta_g(1-\lambda)+\theta_n(1+\lambda)}{2}\right) > V\left(\theta_g + q\theta_n, \theta_g\right)$. For $\theta_n = \theta_g$ pure government provision strictly dominates GNG partnerships if $q < 1$ while they yield the same joint surplus if $q = 1$. At the same time if $\theta_n > \tau\,\theta_g$ where $\tau \equiv \frac{2 - q(1-\lambda)}{1+\lambda} \in (1, 2)$ then $\frac{q\theta_g(1-\lambda)+\theta_n(1+\lambda)}{2} > \theta_g$, i.e., the level of y is higher under a GNG partnership. The higher is q and λ, the lower is τ and the greater the scope for a partnership. Given that the functions $V(.,.)$ and $h(.)$ are continuous, and monotonically increasing, there exists a critical value of $\theta_n, \underline{\theta} \in (\theta_g, \tau\,\theta_g)$ such that $V\left(q\theta_g + \underline{\theta}, \frac{q\theta_g(1-\lambda)+\underline{\theta}(1+\lambda)}{2}\right) = V\left(\theta_g + q\underline{\theta}, \theta_g\right)$. This means it is possible for pure government provision to dominate a GNG partnership even if $\theta_n > \theta_g$, namely, when $\theta_g < \theta_n < \underline{\theta}$.

[19]Christopher Hitchens' controversial biography of Mother Theresa argues that she was not interested in helping the poor in a material way, but rather in a spiritual way, and when these goals were in conflict her organization (The Sisters of Charity) always stuck closely to church doctrine. Thus her sanatoria, for example, did not provide the latest medical treatment or even really rudimentary pain management, but concentrated instead on doctrinaire concepts like "nobility of suffering". We thank Andreas Lehnert for suggesting this reference.

[20]To see this, suppose when the NGO is the supplier and chooses $r = 1$, it receives a payoff

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The third effect of introducing value-subtracting ideology is that it reduces the public goods aspect of the project and hence is less subject to free-rider problems that lead to underprovision as we saw in section 4.1. Indeed, if we relax the assumption that only one project can be undertaken, with extreme taste heterogeneity (i.e., $q = 0$) one can have both the government and the private sector providing the same public good but with different project design.[21]

5 Application to NGOs in Developing Countries

In the last two decades NGOs have been increasingly supplementing, and in some cases displacing government agencies in the provision of relief and welfare, social services, and various development projects in less developed countries.[22] The Seventh National Five Year Plan (1985-90) in India explicitly allocated a large amount of planned public expenditure ($170 million a year) on rural development, primary health and education to be implemented through NGOs as opposed to government agencies (Farrington and Lewis, 1993, pp.94). In many parts of the country government schemes related to health (e.g., child development, immunization, and specific diseases such as leprosy), forest management, agricultural extension and watershed management have been handed over to NGOs by the relevant ministries.[23] About 20000 NGOs operate in Bangladesh's 86000 villages providing education, health, small

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$(\theta_n + \varepsilon)\phi(y)$ whereas the government receives $(\theta_g - \varepsilon)\phi(y)$. Similarly, if the government is the supplier and chooses $r = 0$, it receives a payoff $(\theta_g + \varepsilon)\phi(y)$ whereas the NGO receives $(\theta_n - \varepsilon)\phi(y)$. Now the supply of y under a GNG partnership will be $y = h\left(\frac{(1+\lambda)\theta_n+(1-\lambda)\theta_g}{2} + \lambda\varepsilon\right)$. Since the supply of y goes up the poor are better off (assuming they do not care about ideology). From Table 3 we know that the NGO is better off but the government is strictly worse off. If we add the payoffs of the two parties we obtain $V\left(\theta_n + \theta_g, h\left(\frac{(1+\lambda)\theta_n+(1-\lambda)\theta_g}{2} + \lambda\varepsilon\right)\right)$. From the property of the function $V(\cdot, \cdot)$ we know that joint surplus is higher compared to the no-ideology case.

[21]According to this argument, one would expect to have more pure private provision the more heterogeneous the population. James (1987, 1993) finds that religious and linguistic differences are an important factor in explaining the share of non-profit schools (most private non-profit schools are run by religious organizations) both nationally and within countries.

[22]Recent years have also seen a major transformation in the delivery of international development assistance with increasing NGO involvement various projects. Resources disbursed for development projects in the third world through NGOs increased steadily from 0.9 billion U.S. dollars in 1970 to 6.3 billion dollars in 1993 (in 1970 US dollars) which equalled the total amount of international aid by Western governments and international NGOs in 1970 (Riddell and Robinson, 1995). Major donor countries in the OECD have allocated an increasing fraction of their official development assistance to NGOs for use in NGO-initiated activities : this rose from 0.7% in 1975 to 3.6% in 1985 (OECD, 1987). The World Bank and a number of multilateral and bilateral agencies have began to collaborate with NGOs both in terms of financing as well as project implementation. In 1973 only 6% of World Bank projects had some degree of involvement of NGOs, whereas in 1993 this share has risen to 30%. (Valderrama 1995).

[23]See Farrington and Lewis, 1998 (pp. 91-185) for a detailed discussion.

loans, and agricultural extension services, and according to many far more efficiently than the corrupt and inefficient government agencies (e.g., *The Economist* July 25 1998). Recent years have seen the state delegate the responsibility of providing many social welfare and development services to NGOs in many Latin American countries. In some cases the state has withdrawn from the financing as well as delivery of services (as in rural credit in Peru, agricultural extension in Peru), whereas in other cases it delegates the role of delivery and management to NGOs while maintaining its financing responsibilities (such as activities ranging from management of schools, national parks and agricultural extension in Bolivia, agricultural extension in Colombia and Chile, and primary health in El Salvador).[24] In most African countries NGOs deliver a significant proportion of health services and are often the only service agencies operating in remote rural areas (Bratton, 1989).

The United Nations Interagency Committee on Integrated Rural Development for Asia and the Pacific (1992) formally define NGOs as having six key characteristics: they are voluntary, non-profit, service and development oriented, autonomous, have a high degree of motivation and commitment, and some form of formal registration (pp. 34-35). Our model squares well this definition. It also fits the informal description of a typical NGO as "... a small agency with a handful of staff working in a cluster of villages in a particular locality" (Riddell and Robinson, 1995).[25]

Sen's (1998) study of public-private partnerships in India illustrate several ways in which hold-up problems manifest themselves in NGO provision. In recent years the Indian government has increased funding for NGOs but there are several instances of delays by various government agencies in approvals necessary for NGOs to undertake development programs, in releasing funds and materials. This has often led to stoppage of projects and burdened NGOs with liabilities of staff and infrastructure. NGO officials have to make several visits to the concerned ministry to get the funding and cases of harassment and stoppage of funds by officials are common. As a result they often have to please or bribe government officials to continue to get funding. Until very recently, in order to obtain approval for an NGO project proposal in Bangladesh required as many as 40 officials' signatures from multiple government agencies, often causing significant project delays, corruption, and sometimes, abandonment of projects (Riker, 1995, and Farrington and Lewis, 1993, pp. 53). In Africa politicians often welcome NGOs as an additional source of "spoils for distribution" (Bratton, 1989). On the other hand, in the event of a dispute African governments have intervened to replace the leadership of NGOs, and attach its physical assets.[26] NGO's in Africa that receive funds from the government are also vulnerable as Asian NGOs to

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[24]See Bebbington, 1997 and Fiszbein and Lowden, 1999.

[25]As one moves up the scale there are comparatively few organizations with the staff or financial resources to work effectively at the regional or national level, although it is these organizations that are most well known (e.g., BRAC and Proshika in Bangladesh).

[26]For example, in 1985 the government of Zimbabwe was able to take over the Savings Development Movement, an NGO working with women in rural areas, charging its leaders with financial mismanagement, a charge that was later rejected by the courts.

a government's withdrawal of its permission or more subtle pressures (Fowler, 1991).

A recent showdown between government and NGO officials regarding distribution of disaster relief in a tornado hit area in West Bengal, India dramatically illustrates the potential for bargaining breakdowns and delays. The government officials wanted control over distribution and selection of beneficiaries claiming they had experts who would judge the quality of the relief materials before handing them out to the beneficiaries. The NGOs refused leading to bargaining impasse causing significant delay in beginning of relief operations. Eventually the government officials relented when the NGO threatened to leave with the relief materials.[27]

Our theoretical model generated a number of hypotheses regarding the choice of the mode of provision. Even though we do not have the data needed for formal testing, it is useful to take a structured look at the large descriptive literature.

Hypothesis 1 *Partnerships are more likely when the government and the NGO have comparative advantages in complementary tasks. Pure NGO provision will be more prevalent in projects where the marginal cost of public funds is high (γ is high) and/or the public sector is relatively less efficient in input provision (β is high).*

At a very aggregate level there is little doubt that NGO involvement in public projects in developing countries has grown in response to budgetary stringency, often imposed by macro-economic stabilization (Hulme and Edwards, 1995). Even in developed countries, faced with crises of the welfare state, many governments such as in France under the socialist government headed by Mitterand turned to the non-profit sector to provide welfare services. World Bank most frequently cited cost advantage and efficiency as the main reason for using NGOs to implement its projects with low overheads and workers who are either more dedicated or do not enjoy the wage and employment security of government employees as being the sources of cost savings (Robinson, 1997). The World Bank experience (Cernea, 1988) drawn from a survey of 25 Bank-financed projects, indicates a high correlation between NGO involvement and project success.

NGO involvement (in the capacity of supplying x) is less dominant in types of projects that are infrastructure intensive *and* in countries where the government manages the infrastructure well. For example, in the case of agricultural extension an important issue is that the NGOs are unable to finance infrastructure (irrigation, roads etc.) and are hence dependent on the government. NGOs also lack the necessary financial and human resources to become centers of R & D but their relative strength is their closeness to the clientele and extension networks. On the other hand the government has an inefficient and bureaucratic extension service. These factors limit the possibility of pure private or pure public provision and indicate the obvious gains from forming partnerships where the government conducts research, and the NGO provides extension services by selecting the appropriate technology and using its ability to effectively communicate with farmers.

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[27] *The Telegraph*, March 30, 1998.

In their wide ranging survey of government NGO-partnerships in agricultural extension, Farrington and Bebbington (1993) and Farrington and Lewis (1993) confirm the importance of partnerships (either NNG or GNG in our model) in Latin America, Africa and Asia.[28] The few instances of pure NGO provision were driven mainly by the resource constraints faced by the government resulting in the latter's inability to cover the relevant commodities or the agro-ecological areas (Farrington and Bebbington, 1993, pp 135). Absence of governmental expertise also explains the structure of NGO provision in West Bengal, India where training programs to promote self-employment among the rural poor are funded by the government, which also selects beneficiaries. However, NGOs provide the training (Ghatak, 1998).

In developing countries NGOs typically work in communities or settings where the reach of the government is weak or non-existent. In the West Bank and Gaza an estimated 1200 NGOs provide 60% of primary health care, up to half of secondary and tertiary health care, most agricultural services, low cost housing and microcredit (World Development Report, 1997). The same is true of primary health and education in many African countries in remote rural areas where non-profits run by Christian missionaries are often the only service agencies operating (Bratton, 1989).

Decentralization initiatives have often resulted in increased NGO involvement, in part because resource constraints (financial and human) are more severe. This is suggested by the experience of many Latin American countries where in the last decade and a half, along with democratization and free-market oriented economic reforms, many important functions and fiscal resources have been delegated to local governments. According to the recent study by Fiszbein and Lowden (1999) an overwhelming majority of observed public-private partnerships in Latin America have involved *local or municipal* governments. The NGOs expertise in specific areas such as targeting and ability to access the poorest groups, and experience and technical knowledge in the fields of education, health and the environment have been the main factors driving partnerships.[29] However, the existence of decentralized governments is no guarantee for partnerships with NGOs. An important limitation identified by Fiszbein and Lowden (1999) is the ability of the local government to be an effec-

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[28]In Latin America this model have been tried out in Bolivia, Chile, and Honduras. In Bangladesh, where government-NGO relationships are rocky due to the unstable political environment, this is one area where successful collaborations along these lines have been achieved in livestock and poultry production. This is based on the NGOs strength at the grassroots level and the government control of scarce inputs (such as livestock vaccines). In India the Ministry of Agriculture has delegated extension services to NGOs in five states as part of a proposed pilot scheme. Under the agreement, the state departments of agriculture and state agricultural universities will provide technical support and training to NGO staff while the latter would organize farmer group meetings and demonstrations.

[29]In the city of Itagui in Colombia the local government took care of construction of school buildings and an NGO with a distinguished track record in providing education undertook the responsibility of managing the curriculum and staff. In a pilot project in El Salvador the Ministry of Health successfully delegated the management of health care to an NGO while retaining the financing responsibility, mainly owing to the NGOs dedicated and well trained volunteers and doctors travel to parts of the rural countryside that public health services never was able to reach.

tive partner. El Salvador and Jamaica saw moves towards decentralization to local governments with severely restricted fiscal and service delivery capabilities. This resulted in the growth of pure NGO (NNN) provision. In contrast, decentralization in Colombia and Bolivia was accompanied by an increase in NGO activity in the form of partnerships with the local governments.[30]

Hypothesis 2 *NGO provision will be more prevalent in projects where the NGO cares more about the beneficiaries.*

It is certainly a theme in the literature that NGOs are more in tune with the interests of the poor than many governments. Thus, United Nations Interagency Committee on Integrated Rural Development for Asia and the Pacific (1992) cites the fact that "the rural poor are given higher priority by NGOs" (page 20) as one of the main advantages of NGO over government provision. However, in line with hypothesis 1, they also recognize that governments can have a comparative advantage due to their "much greater resource and broader institutional framework". In similar vein, Subbarao et al [1997] argue in the context of programs for the poor that "NGO delivery proved better than government delivery ... due to charismatic leadership and dedicated workers.."

According to Bratton, (1989) and Clark (1995) successful government-NGO partnerships have emerged only when both parties have had some minimum commitment towards the beneficiaries. Wherever the government is not committed to poverty alleviation or repressive NGOs have preferred to chart their own course and stay away from any dealings with government. Conversely, democratic countries where the government or even individual ministries have a positive social agenda, collaborations with NGOs have emerged as in India, Sri Lanka, and recently, in various Latin American countries.[31] In contrast, African governments have not been, in general, either democratic or responsive to the poor, and as a result (mostly church-based) NGOs have conducted relief and welfare work, as well as provide health and education services on their own.

According to the World Development Report (1997), governments that delegate some functions to private organizations, typically prefer NGOs for delivery of *social services* while preferring for-profit contractors for the *management of infrastructure* (such as road maintenance in Brazil). The reason is the former involve activities where performance is hard to measure and NGOs are perceived to be committed to high quality or serve better some groups due to their religious or ideological orientation (as opposed to government agencies or private contractors).

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[30]Another factor that promote partnerships of NGOs with local rather than state-level or central governments is problems of dealing the layers of bureaucracy in the case of the latter which make potential transactions costs a lot higher. This was the experience in various instances in Argentina (Fiszbein and Lowden, 1999).

[31]One could also argue that increased decentralization would lead to more partnerships because local governments are more responsive to local needs.

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Hypothesis 3 *Partnerships will be more likely when NGO and government objectives are more congruent.*

There is evidence that governments tend to avoid partnerships with some kinds of ideologically driven NGOs, and indeed, discourage their operation even in democratic countries.[32] According to Farrington and Lewis (1993) in the ideological spectrum from neutral to non-neutral activities, partnerships are more likely to form the more 'neutral' the activity such as relief and welfare, and development (delivery of inputs and technology, adapting technology to local needs). In contrast conflicts arise for NGOs engaged primarily in advocacy (e.g., land reform, environmental protection, higher wages, legal rights, human rights). For example, the NGO called Proshika in Bangladesh successfully collaborated with the government in livestock production, but was prevented by the government when it tried to organize the rural poor to gain better access to common property resources and engaged in advocacy on behalf of the poor.

In West Bengal the left wing administration is generally very reluctant to collaborate with NGOs. Ghatak (1998) interviewed government officials who explicitly attribute this to ideological differences. According to press reports the left-wing state government wrote to the central government regarding involving NGOs in federally funded programs that while they were not averse to collaborations in areas like training, technology transfer and marketing in which the newly empowered local governments had no expertise, they were generally averse to letting NGOs work at the ground level because of their "hidden agendas".[33] On the other end of the ideological spectrum in India, the Hindu nationalist BJP government in the state of Gujarat have been constant conflict with Christian missionaries who operate schools and hospitals accusing them of converting tribal and low caste Hindus. Sen (1998) confirms this pattern in his wide-ranging survey on NGOs in India with the observation that both left-wing parties and right wing parties are generally less willing to collaborate with NGOs except for in charitable or relief work. In contrast centrist parties are more supportive of collaborating with NGOs on a wide range of projects.

One of the main factors constraining public-private partnerships in Latin America according to the Fiszbein and Lowden (1999) study is the reluctance of local governments to give up management of social programs to NGOs because that means losing the ability to deliver public resources to selected clientele. In the case of agricultural extension Farrington and Bebbington (1993) note that, other than resource scarcity of governments, the main factor leading to pure NGO provision was differences in

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[32] An example of an ideologically driven NGO is DISHA in the Indian State of Gujarat called DISHA works with landless laborers providing legal assistance to them against abuse by their employers of labor laws (regarding right to switch employers, minimum wages etc.). Environmental NGOs in Brazil have worked with rubber tappers and tribal Indians in the Amazonian forests to force the government take measures to protect rain forests and in the Philippines they have succeeded in passing legislation to arrest logging by big timber companies.

[33] *Anandabazar Patrika*, October, 23, 1998.

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opinion about how environment friendly the technology should be (pp. 135).

Further reinforcing the importance of congruent objectives, is the observation that NGO involvement in projects is prevalent in famine or disaster relief where governments and NGOs share similar goals. Holloway (1998) notes that in Bangladesh the role of NGOs in relief and rehabilitation work was much appreciated and conducted in close collaboration with the government even though otherwise the relationship between the government and NGOs had been generally antagonistic.

The congruence of objectives may also explain a recurrent theme in the literature that more democratic governments are more likely to welcome NGOs (see, for example Farrington and Bebbington, 1993 and Salamon and Anheier, 1998). This could be explained by the fact that democracy reduces ideological polarization. While even authoritarian states (such as Pinochet's Chile) can benefit from the effective subsidy they gain from NGOs implementing social and development services, democracy is widely believed to be conducive for effective partnerships. Thus in Chile, it is only since the end of the Pinochet regime that NGOs have been given the right to manage on-farm extension services (Farrington and Bebbington, 1993). Lack of NGO-government collaborations that have been a prominent feature of Chile in recent years was rare during the Pinochet regime because of mutual distrust and ideological differences (Loveman, 1995).

The comparative advantage of NGOs in reaching beneficiaries at the grassroots levels has been one of the most important reasons for government-NGO partnerships. But being merely the government's delivery agency, or dependence on government funds often requires NGOs toning down their social and ideological objectives, which in turn can undermine the spirit of voluntaryism or credibility with the group of beneficiaries which lies at the heart of their comparative advantage (Clark, 1995 and Farrington and Lewis, 1998). This is consistent with our argument that NGOs will supply higher levels of y as a manager only if they control project design. Farrington and Lewis (1993) provides an interesting account of an NGO in Karnataka, India which organizes local groups and trains them to make effective use of government anti-poverty funds. However these funds do not pass through NGO accounts, and ownership of the projects remains with the government. The NGO is careful to dissociate itself from these projects and avoid the image of a government contractor which would make it lose the ability to resist programs it believes is unsuitable for local conditions. Government officials in turn find the NGO non-cooperative when they are pressured into attaining physical targets in disbursement because the NGO does not believe these considerations should be the measure of success. This is an example of a GGN partnership where the limited role of the NGO is driven by ideological differences.

Hypothesis 4 *The NGO will own assets related to the project if it is the more efficient provider unless (i) assets are not highly specific (λ is high) and/or (ii) the NGO's ability to provide the complementary inputs is much worse than that of the government (β is low)*

A good example to illustrate this is the case of agricultural extension services in Bolivia. The government retains responsibility for R and D expenditures and the NGO has built an extension system to serve farmers (Farrington and Bebbington, 1993). They note that "Careful planning of responsibilities (between NGOs and governments) is particularly important in fully collaborative efforts – such as joint on farm trials — in which a successful outcome requires on carefully scheduled inputs from both sides" (pp.153). In this case, the NGO owns and operates the extension service, while the government has a comparative advantage in R and D. This kind of NNG partnership is optimal in our model either if the extension service assets are very specific, and/or the NGO could provide the R and D function fairly efficiently itself if necessary.

Also in Bolivia, the state contracted out management of public schools to a local church organization which reserved the right to appoint principals and teachers. This program was so successful that the government is studying it as a possible model for national educational reform (World Development Report, 1997). We interpret this as a GNG partnership since the NGO does not own the schools. This would be our anticipated arrangement if the teachers hired were not very specific to the NGO management and/or the NGO would be very inefficient at fulfilling the many other functions that governments undertake to keep the schools running.

In India explicitly recognizing the expertise of NGOs in the health area and the failure of its own agencies, the government has began handing over its primary health centers to NGOs to run them, as opposed to its earlier policy of giving subsidies and tax advantages over the last few decades (Duggal, 1988).[34] These changes can be viewed as a move from pure government provision to an NNG mode of provision in response to an appreciation of the higher commitment of NGOs (high θ_n) and the importance of asset specificity (λ low).

In West Bengal, other than ideological differences, the main reason for the reluctance of government officials to form partnerships with NGOs is expressed by the following sentiment of an official interviewed by Ghatak (1998) who found it unfair that the government will have to provide all the funds but will have no authority over recruitment of personnel or selection of beneficiaries. In a recent ruling there, the court recently upheld the right of a missionary school to appoint monk-teachers and monastic headmasters only if it forgoes the annual grant it receives from the government.[35] Bratton (1989) too observes that in general governments are likely to welcome NGOs than can serve as a "discreet" agent of program delivery without insisting on ownership.

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[34]In an official document The Ministry of Health and Family Welfare (1985) stated : "The government has envisaged a very prominent role voluntary organizations/NGOs in the implementation of health and family planning programs..India is second only to the US in terms of the number of hospitals outside the health sectors and run by NGOs and these organizations are doing a very creditable job in organizing and running hospitals and dispensaries."

[35] *The Telegraph*, April 16, 1999.

More generally, there is some evidence that ownership structures are adaptive to the environment in question. In Brazil non-profits are entitled to receive public funds for running school so long as they provide evidence of non-profit ends and commit to apply their financial surplus in education and should they cease their activities transfer their assets to another non-profit school or the government (Landim, 1998). This suggests a NNG partnership.

In France GNG forms of partnerships are important in the provision of health or social services. The government owns the assets and equipment, and provides funding, but non-profits manage them. However, they can be replaced if the government wishes. For example, in the area of care for the elderly, the local government builds homes for the elderly and non-profits provide support services to help them remain in their homes but these are often taken over by local governments at a later stage (see Mizrahi-Tchernonog, 1992).

Partnerships may also arise where an NGO develops an appropriate technology or extension methodology (e.g. group based training, farmer to farmer dissemination) and 'passes them up' to the government for replication elsewhere. As small organizations acting alone NGOs have limited impact beyond the boundaries of a pilot project area. In contrast to governments they do not have a broad (as opposed to deep) presence in many areas. Hence expanding an effective rural development program beyond a small area, has necessitated collaborations with the government. Bratton (1989) argues that the second model typically involves much less autonomy on the part of the NGO than the former. This is consistent with our model - in the second case β is very low and hence GNG partnerships are more likely than NNG partnerships.

6 Concluding Remarks

This paper has set out a framework for thinking about the responsibilities of the state and the voluntary sector in providing inputs/finance to public projects. Under the reasonable assumption that contracts are incomplete and hence subject to hold-up, we have a theory of who should own and provide inputs as a function of comparative advantage in production and relative project valuations.

The Lindahl-Samuelson principle suggests that if citizens find some way to overcome the free-rider problem, we should observe partnerships almost everywhere as citizens use voluntaryism to express their willingness to pay. However, we show that this is not sufficient for partnerships when there are limits to contracting possibilities. The model developed here delivers the presumption that responsibility for provision should reside with the party that cares most about the project. However, there are some important caveats to this, when hold up problems are severe and when the private sector and/or government have ideological differences on project design.

The main value of the framework developed here is to provide a basis for thinking systematically about how the private sector can be harnessed in provision of public

goods. The process has proceeded apace in the real world without any underpinning model to understand it. It is clear from various case studies that problems of hold-up and asset ownership, comparative advantage and ideological compatibility are important factors in shaping partnerships. It is also important to see this role of the private sector in the broader political economy context. Given the possible repercussions identified in the model, we show that contrary to the traditional concerns it may be that the growth of voluntaryism actually crowds out government provision in some instances.

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7   Appendix : Generalization of the Strategic Delegation Example

When $\frac{N_T \theta_1}{(1+\mu)} \neq M\theta_2$, an extra layer of complication comes from the need to specify transfers at stage 1 of the model. Suppose that all of the bargaining power at stage 1 belongs to the government. The options open to a caring taxpayer are now as follows. If an uncaring taxpayer is elected to office, she will credibly refuse to be involved in the provision of the public good in any capacity. The NGO will provide it and the caring taxpayers is $\beta\theta_g \phi\left(h\left(\beta\theta_n\right)\right)$.

If a caring taxpayer is elected then her payoff will come from directly undertaking the project under any mode of provision plus ex ante transfers (positive or negative) from the NGO. Let u_{ijk}^g and u_{ijk}^n denote the total payoffs of caring taxpayers and members of the NGO when a caring taxpayer is elected and the mode of provision ijk is chosen. These are given in the second and third columns of Table 3. The NGO receives a payoff of $\theta_n\phi(h(\theta_g))$ if a caring taxpayer is elected and 0 if a non-caring taxpayer is elected. The caring taxpayer gets at least $\beta\theta_g\phi\left(h\left(\beta\theta_n\right)\right)$ if an uncaring taxpayer is elected. As a result, a caring taxpayer will prefer to be elected and undertake the project as a ijk form partnership if

$$u_{ijk}^g + u_{ijk}^n \geq \theta_n\phi(h(\theta_g)) + \beta\theta_g\phi\left(h\left(\beta\theta_n\right)\right).$$

for $ijk \in \{NNN, NNG, GNG, GGN, NGN, GGG\}$.

It is clear that whether this holds depends upon the exact parameter values which determine which type of arrangement will emerge ex post. Since the uncaring taxpayers do not care about the project, Result 6 tells us that the government will at most be involved in providing x. In general, the closer are θ_g and θ_n and the closer is β to 1, the caring taxpayer is most likely to opt for an uncaring taxpayer and having the NGO provide the project. If GGG is optimal then

$$\theta_n\phi(h(\theta_g)) + \beta\theta_g\phi\left(h\left(\beta\theta_n\right)\right) > (\theta_n + \theta_g)\phi(h(\theta_g)) - h(\theta_g) - c$$

when $|1 - \beta|$ and $|\theta_n - \theta_g|$ are small. Obviously, if NNN is optimal, it makes no sense to elect a caring taxpayer and let the NGO demand some transfer where you can get the same allocation without any transfer if a uncaring taxpayer is elected. Finally, consider the situation when some form of partnership ijk is optimal. Then the level of y is $h(\sigma_{ijk}\theta_n + (1 - \sigma_{ijk})\theta_g)$, say, y_{ijk} where $\sigma_{ijk} \in (0, 1)$ is equal to $\frac{1+\lambda}{2}\theta_n + \frac{1-\lambda}{2}\theta_g$ when $ijk = GNG$, etc. Again it is possible to have:

$$\theta_n\phi(h(\theta_g)) + \beta\theta_g\phi\left(h\left(\beta\theta_n\right)\right) > \alpha^*(\theta_n + \theta_g)\phi(y_{ijk}) - y_{ijk} - c$$

if $|1 - \beta|$ and $|\theta_n - \theta_g|$ are small.

Table 1 : Level of provision of *y* under alternative modes of provision

Owner	Manager	Comparative advantage of NGO in the supply of x	
		$\beta \leq 1$	$\beta \geq 1$
1. *G*			
	1 a) *G*	$y = h(\theta_g)$	$y = h\left(\dfrac{\beta+1}{2}\theta_g + \dfrac{\beta-1}{2}\theta_n\right)$
	1 b) *N*	$y = h\left(\dfrac{1-\lambda}{2}\theta_g + \dfrac{1+\lambda}{2}\theta_n\right)$	$y = h\left(\dfrac{\beta-\lambda}{2}\theta_g + \dfrac{\beta+\lambda}{2}\theta_n\right)$
2. *N*	**2 a) *G***	$y = h\left(\dfrac{1+\lambda\beta}{2}\theta_g + \dfrac{1-\lambda\beta}{2}\theta_n\right)$	$y = h\left(\dfrac{\beta+\beta\lambda}{2}\theta_g + \dfrac{\beta-\beta\lambda}{2}\theta_n\right)$
	2 b) *N*	$y = h\left(\dfrac{1-\beta}{2}\theta_g + \dfrac{1+\beta}{2}\theta_n\right)$	$y = h(\beta\theta_n)$

Table 2 : Chosen ownership and contractual structure

	Owner	Manager	Supplier of x
$\theta_n > \theta_g$			
$\beta > 1$	N	N	N
$1 > \beta > \lambda$	N	N	G
$\lambda > \beta > 0$	G	N	G
$\theta_n < \theta_g$			
$\beta > \dfrac{1}{\lambda}$	N	G	N
$\dfrac{1}{\lambda} > \beta > 1$	G	G	N
$1 > \beta > 0$	G	G	G

	Transfer	**NGO's Payoff**	**Govt.'s Payoff**
NNN	0	$\beta\theta_n\phi(y) - y - c$	$\beta\theta_g\phi(y)$
NNG	$\dfrac{(1-\beta)(\theta_n - \theta_g)\phi(y)}{2} + c > 0$	$\dfrac{(1+\beta)\theta_n + (1-\beta)\theta_g}{2}\phi(y) - y - c$	$\dfrac{(1+\beta)\theta_g + (1-\beta)\theta_n}{2}\phi(y)$
GNG	$\dfrac{(1-\lambda)(\theta_n - \theta_g)}{2}\phi(y) > 0$	$\dfrac{(1+\lambda)\theta_n + (1-\lambda)\theta_g}{2}\phi(y) - y$	$\dfrac{(1+\lambda)\theta_g + (1-\lambda)\theta_n}{2}\phi(y) - c$
NGN	$\dfrac{\beta(1-\lambda)(\theta_n - \theta_g)}{2}\phi(y) < 0$	$\dfrac{\beta(1+\lambda)\theta_n + \beta(1-\lambda)\theta_g}{2}\phi(y) - c$	$\dfrac{\beta(1+\lambda)\theta_g + \beta(1-\lambda)\theta_n}{2}\phi(y) - y$
GGN	$\dfrac{(\beta-1)(\theta_n - \theta_g)}{2}\phi(y) - c < 0$	$\dfrac{(\beta+1)\theta_n + (\beta-1)\theta_g}{2}\phi(y)$	$\dfrac{(\beta+1)\theta_g + (\beta-1)\theta_n}{2}\phi(y) - y - c$
GGG	0	$\theta_n\phi(y)$	$\theta_g\phi(y) - y - c$