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# A Model of NGO Regulation with an Application to Uganda

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## ABSTRACT

We develop a model of regulation of service-delivery NGOs, where future grants are conditional on prior spending of some minimal proportion of current revenue on direct project-related expenses. Such regulation induces some NGOs to increase current project spending, but imposes wasteful costs of compliance verification on all NGOs. Under a large class of parametric configurations, we find that regulation increases total discounted project expenditure over a regime of no regulation, when verification costs constitute no more than 15% of initial revenue. We characterize the optimal regulatory policy under these configurations. We apply our analysis to a large sample of NGOs from Uganda, and find regulation to be beneficial in that context.

Keywords: Regulation of non-governmental organizations, developing countries, Uganda
JEL codes: I38, L31, L38

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## 1. Introduction

In recent decades, there has occurred an explosive proliferation of non-governmental organizations (NGOs) in developing countries (Anheier and Salamon, 2006; Werker and Ahmed, 2008). NGOs have come to play a major, often preponderant, role, in delivering developmental services or implementing developmental activities, at the ground level in many poor countries. Foreign donors have increasingly come to transfer aid resources directly to NGOs, instead of governments, while governments themselves have often sought to subcontract out developmental activities to NGOs, instead of utilizing standing bureaucracies.[1] This expansion in the scope and extent of NGO activities has been associated with increasingly emphatic proposals by governments to impose forms of state regulation and accreditation.

Representatives of NGOs usually oppose state regulation. Two arguments are typically adduced in articulating such opposition. First, a process whereby NGOs are required to undergo external (government) scrutiny forces them to divert significant amounts of resources from developmental activities to unproductive bureaucratic, 'red-tape' activities such as documentation, official visits, auditing, paper-work, etc. Second, regulatory powers in the hands of politicians and bureaucrats allow them to engage in significant extortion of bribes and/or political support from NGOs. Underlying these arguments is an (often unstated) assumption that most NGOs are both highly efficient and driven by altruistic motives, so that external pressure on them to further improve their performance is likely to generate only minor productivity gains, relative to the costs mentioned earlier.[2] Governments, on the other hand, tend to argue that NGOs overstate both bureaucratic costs of regulation and the extent of extortion from regulators. Governments further emphasize the idea that many NGOs are inefficient and/or venal: consequently, an external screening mechanism that forces them to improve their performance is likely to generate significant gains relative to its costs.

A process of government regulation typically makes official recognition, or accreditation, of NGOs contingent on their being able to meet some pre-determined minimum performance criteria. NGOs without accreditation face restrictions on access to donors: thus, future access to grants provides incentives to NGOs to meet current accreditation norms. Consequently, tighter accreditation

[1] Riddell and Robinson (1995) estimate that total development funds channelled via NGOs increased from $0.9 billion in 1970 to $6.3 billion in 1993 (1970 dollars). According to Hudock (1999), while only 6% of World Bank projects were implemented through NGOs between 1973 and 1988, this number reached 50% in 1994. NGOs' share of aid may be as high as 15% in developing countries (ODI, 1996; Werker and Ahmed, 2008). More than 40% of US overseas development funds are channelled through NGOs (Barro and McCleary, 2006). NGO presence is often especially prominent in the delivery of developmental services in spheres such as micro-credit, literacy, maternal and child health, agricultural extension programmes and AIDS prevention.

[2] An additional argument is that state regulation inhibits advocacy NGOs from criticizing government policies. We however abstract from advocacy NGOs to focus exclusively on *service delivery* NGOs. Regulation of advocacy NGOs raises a set of issues (structurally similar to those pertaining to laws governing the conduct of lobbying groups and other political organizations) very different from the ones considered here.

requirements may reduce current moral hazard problems to some extent: they may induce some NGOs to improve their current performance, in order to acquire greater donor access in the future. However, other NGOs may deem such norms excessively stringent: they may consequently give up attempts to improve their performance. Consequently, the current performance of such NGOs may actually worsen in response to a tightening of accreditation norms. Furthermore, stringent accreditation norms may screen out a large proportion of NGOs, leading to a shortage of NGOs who can be entrusted with future developmental activities. *A priori*, therefore, it is not self-evident that imposing strict accreditation norms will necessarily have a positive impact on aggregate NGO performance, even if we abstract from the issue of bureaucratic dead-weight losses and possible extortion costs associated with regulation emphasized by NGOs themselves.

Our objective in this paper is to address this issue. Specifically, our contribution is two-fold. First, we develop a simple analytical framework within which the intuitive trade-offs outlined above can be rigorously organized and clarified. This framework allows us to identify a simple empirical rule of thumb, in the form of a transparent sufficiency condition, to determine the contexts where NGO regulation can potentially increase beneficiary welfare. It also allows us to explicitly characterize the optimal form of such regulation under a large class of plausible parametric configurations. Second, we illustrate how these theoretical conclusions may be empirically deployed in a concrete institutional context to derive broad policy conclusions regarding optimal regulation of NGOs. Towards this end, we make use of a large primary data-set on NGO behaviour collected from Uganda to derive the optimal regulation strategy under parametric configurations relevant for Uganda.

The form of regulation we focus on is an externally mandated lower bound on the share of project-related expenditure in an NGO's budget, which NGOs have to satisfy if they wish to receive government accreditation and thereby qualify for future grants. We assume that the objective of public policy is to maximize the present discounted value of total project-related expenditure, given an overall donor budget, while the objective of NGOs is to maximize their utility, which may depend on managerial consumption as well as project-related expenditure.

Our focus on the share of project-related expenditure in an NGO's total spending reflects both current non-profit monitoring and regulation practices and public perceptions of effectiveness. Overheads and administrative costs are tracked by watchdog organisations such as GuideStar, the UK Charity Commission and the Central Bureau of Fundraising in the Netherlands. Organisations with lower relative overheads and administrative costs receive higher donations, which indicates that this may be an important consideration for donors (Bekkers, 2010, 2003; Greenlee and Brown, 1999; Tinkelman, 1999). Uganda's NGO quality assurance code also proposes that an NGO should calculate the ratio between its overheads and its programme delivery costs to assess its cost effectiveness.

There exists a small theoretical literature on fund diversion by NGOs to managerial 'perquisite' consumption. Castenada *et al.* (2008) develop a model where an exogenous increase in the number of competing non-profit firms reduces fund diversion and increases fundraising. Aldashev and Verdier (2010) endogenize the entry of NGOs and identify conditions under which high fund diversion occurs. Regulation policy in these contributions takes the exclusive, *indirect,* form of change in the extent of NGO competition through public control over entry. In contrast, we take the size of the NGO sector as given, abstract from fund-raising and thus from NGO competition, and analyze the welfare consequences of public attempts to *directly* regulate the extent of fund diversion, by making continuation in the NGO sector contingent on keeping fund diversion below some policy determined threshold. The present paper thus complements the analysis in these earlier contributions.

We set up our benchmark model in Section 2. We consider a population of NGOs who differ in their willingness to spend on productive ('project-related') activities, relative to expenditure on unproductive ('managerial') consumption. These NGOs live for two periods and receive identical grants in the first period. An NGO receives a grant in the second period if, and only if, it manages to receive accreditation from some regulatory agency. Accreditation, however, requires the NGO to incur a fixed cost. Furthermore, the regulatory agency makes accreditation contingent on the NGO satisfying a minimal threshold activity criterion, modelled as a minimum share of productive spending in initial budgetary outlay. The distribution of NGO types, i.e. the distribution of project-related expenditure shares that would arise in the absence of any regulation, is common knowledge, but individual NGO type is private knowledge. Thus, in the absence of regulation, a moral hazard problem exists: some NGOs would divert high proportions of their grant income to unproductive managerial consumption. This moral hazard problem is mitigated by setting minimal standards for project-related expenditure as a precondition for receiving accreditation and thereby future grants: such standards provide an incentive to at least some under-performing NGOs to improve their performance. However, regulation in turn generates an adverse selection problem: it imposes unnecessary compliance verification costs on productive NGOs, i.e. NGOs which would meet or exceed these minimal standards even without any regulatory intervention, thereby wasting resources which would otherwise have been spent on projects. In this framework, we specify the conditions under which an individual NGO will find it rational to satisfy the accreditation norm.

Section 3 addresses the problem of optimal regulation. We first identify conditions that characterize the accreditation threshold necessary to maximize total discounted productive ('project-related') spending by the NGO population, given a prior decision to regulate. We then compare the outcome under such optimal regulation with that under automatic accreditation (i.e., no regulation), which saves the deadweight cost of regulation, but leaves individual NGOs free to divert any proportion of their budget to unproductive consumption. This exercise permits us to characterize sufficient parametric conditions under which optimal regulation dominates automatic accreditation in terms of inducing productive spending. It also yields the following simple rule of thumb: under a large and plausible class of parametric configurations, optimal regulation dominates automatic accreditation unless accreditation costs constitute more than 15% of initial NGO revenue.

Furthermore, putting the threshold project expenditure equal to the normalized present discounted gain from accreditation or unity, whichever is lower, turns out to provide either the optimal regulatory policy or a very close approximation thereof.

Section 4 applies our theoretical conclusions to the policy context of Uganda, to illustrate how they may be operationalized. We use a large primary data-set on NGO activities in Uganda to estimate the key parameters in our model. We then use these estimates to identify the implications for optimal regulatory policy. Section 5 concludes. Detailed proofs are relegated to an Appendix.

## 2. The model

Consider a population of NGOs, each of whom survives for two periods. NGOs are indexed by $i \in [0,1] \equiv N$. In period 0, each NGO $i \in N$ receives a grant of $e_0$, which it has to allocate between project expenditure $(r_{i0})$ and managerial consumption $(m_{i0})$. At the end of period 0, each NGO has to decide whether to apply for accreditation. If an NGO does apply for accreditation, it has to incur a cost $c > 0$ in the next period (period 1). If accredited, it receives a grant $e_1$ in period 1, so that its net income in that period is $(e_1 - c) > 0$. If it fails to get accredited, or if it does not apply for accreditation, it receives 0 in period 1.[3] Thus, in the former case, its net income in period 1 is $-c$, while in the latter case it is simply 0. A period 0 project expenditure share ($\frac{r_{i0}}{e_0}$) of at least $\underline{\theta} \in [0,1]$ is necessary for accreditation: NGOs which meet this receive accreditation if, and only if, they incur the verification cost *c*.[4] The accreditation threshold $\underline{\theta}$ is determined by an external NGO regulator (e.g. a state body or an independent institution such as an apex donor agency). The verification cost, *c*, is determined by a combination of technical requirements (auditors' fees, costs of documentation, paperwork and accounts maintenance, etc.) and scope for bureaucratic extortion. At the beginning of

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[3] Thus, the NGO's income in the absence of accreditation is normalized to 0. Accreditation performs essentially the same function as third party quality certification in industrial contexts and university degrees in labour markets: it reduces the cost to individual donors of identifying an NGO's quality.

[4] In practice, there may be some objectively, i.e. technologically, given minimal managerial consumption and overheads without which an NGO simply cannot function, so that $\underline{\theta}$ cannot objectively be set at 1. In that case, the regulatory agency has to make an independent assessment of the extent of this minimal managerial and overhead requirement. Then (1-$\underline{\theta}$) would refer to the managerial consumption share of the NGO's revenue *net* of this regulator determined, technologically given, irreducible minimum managerial and overhead costs, so that whether to set $\underline{\theta}$ at 1 or some lower value remains an *economic*, rather than a technological, decision.

period 0, $\underline{\theta}$, $c$, $e_0$ and $e_1$ are all common knowledge. Thus, if an NGO chooses an initial project expenditure share below $\underline{\theta}$, it is not rational for it to then apply for accreditation.[5]

Preferences of NGO *i* in each period $k \in \{0,1\}$ are given by:

$$u^i = \min\{r_{ik}, a_i m_{ik}\},$$

Where $r_{ik}$ is project expenditure by the NGO in that period, $m_{ik}$ is managerial consumption, and $a_i \in \Re_{++}$ is the preference parameter.[6] NGOs cannot borrow across periods. Denoting by $I_{i1}$ NGO *i*'s net income in period 1, and letting $\delta$ denote the common time discount factor, the NGO's two-period maximization problem thus is:

$$\underset{r_{i0}, r_{i1}}{Max} \left[\min\{r_{i0}, a_i(e_0 - r_{i0})\} + \delta \min\{r_{i1}, a_i(I_{i1} - r_{i1})\}\right]; \tag{2.1}$$

subject to:

$$r_{i0} \in [0, e_0], r_{i1} \in [0, I_{i1}] \; ; \tag{2.2}$$

and

$$I_{i1} = 0 \text{ if } \frac{r_{i0}}{e_0} < \underline{\theta}; \; I_{i1} = e_1 - c > 0 \text{ otherwise.} \tag{2.3}$$

Since NGO $i$'s utility is maximized in any individual period *k* by choosing $\hat{r}_{ik} = a\hat{m}_{ik}$, its optimal project expenditure share in every period is:

$$\hat{\theta}_i = \frac{\hat{r}_{ik}}{\hat{m}_{ik} + \hat{r}_{ik}} = \frac{a_i}{a_i + 1}. \tag{2.4}$$

Since $a_i \in \Re_{++}$, $\hat{\theta}_i \in (0,1)$ for all $i \in N$. The variable $\hat{\theta}_i$ is distributed over [0,1] according to some continuous and differentiable cumulative distribution function $F(\hat{\theta})$, which yields the corresponding density function $f(\hat{\theta})$. Thus, $F(\hat{\theta})$ provides the distribution of NGO types in the population. While each individual NGO $i$'s type (the value of $\hat{\theta}_i$) is private information, the overall

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[5] The model can be generalized to any finite number of periods not less than two, where an NGO receives a grant after paying the accreditation fee in any period if, and only if, it meets the threshold $\underline{\theta}$ in *all* the preceding periods. This does not substantively alter the conclusions we derive from our simple two-period formulation.

[6] Our assumption regarding preferences following a fixed coefficient specification can be relaxed, say by using the Cobb-Douglas form, at the cost of a major increase in algebraic complexity, without yielding any additional insights, and without changing our substantive conclusions. Greater substitutability in the utility function reduces the losses to inefficient NGOs from regulation, thereby making any given level of regulation $(\underline{\theta})$ more effective and thereby increasing the level of optimal regulation. Thus, greater substitutability in NGO preferences makes it easier for regulators to change NGO behaviour in the desired direction. Hence, since we wish to identify and formulate the *minimal* rather than the maximal, and thus the strongest, case for regulation, we deliberately choose the fixed coefficient specification.

distribution of types, $F(\hat{\theta})$, is common knowledge. We shall assume that $F(\hat{\theta}) = \hat{\theta}^{\alpha}, \alpha \in (0,2]$, so that $f(\hat{\theta}) = \alpha\hat{\theta}^{\alpha-1}$. Since the cumulative distribution function is strongly concave (convex) if, and only if, $\alpha < 1$ (respectively $\alpha > 1$), $\alpha < 1$ reflects the case where most NGOs wish to spend a relatively low proportion of their budget on project expenses, while $\alpha \in (1,2]$ models the case where most NGOs spend a relatively high proportion of their budget on project expenses. As discussed below in Section 4, the latter case, i.e. $\alpha \in (1,2]$, appears to fit our Ugandan data set.

Noting (2.4), if an NGO decides not to apply for accreditation in period 1, its maximum possible utility is given by: [$\hat{u}_i = \hat{\theta}_i e_0$]. If it applies for accreditation, then it must spend at least $\underline{\theta} e_0$ in period 0 on project expenditure. Two cases are possible.

**Case 1:** $\hat{\theta}_i \geq \underline{\theta}$.

We shall call such NGOs type H (high). An NGO $i$, when type H, chooses $\hat{\theta}_i$ in both periods, applies for and receives accreditation. Lifetime utility for such an NGO is:

$$\hat{U}_i = \hat{\theta}_i [e_0 + \delta(e_1 - c)]. \tag{2.5}$$

**Case 2:** $\hat{\theta}_i < \underline{\theta}$.

We shall call such NGOs type L (low). Type L NGOs have to decide whether to reveal their type in period 0 by choosing their respective $\hat{\theta}_i$, or disguise it by choosing $\underline{\theta}$. By choosing $\underline{\theta}$ in period 0, a type L NGO ensures accreditation, which allows it to receive $(e_1 - c)$ and choose its $\hat{\theta}_i$ in period 1. Since, by (2.4), $a_i = \dfrac{\hat{\theta}}{1-\hat{\theta}}$, a type L NGO's lifetime utility from pretending to be type H is:

$$\hat{U}_i = [a_i(1-\underline{\theta})e_0 + \delta\hat{\theta}_i(e_1 - c)] = [\frac{\hat{\theta}_i}{1-\hat{\theta}_i}(1-\underline{\theta})e_0 + \delta\hat{\theta}_i(e_1 - c)]. \tag{2.6}$$

If the NGO chooses to reveal its type in period 0, it only receives $\hat{\theta}_i e_0$. For a type L NGO, net lifetime gain from mimicking a type H one in period 0 (i.e. choosing $\underline{\theta}$ instead of $\hat{\theta}_i$) is therefore:

$$\Pi_i = [\frac{\hat{\theta}_i}{1-\hat{\theta}_i}(1-\underline{\theta})e_0 + \delta\hat{\theta}_i(e_1 - c)] - \hat{\theta}_i e_0. \tag{2.7}$$

Define $\Omega \equiv \dfrac{\delta(e_1 - c)}{e_0}$. Thus, $\Omega$ is simply the net present value of the benefit from accreditation, expressed as a proportion of the initial grant revenue. Then, from (2.7),

$$\Pi_i \geq 0 \text{ iff } [\hat{\theta}_i(1-\Omega) - (\underline{\theta} - \Omega) \geq 0]. \tag{2.8}$$

Thus, we get:

$$\Pi_i \geq 0 \text{ iff } [\Omega \geq \frac{(\underline{\theta} - \hat{\theta}_i)}{(1-\hat{\theta}_i)}]. \tag{2.9}$$

Since, for a type L NGO, $\hat{\theta}_i < \underline{\theta}$, $\frac{(\underline{\theta} - \hat{\theta}_i)}{(1-\hat{\theta}_i)}$>0; furthermore, $\frac{(\underline{\theta} - \hat{\theta}_i)}{(1-\hat{\theta}_i)}$ is decreasing in $\hat{\theta}_i$ for all $\underline{\theta} < 1$. Hence (recalling $\hat{\theta}_i > 0$), given any $\underline{\theta} < 1$, $\frac{(\underline{\theta} - \hat{\theta}_i)}{(1-\hat{\theta}_i)} \in (0, \underline{\theta})$. Thus, given any $\Omega > 0$, and noting (2.8)-(2.9), we have the following.

**Lemma 2.1.** *Let* $\tilde{\theta} \equiv \frac{\underline{\theta} - \Omega}{1-\Omega}$. *Then:*

*(i) if* $\underline{\theta} \leq \Omega$, *all NGOs with* $\hat{\theta}_i \in [0, \underline{\theta}]$ *choose* $\underline{\theta}$ *in period 0, while all NGOs with* $\hat{\theta}_i > \underline{\theta}$ *choose* $\hat{\theta}_i$*;*

*(ii) if* $\underline{\theta} > \Omega$, *then all NGOs with either* $\hat{\theta}_i < \tilde{\theta}$ *or* $\hat{\theta}_i > \underline{\theta}$ *choose* $\hat{\theta}_i$ *in period 0, while all NGOs with* $\hat{\theta}_i \in [\tilde{\theta}, \underline{\theta}]$ *choose* $\underline{\theta}$.

By Lemma 2.1(i), if the minimum project expenditure required is lower than the (normalized) benefit from accreditation, all type L NGOs find it rational to choose that threshold level. By Lemma 2.1(ii), if the minimum project expenditure share required for accreditation is greater than the benefit from doing so, NGOs which prefer very high managerial consumption find it too costly to mimic type H NGOs in period 0. Such NGOs therefore choose to reveal their type, even though this entails no income, i.e., losing the grant, in period 1.

## 3. Optimal regulation

Is total discounted project expenditure maximized by 'automatic accreditation', in the sense of a complete absence of regulation? Such a laissez faire policy vis-à-vis the NGO sector eliminates the deadweight costs associated with bureaucratic verification of NGO claims regarding their expenditure pattern. However, it also induces some NGOs to choose high managerial consumption in the first period. Conversely, a policy of external regulation, whereby the regulator makes accreditation (and thus grant renewal) contingent on the NGO meeting some threshold requirement of initial project expenditure, may reduce initial managerial consumption, but incurs deadweight costs of verification. To assess the case for automatic accreditation, i.e. non-regulation, therefore, one has to identify the optimal regulatory outcome, given a prior decision to regulate, and compare this with the outcome under non-regulation. We now proceed to address this issue. We first identify the optimal accreditation norm under a regime of costly regulation. We then compare the total discounted project expenditure generated by this norm with that generated by non-regulation. This exercise allows us to specify parametric conditions under which non-regulation may be dominated by regulation, and to characterize optimal regulation under a large class of empirically plausible parametric configurations.

Suppose that the NGO regulator has a given budget in each period, and wishes to maximize the present discounted value of the total project expenditure over the two periods. How should it choose the threshold level of initial project expenditure, $\underline{\theta}$, as its accreditation norm? To keep the analysis simple, we shall assume that the grant available to an accredited NGO, $e_1$, is independent of the number of NGOs receiving accreditation. Thus, if providing $e_1$ to each accredited NGO does not exhaust the donor's budget, the surplus reverts back to the donor, instead of being divided among the accredited NGOs. In practice, NGOs often have limited organizational ability, so that their ability to deliver on projects diminishes sharply once the project size crosses a certain threshold. Consequently, any additional grant beyond some threshold is mostly used for managerial consumption by all NGOs. Knowing this, donors often prefer to shift surplus funds to other uses, say NGOs in other countries/regions/sectors, instead of significantly increasing grants to individual NGOs in the accredited pool. Thus, NGOs act as competitive 'price-taking' sellers in the international market for developmental services. We think of the exogenously given amounts $e_0$, $(e_1 - c)$ (and, therefore, also the normalized net benefit from accreditation, $\Omega \equiv \frac{\delta(e_1 - c)}{e_0}$) as such competitive 'prices'.

### 3.1. Optimal project expenditure threshold under costly regulation

Suppose $\Omega < 1$. When $\underline{\theta} \leq \Omega < 1$, by Lemma 2.1(i), total (discounted) project expenditure is:

$$J = e_0[\underline{\theta}F(\underline{\theta}) + \int_{\underline{\theta}}^{1} \hat{\theta}_i f(\hat{\theta}_i) d\hat{\theta}_i + \Omega \int_{0}^{1} \hat{\theta}_i f(\hat{\theta}_i) d\hat{\theta}_i]. \tag{3.1}$$

When $\underline{\theta} \in [\Omega, 1]$, by Lemma 2.1(ii), total (discounted) project expenditure is:

$$J = e_0[\int_{0}^{\tilde{\theta}} \hat{\theta}_i f(\hat{\theta}_i) d\hat{\theta}_i + \underline{\theta}(F(\underline{\theta}) - F(\tilde{\theta})) + \int_{\underline{\theta}}^{1} \hat{\theta}_i f(\hat{\theta}_i) d\hat{\theta}_i + \Omega \int_{\tilde{\theta}}^{1} \hat{\theta}_i f(\hat{\theta}_i) d\hat{\theta}_i]. \tag{3.2}$$

First notice that, if $\underline{\theta} < \Omega < 1$, (3.1) implies $\frac{dJ}{d\underline{\theta}} > 0$. Hence, we have the following.

**Lemma 3.1.** *Given regulation, and given any* $\Omega \in (0,1)$, *total discounted project expenditure is maximized only if* $\underline{\theta} \in [\Omega, 1]$.

A marginal rise in $\underline{\theta}$, from any value below $\Omega$, forces some NGOs (intuitively, those with very high relative valuation of managerial consumption) to spend more on projects in period 0. All NGOs, however, continue to find accreditation profitable (Lemma 2.1(i)). Hence, total project expenditure in period 0 increases, while such expenditure in period 1 remains constant. From any initial $\underline{\theta} < \Omega$, the net effect of a marginal tightening of accreditation norms (formally, a rise in $\underline{\theta}$) thus has an unambiguously positive effect on total project expenditure. It follows that optimal regulation cannot involve choosing any accreditation threshold below the normalized net benefit from accreditation.

From (3.2), it is however clear that the situation gets more complicated when $\underline{\theta} > \Omega$. Recall Lemma 2.1(ii). A marginal rise in $\underline{\theta}$ now induces more NGOs to reveal their type. At the same time, it also induces some NGOs to spend more on projects in period 0. The two effects contradict one another in terms of their impact on aggregate project expenditure in the initial period. The first effect, by reducing the number of accredited NGOs, also reduces total project expenditure by all NGOs in the next period. *A priori*, the overall effect on aggregate project expenditure thus appears ambiguous.

Intuitively, it is clear that the exact form of the cumulative distribution of NGOs would have a crucial bearing on the aggregate outcome. Recall that $F(\hat{\theta}) = \hat{\theta}^{\alpha}, \alpha > 0$, so that $f(\hat{\theta}) = \alpha\hat{\theta}^{\alpha-1}$; the parameter $\alpha \in (0,2]$ determines the exact form of the distribution. Then (3.2) above reduces to:

$$\begin{aligned} J &= e_0[\alpha\int_0^{\tilde{\theta}} \hat{\theta}^{\alpha} d\hat{\theta} + \underline{\theta}(\underline{\theta}^{\alpha} - \tilde{\theta}^{\alpha}) + \alpha\int_{\underline{\theta}}^{1} \hat{\theta}^{\alpha} d\hat{\theta} + \Omega\alpha\int_{\tilde{\theta}}^{1} \hat{\theta}^{\alpha} d\hat{\theta}] \\ &= e_0[\frac{\alpha\tilde{\theta}^{\alpha+1}}{\alpha+1} + (\underline{\theta}^{\alpha+1} - \underline{\theta}\tilde{\theta}^{\alpha}) + \frac{\alpha(1-\underline{\theta}^{\alpha+1})}{\alpha+1} + \Omega\frac{\alpha}{\alpha+1}(1-\tilde{\theta}^{\alpha+1})] \\ &= e_0[(\frac{\alpha\tilde{\theta}^{\alpha+1} + \underline{\theta}^{\alpha+1} - \alpha\Omega\tilde{\theta}^{\alpha+1}}{\alpha+1}) - \underline{\theta}\tilde{\theta}^{\alpha}] + \left(\frac{\alpha e_0}{\alpha+1}\right)(\Omega+1); \end{aligned} \tag{3.3}$$

where, recalling Lemma 2.1, $\tilde{\theta} \equiv \frac{\underline{\theta}-\Omega}{1-\Omega}$. Manipulating (3.3), and recalling Lemma 3.1, we can conclude the following regarding the optimal regulatory choice of the accreditation threshold ($\underline{\theta}$).

**Proposition 3.2.** *Given regulation, and given any* $\Omega \in (0,1)$,

***(i)*** *total discounted project expenditure is maximized only if* $\underline{\theta} \in [\Omega,1)$*;*

***(ii)*** *there exists* $\varepsilon \in (0,1)$ *such that, for all* $\alpha \in (1-\varepsilon, 1+\varepsilon)$, *total discounted project expenditure is uniquely maximized by* $\underline{\theta} = \Omega$*;*

***(iii)*** *there exists* $\eta \in (0,1)$ *such that, for all* $\alpha \in (1+\eta, 2]$, *total discounted project expenditure is uniquely maximized by some* $\underline{\theta} \in (\Omega,1)$.

**Proof:** See the Appendix.

By Proposition 3.2(i), if 0<Ω<1, it is never optimal to require NGOs to spend their entire budget on projects (i.e., impose $\underline{\theta} = 1$ in period 0). Such a policy induces far too many NGOs to forgo accreditation. Consequently, these NGOs spend less on projects in the initial period, compared to what they would have done under a somewhat less demanding accreditation norm. Additionally, project expenditure in the subsequent period is reduced because most NGOs find it rational not to attempt to meet such a stringent criterion.

Recall that, by Lemma 2.1(ii), NGOs which prefer very high levels of managerial consumption will choose to forgo accreditation when $\underline{\theta} > \Omega$. By Proposition 3.2(ii), when $\alpha$ is sufficiently close to 1, *all* NGOs must be induced to meet the accreditation norm, if project expenditure is to be maximized. Hence, recalling Lemma 3.1, the accreditation norm $\underline{\theta}$ must be set at $\Omega$: any further increase will induce some NGOs to increase their initial managerial consumption and drop out of the accreditation process. This negative effect on aggregate project expenditure will outweigh any positive effect in terms of higher first period spending by other NGOs.

By Proposition 3.2(iii), when $\alpha$ is sufficiently close to 2, the project expenditure maximizing value of $\underline{\theta}$ is greater than $\Omega$, so that some NGOs will find it rational not to meet the accreditation criterion (Lemma 2.1(ii)). Consequently, not all NGOs will receive a positive income in period 1. Despite these reductions in total project expenditure in the first period, such a relatively high accreditation norm may be beneficial overall, since it forces some NGOs to spend more on projects initially. This latter, positive, effect outweighs the first two, negative, effects on project spending.

**Remark 3.3.** If $\Omega \geq 1$, (2.8) implies $\Pi_i \geq 0$ regardless of the value of $\tilde{\theta}_i$. Thus, in this case, all NGOs apply for and receive accreditation, regardless of $\underline{\theta}$. Evidently, the total project expenditure maximizing value of $\underline{\theta}$ is then unity. Total discounted project expenditure is given by:

$$J = e_0[1 + \frac{\Omega\alpha}{1+\alpha}]. \tag{3.4}$$

Proposition 3.2((ii) and (iii)) suggests that total (discounted) project expenditure is maximized by some 'interior' accreditation threshold (i.e. some $\underline{\theta}$ between $\Omega$ and 1) once $\alpha$ exceeds some cut-off between 1 and 2. It is however algebraically cumbersome and not intuitively illuminating to specify a closed-form analytical solution for this threshold value of $\alpha$. Nor is it possible to derive a transparent closed form solution for the optimal value of $\underline{\theta}$ for the general case of an interior solution (when $\alpha \neq 2$). Therefore, in Section 3.4 below, we shall identify a range of empirically plausible values for the key parameter in our model: $\Omega$. We shall then use these values to simulate expression (3.3) for $\alpha \in [1,2]$ and thereby identify the corresponding optimal regulation thresholds.

**3.2. Project expenditure under automatic accreditation**

Suppose now that there is no regulation. Then all NGOs get a grant of $e_1$ in the second period, regardless of their performance in the first period. Such a policy of automatic accreditation has the advantage of saving the cost of accreditation, *c*, a deadweight loss. However, this saving has to be weighed against the reduction in project expenditure by type L NGOs in the first period. With automatic accreditation, total (discounted) project expenditure is given by:

$$J_A = e_0[\int_0^1 \hat{\theta}_i f\left(\hat{\theta}_i\right) d\hat{\theta}_i + \Omega\int_0^1 \hat{\theta}_i f\left(\hat{\theta}_i\right) d\hat{\theta}_i + \frac{\delta c}{e_0}\int_0^1 \hat{\theta}_i f\left(\hat{\theta}_i\right) d\hat{\theta}_i] \tag{3.5}$$

$$= e_0\left(\frac{\alpha}{\alpha+1}\right)(1+\Omega+\frac{\delta c}{e_0}). \tag{3.6}$$

Intuitively, it is obvious that regulation will dominate automatic accreditation when the deadweight loss, *c*, is sufficiently low. To get a formal specification of exactly how low it needs to be, we shall compare (3.6) with the total (discounted) project expenditure generated by optimal NGO regulation.

**3.3. Optimal regulatory policy: general characterization**

Using (3.3) and (3.6), Proposition 3.2(i) and Remark 3.3, we immediately get the following.

**Proposition 3.4.**

(i) *Given any* $\Omega \in (0,1)$, *automatic accreditation generates greater total (discounted) project expenditure than optimal regulation if, and only if, for every* $\underline{\theta} \in [\Omega,1)$,

$$\left(\frac{\alpha}{\alpha+1}\right)[\underline{\theta}^{\alpha+1} - \tilde{\theta}^{\alpha+1}(1-\Omega) + \frac{\delta c}{e_0}] > (\underline{\theta}^{\alpha+1} - \underline{\theta}\tilde{\theta}^{\alpha})\,; \tag{3.7}$$

*where* $\tilde{\theta} \equiv \dfrac{\underline{\theta}-\Omega}{1-\Omega}$.

(ii) *Given any* $\Omega \geq 1$, *automatic accreditation generates greater total (discounted) project expenditure than optimal regulation if, and only if,*

$$\alpha\delta c > e_0. \tag{3.8}$$

Note first that, when $\underline{\theta} = \Omega$, so that $\tilde{\theta} = 0$, (3.7) reduces to:

$$\alpha\delta c > e_0\Omega^{\alpha+1}. \tag{3.9}$$

Since $\underline{\theta} = \min\{\Omega,1\}$ is always a feasible regulation strategy, by (3.8)-(3.9), Proposition 3.4 implies regulation will dominate automatic accreditation when *c* is sufficiently small. Proposition 3.4 further implies that given regulation, when total discounted project expenditure is maximized at

$\underline{\theta} = \min\{\Omega,1\}$, the necessary and sufficient condition for ensuring that automatic accreditation will dominate regulation is the following combination of (3.8) and (3.9):

$$\frac{\alpha\delta c}{e_0} > (\min\{\Omega,1\})^{\alpha+1}. \qquad (3.10)$$

When, given regulation, total discounted project expenditure is maximized at some $\underline{\theta} > \Omega$, (3.10) is necessary for automatic accreditation to dominate optimal regulation, but not sufficient. In either case, reversal of (3.10) is sufficient (and necessary) for regulation at $\underline{\theta} = \min\{\Omega,1\}$ to dominate automatic accreditation. In general, reversal of (3.10) is sufficient, but not necessary, for optimal regulation to dominate automatic accreditation.

**3.4. Optimal regulatory policy: numerical operationalization**

We now proceed to develop a simple numerical specification of the optimal regulatory policy that can be used to operationalize our theoretical conclusions in concrete policy contexts, by imposing empirically plausible restrictions on the parameters of the model.

In terms of the impact of accreditation on future grant flows, it is natural to expect at least a continuation of present grant values, i.e., to assume $e_1 \geq e_0$. Nominal interest rates on savings deposits, or nominal returns to investment in the capital market, are all usually below 25% in developing countries. Hence, the assumption that the time discount factor $\delta$ is not less than 0.7, i.e. an annual nominal return to savings of not more than 43%, is likely to hold for all but a very few developing countries. Furthermore, we shall confine our attention to $\alpha \in [1,2]$. Recall that (3.10) is necessary for automatic accreditation to dominate regulation, so that reversal of that inequality yields a sufficient condition for regulation at $\underline{\theta} = \min\{\Omega,1\}$ (and, thus, optimal regulation) to dominate automatic accreditation. Hence, by (3.10), recalling that $\Omega \equiv \frac{\delta(e_1 - c)}{e_0}$ and given $e_1 \geq e_0$, optimal regulation necessarily dominates automatic accreditation if:

$$\frac{(1-\eta)^{\alpha+1}}{\eta} > \frac{\alpha}{\delta^{\alpha}}; \qquad (3.11)$$

where $\eta \equiv \frac{c}{e_0}$. Then, for all $\alpha \in [1,2]$ and for all $\delta \in [0.7,1]$, the RHS of (3.11) is at most 2/0.49; this value occurring if and only if [ $\alpha = 2, \delta = 0.7$ ]. Consider the equation:

$$\frac{(1-\overline{\eta})^{3}}{\overline{\eta}} = \frac{2}{0.49}. \qquad (3.12)$$

The solution to (3.12) is given by $\overline{\eta} \cong 0.15$. Now notice that the LHS of (3.11) is decreasing in both $\eta$ and $\alpha$, while the LHS is less than 2/0.49 for all combinations of $\alpha, \delta$ such that [$\alpha \in [1,2)$ and $\delta \in [0.7,1]$]. We then get the following:

$$\text{for all } \alpha \in [1,2) \text{ and all } \delta \in [0.7,1], \ \frac{(1-\overline{\eta})^{\alpha+1}}{\overline{\eta}} > \frac{\alpha}{\delta^{\alpha}}. \tag{3.13}$$

Noting (3.13), the following corollary is immediate.

**Corollary 3.5.** *Suppose* $e_1 \geq e_0$ *and* $\frac{c}{e_0} \leq 0.15$. *Then, for all* $\alpha \in [1,2)$ *and all* $\delta \in [0.7,1]$, *regulation at* $\underline{\theta} = \min\{\Omega,1\}$ *generates greater total (discounted) project expenditure than automatic accreditation.*

Intuitively, Corollary 3.5 implies that, for a large and plausible range of parameter values, a regulation strategy that adopts $\underline{\theta} = \min\{\Omega,1\}$ dominates automatic accreditation *unless* its cost is above 15% of total initial revenue. Thus, the 15% cost threshold provides a convenient and simple sufficient condition, with broad empirical applicability, for assessing whether regulation is potentially efficient.[7]

Finally, we identify the parametric configurations under which a regulation strategy of $\underline{\theta} = \min\{\Omega,1\}$ not only generates greater total (discounted) project spending than automatic accreditation (recall Corollary 3.5), but also maximizes such spending, thus providing the globally optimal regulatory strategy. Given our parameter ranges $e_1 \geq e_0, \frac{c}{e_0} \leq 0.15, \alpha \in [1,2), \delta \in [0.7,1]$, the minimum possible value of $\Omega \equiv \delta\left(\frac{e_1}{e_o} - \eta\right)$ is given by $\underline{\Omega} \cong 0.6$. Hence, $\Omega \geq 0.6$. By Corollary 3.5, regulation necessarily dominates automatic accreditation in these parameter ranges. However, *a priori*, it is not clear whether the optimal regulation threshold, i.e. the optimal value of $\underline{\theta}$, is equal to, or greater than, $\Omega$ (recall Proposition 3.2). A closed form solution for the optimal value of $\underline{\theta}$ is difficult to derive analytically. To identify the optimal level of $\underline{\theta}$ under various scenarios, we therefore calibrate the expression for total discounted project expenditure normalized by initial revenue, yielded by (3.3):

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[7] Typically, in practice, accreditation involves annual audits and external scrutiny of the expenditure pattern in the preceding year: the operational interpretation of $e_o$ then is the total expenditure of the NGO in the financial year for which it audits its accounts and submits the reports for external scrutiny. If accreditation involves scrutiny of expenditure over a longer period, then the empirically operational interpretation of $e_0$ becomes total expenditure over that entire period, discounted to its starting point.

$$\frac{J}{e_o} = [\frac{\alpha}{\alpha+1}\tilde{\theta}^{\alpha+1} + \underline{\theta}^{\alpha+1}\frac{1}{\alpha+1} - \underline{\theta}\tilde{\theta}^{\alpha} - \tilde{\theta}^{\alpha+1}\Omega\frac{\alpha}{\alpha+1}] + \left(\frac{\alpha}{\alpha+1}\right)(\Omega+1);$$

where $\tilde{\theta} \equiv \frac{\underline{\theta}-\Omega}{1-\Omega}$, for values of $\alpha$ ranging from 1 to 2 and $\Omega$ from 0.6 to 1. We only consider $\underline{\theta} \geq \Omega$ since the optimal value of $\underline{\theta}$ cannot be less than $\Omega$ (recall Proposition 3.2(i)).

The calibration results are illustrated in Figure 1 below. For different values of Ω between 0.6 and 1, we plot the project expenditure (or, equivalently, $\frac{J}{e_o}$) maximizing values of $\underline{\theta}$ corresponding to all possible values of $\alpha$ between 1 and 2. The calibration exercise confirms our theoretical conclusions summarized by Proposition 3.2 and shows that expenditure is maximised at $\underline{\theta}$ = $\Omega$ for values of $\alpha$ close to 1. For every value of Ω less than 1, the corresponding optimal value of the expenditure threshold is constant at that value of Ω up to some value of $\alpha$, say $\underline{\alpha}_\Omega$, and increasing in $\alpha$ thereafter. Thus, so long as $\alpha \leq \underline{\alpha}_\Omega$, optimal regulation involves simply putting the minimum project expenditure threshold, $\underline{\theta}$, exactly at Ω. As already noted, when Ω is equal to, or greater than, 1, the optimal expenditure threshold is unity regardless of the value of $\alpha$ (Remark 3.3). Figure 1 further shows that the minimum value of $\underline{\alpha}_\Omega$, 1.2, is reached at $\Omega = 0.6$. Table 1 below identifies, for different values of $\Omega$ between 0.6 and 0.9, the corresponding values of $\underline{\alpha}_\Omega$. These same values are also identified in Figure 1 by the upward rising concave schedule starting at $\alpha = 1.2$. Given any $\Omega \in (0.95,1)$ and any $\alpha \in [1,2)$, the optimal value of $\underline{\theta}$ turns out to lie too close to $\Omega$ to demarcate it from the latter (at our sensitivity parameter 0.001). Thus, for all $\Omega \in (0.95,1)$, the optimal expenditure threshold lies between Ω and Ω+0.001, irrespective of the value of $\alpha$. Consequently, Figure 1 only shows $\underline{\alpha}_\Omega$ for values of $\Omega$ between 0.6 and 0.95.

In practical policy contexts, it may not always be possible to get very precise estimates of $\alpha$ (i.e., the exact distribution of NGO types). However, so long as it can be ensured that $\alpha$ lies in the [1, 2) interval, imprecision in its estimate need not matter much in practical terms. Our calibration results, as summarized in Figure 1, show that the optimal regulatory threshold is invariably within 5 percentage points of min{Ω, 1}; indeed, for $\Omega \geq 0.7$, it is invariably within 2.5 percentage points of min{Ω, 1}. Hence, when it is known that $\alpha \in$[1, 2), but its exact value is unknown, our calibration exercise suggests that putting the minimum project expenditure threshold, $\underline{\theta}$, at min {Ω, 1} provides at least a very close approximation of the optimal regulatory strategy, if not the exact optimal strategy itself. The higher the value of Ω, or the lower the true value of $\alpha$, the closer the approximation.

The distribution of the NGO population may also change over time, whether due to long-term behavioural responses due to regulation itself, or due to other factors. Our calibration results show that, so long as the distribution of the NGO population does not change too much ($\alpha$ remains in the [1, 2) interval), putting the minimum project expenditure threshold, $\underline{\theta}$, at min {Ω, 1} continues to provide at least a very close approximation of the optimal regulatory strategy. Thus, this regulatory strategy, which we suggest as a practical rule of thumb, turns out to be reasonably robust to relatively small variations in the distribution of NGO types as well.

**Insert Figure 1**

**Insert Table 1**

These findings are formally summarized in the following corollary.

**Corollary 3.6.** *Suppose* $e_1 \geq e_0$, $\frac{c}{e_0} \leq 0.15$ *and* $\delta \in [0.7,1]$. *Then, given any* $\Omega \geq 0.6$,

*(i) for all* $\alpha \in [1,1.2)$, *total (discounted) project expenditure is maximized by adopting the regulation strategy* $\underline{\theta} = \min\{\Omega,1\}$;

*and*

*(ii) for all* $\alpha \in [1,2)$, *the regulation strategy* $\underline{\theta}$ *that maximizes total (discounted) project expenditure must satisfy* [ $\min\{\Omega,1\} \leq \underline{\theta} < \min\{\Omega,1\} + 0.05$ ].

## 4. An illustrative application to Uganda

Uganda is an interesting application for a model of regulation because the country has recently intensified efforts to regulate the sector (as legislated by the NGO Registration Amendment Act of 2006). In response to the new Act, a consortium of NGOs launched a peer review scheme (NGO Quality Assurance Mechanism). As both are ultimately funded by public money, it is essential to examine under what circumstances the framework would predict that returns would exceed the costs.

We first generate an estimate of the initial grant income, $e_0$, as US$ 44,338 based on the median annual revenue from a representative 2002 survey[8] for the Ugandan NGO sector.[9] The survey was based on a random sample drawn from a verified register of NGOs.[10] The sample was stratified

[8] See Barr *et al.* (2005, 2003) for a detailed description of the survey's sample and key variables.

[9] To ensure that the median revenue estimate was accurate, it was adjusted slightly to bring the sectoral revenue estimates of the 2002 Ugandan survey in line with the (inflation adjusted) sectoral revenue estimates from a 1998 Johns Hopkins survey.

[10] The official NGO register was updated and verified using information from the NGO forum, lists from umbrella/network organisations, the phonebook, information from faith-based organisations that hold contact details of NGOs with whom they work, and, at the district level, lists held by local governments on all NGOs

using two strata, Kampala and the rest of the country. A hundred NGOs were interviewed in Kampala and two hundred from14 randomly selected rural districts. NGOs from the rural districts were sampled randomly with district sample sizes determined by proportionate allocation.

Based on a study of the Philippine NGO accreditation scheme (Soledad and Tolentino, 2007), \$200 is taken as the unit (per NGO) price of verification. We include the highest paid bribe reported in our Ugandan survey (approximately \$800) as a proxy for the politico-bureaucratic cost of accreditation and add these two estimates to derive $c$; thus $c$ = \$1000. Consequently, total cost of accreditation is estimated at less than 2.5% of the initial revenue; far below our 15% threshold (recall Corollary 3.5). Nominal interest rates in Uganda for borrowers were around 20% during our survey, yielding a benchmark time discount factor of 0.83 (well within our permissible range of [0.7,1]).

We estimate project expenditure shares using survey data.[11] On the basis of the distribution of project expenditure shares in our sample, we derive an estimate of $\alpha = 1.12$. Corollary 3.6 then identifies $\underline{\theta} = \min\{\Omega, 1\}$ as the optimal regulatory strategy: regulation at this threshold level dominates automatic accreditation (Corollary 3.5) and maximizes total discounted project expenditure. The mean annual revenue in our sample was significantly higher than the median, hence using the mean rather than median to calculate the cost of regulation as a proportion of initial revenue would not change this qualitative conclusion. Assuming the benefit of accreditation to be approximately the continuation of current grant revenue in the following year ($e_1 \cong e_0$), and that accreditation needs to be renewed annually, we arrive at an optimal rule of $\underline{\theta} \cong 0.8$. Thus, our analysis suggests a project expenditure threshold of 80% as closely approximating the optimal regulatory policy in Uganda under the parametric and institutional circumstances discussed above.

## 5. Conclusion

This paper has developed a model which clarifies some key trade-offs in regulating NGOs, by making their future grant access conditional on prior spending of at least some minimal proportion of current revenue on direct project-related expenses. Such regulation induces at least some NGOs to increase their current project-related spending, but imposes bureaucratic costs of compliance verification, and thus deadweight losses, on all NGOs. Our model yields simple numerical rules to characterize optimal regulatory police in different institutional contexts. Under a large class of empirically

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which operate in their area. In addition, letters were sent to PO Box addresses and there was a radio appeal made asking registered NGOs to call and update their contact information. Contact was then made by telephone, and if that failed a visit was made to the physical address. The 14 districts included in the survey sample (selected out of 55 non-Kampala districts) were Arua, Busia, Iganga, Jinja, Kabale, Kasese, Kibaale, Lira, Luwero, Mbale, Mbarara, Mukono, Rakai and Wakiso. An NGO was classified as being part of a particular district if its headquarters were in that district.

[11] Project expenditure was defined to include direct project expenses and salaries of project staff, allowances paid to staff and beneficiaries, payments to NGOs and other organisations and fuel costs. It excludes overheads such as administrative staff, rent and equipment.

plausible parametric configurations, our analysis shows regulation to be potentially capable of increasing total discounted project expenditure over the level generated by a laissez faire regime of no regulation, when verification costs under the former constitute no more than 15% of initial revenue. We have also explicitly identified the optimal regulatory policy, i.e. the optimal threshold level of project expenditure required for future grant access, under these parametric configurations. Putting the threshold project expenditure equal to the normalized present discounted gain from accreditation or unity, whichever is lower, provides either the optimal regulatory policy or a very close approximation thereof. We have illustrated how our analysis can be operationalized by applying it to a large sample of NGOs from Uganda. We concluded that NGO regulation appears potentially beneficial in that context. Our focus on sufficiency conditions that identify when regulation potentially dominates automatic accreditation, and our fixed coefficients specification of NGO preferences, both serve to highlight and characterize the minimal rather than the maximal, and therefore the strongest, *a priori* case for regulation.

As an easily operationalized, sufficient rule of thumb for assessing the *a priori* case for regulation, we have suggested the not-more-than 15% verification cost criterion. Available evidence suggests that objective costs of compliance verification are likely to be far below this threshold in most institutional contexts. The magnitude of costs imposed on NGOs through greater scope for politico-bureaucratic extortion remains however empirically a wide open question. As is well-known in the general literature on corruption and bureaucratic red tape, equilibrium bribe rates can vary widely, depending on institutional specificities, extent of competition among politicians and bureaucrats, bureaucrats' salaries, the nature of anti-corruption laws, etc.[12] Empirical measurement of compliance costs in different institutional contexts, and theoretical analysis of policy formulation to minimize the scope for bribery and extortion, applying the insights thrown up by the large literature on anti-corruption policy, both constitute important areas of future research on NGO regulation.

In our analysis, we have assumed that the aim of regulation is to increase project expenditure shares. This in turn incorporates the assumption, routine in policy contexts, that project expenditure shares are strongly correlated with beneficiary satisfaction. It is usually administratively easier to monitor inputs (expenditures) rather than rigorously measure outputs (beneficiary satisfaction) in the context of NGO performance. Martens *et al.* (2002) find evidence of a bias among donors towards pursuing and tracking inputs because inputs are easier to monitor and measure than outputs. For similar reasons, a regulator may monitor project expenditure because it is widely perceived to be correlated with NGO effectiveness and project impact. There is evidence of such thinking in the code of Uganda's NGO quality assurance mechanism. This code proposes that an NGO should calculate the ratio between its overheads and its programme delivery costs to assess its cost effectiveness.

[12] See Guriev (2004), Bardhan (1997), Mookherjee and Png (1995) and Shleifer and Vishny (1993).

In practice, however, an NGO may successfully engage in cost 'padding', i.e. disguise part of its managerial consumption as programme delivery costs. Conversely, higher overhead expenditures may sometimes lead to greater efficiency in programme delivery. NGOs may also choose a service mix that caters more to donor preferences than beneficiary needs, as perceived and evaluated by the beneficiaries themselves. In these cases, higher project expenditure shares need not necessarily imply greater efficiency in programme delivery or the satisfaction of beneficiary demand. In the absence of a market for NGOs' services, it is often difficult to directly measure NGO performance in terms of responding to beneficiary demand. Whether higher project expenditure shares are indeed strongly correlated with beneficiary satisfaction in different institutional contexts thus appears an open empirical question at this stage. Future work may usefully examine the strength of this correlation by devising alternative measures of beneficiary satisfaction or output performance.[13]

How regulation affects entry, and thereby the distribution of types in the NGO sector in the long run, is an issue we have abstracted from in our (implicitly short-run) analysis. Extensions that address this issue would evidently be in order. Lastly, Bougheas *et al.* (2011) have shown, in the context of international lending, that conditionalities imposed on borrowers may be inefficient in the presence of multiple, competing lenders. The issue of whether competition among multiple donors, for the services of a given pool of NGOs, may likewise affect and qualify the optimal approach to NGO regulation, constitutes another important line of future enquiry suggested by this paper.


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## Appendix

**Proof of Proposition 3.2.**

From (3.3), recalling $\tilde{\theta} \equiv \frac{\underline{\theta} - \Omega}{1 - \Omega}$, we have:

$$e_o^{-1} \frac{dJ}{d\underline{\theta}} = \underline{\theta}^{\alpha} - \frac{(\underline{\theta} - \Omega)^{\alpha - 1}}{(1 - \Omega)^{\alpha}} [(\underline{\theta} - \Omega) + \alpha\Omega]. \quad \text{(N1)}$$

(N1) yields:

$$e_o^{-1} \frac{d^2 J}{d\underline{\theta}^2} = \alpha\underline{\theta}^{\alpha - 1} - \frac{(\underline{\theta} - \Omega)^{\alpha - 1}}{(1 - \Omega)^{\alpha}} - (\alpha - 1)\frac{(\underline{\theta} - \Omega)^{\alpha - 2}}{(1 - \Omega)^{\alpha}} [(\underline{\theta} - \Omega) + \alpha\Omega]. \quad \text{(N2)}$$

[13] Bougheas *et al.* (2007) show, in the general context of charitable donations, that widely popular donor conditionalities may be inefficient, yet persist indefinitely. The commonly observed donor emphasis on high share of direct project-related expenses may conceivably constitute such a sub-optimal conditionality.

(i) First notice that (N1) implies $\frac{dJ}{d\underline{\theta}}$ converges to $\frac{-e_o\alpha\Omega}{1-\Omega}<0$ as $\underline{\theta}$ converges to 1. Hence, regardless of the value of $\alpha$, total discounted project expenditure can be maximized *only if* $\underline{\theta}<1$. Recalling Lemma 3.1, part (i) of Proposition 3.2 follows.

(ii) Now consider $\alpha=1$; then (N1) and (N2) reduce, respectively, to:

$$e_o^{-1}\frac{dJ}{d\underline{\theta}}=\frac{1}{(1-\Omega)}[-\Omega\underline{\theta}]<0; \tag{N3}$$

$$e_o^{-1}\frac{d^2J}{d\underline{\theta}^2}=\frac{-\Omega}{(1-\Omega)}<0. \tag{N4}$$

Hence, when $\alpha=1$, the function $J$ decreases in $\underline{\theta}$ for all $\underline{\theta}>\Omega$, implying, by Lemma 3.1, that total discounted project expenditure is maximized if, and only if, $\underline{\theta}=\Omega$. Notice now that $\frac{dJ}{d\underline{\theta}}$ and $\frac{d^2J}{d\underline{\theta}^2}$ are both continuous in $\alpha$. Part (ii) of Proposition 3.2 follows by continuity.

(iii) When $\alpha=2$, (N1) and (N2) yield, respectively:

$$e_o^{-1}\frac{dJ}{d\underline{\theta}}=\underline{\theta}^2-\frac{(\underline{\theta}-\Omega)(\underline{\theta}+\Omega)}{(1-\Omega)^2}; \tag{N5}$$

$$e_o^{-1}\frac{d^2J}{d\underline{\theta}^2}=2\underline{\theta}-\frac{(\underline{\theta}-\Omega)}{(1-\Omega)^2}-\frac{(\underline{\theta}+\Omega)}{(1-\Omega)^2}=2\underline{\theta}[1-\frac{1}{(1-\Omega)^2}]<0. \tag{N6}$$

It follows from (N5) that $\frac{dJ}{d\underline{\theta}}$ converges to $e_0\Omega^2>0$ as $\underline{\theta}$ converges to $\Omega$, while it converges to $-\frac{2e_0\Omega}{(1-\Omega)}<0$ as $\underline{\theta}$ converges to 1. Hence (noting (N6)), when $\alpha=2$, there must exist a unique $\underline{\theta}\in(\Omega,1)$ which maximizes total discounted project expenditure. Since $\frac{dJ}{d\underline{\theta}}$ and $\frac{d^2J}{d\underline{\theta}^2}$ are both continuous in $\alpha$, part (iii) of Proposition 3.2 follows. ♦

**References**


Aldashev, G., Verdier, T., 2010. Goodwill Bazaar: NGO Competition and Giving to Development, *Journal of Development Economics* 73(1), 48-63.

Anheier, H. K., Salamon, L. M., 2006. The Nonprofit Sector in Comparative Perspective, in: Powell, W. W. and Steinberg, R. (Eds.), *The Nonprofit Sector: A Research Handbook*, Yale University Press, New Haven.

Bardhan, P., 1997. Corruption and Development: A Review of Issues, *Journal of Economic Literature* 35(3), 1320-1346.

Barr, A., Fafchamps, M., Owens, T., 2005. The Governance of Non-Governmental Organizations in Uganda, *World Development* 33(4), 657-679.

Barr, A., Fafchamps, M., Owens, T., 2003. *Non-governmental Organizations in Uganda*. Draft report, April 2003, Centre for the Study of African Economies, Department of Economics, Oxford University.

Barro, R., McCleary, R., 2006. *US-Based Private Voluntary Organizations: Religious and Secular PVOs Engaged in International Relief and Development, 1993-2004.* NBER Working Paper No. 12238.

Bekkers, R., 2010. The Benefits of Accreditation Clubs of Fundraising Nonprofits, in: Gugerty, M. K. & Prakash, A. (Eds), *Voluntary Regulation of NGOs and Nonprofits: An Accountability Club Framework*, Cambridge University Press, Cambridge, UK.

Bekkers, R., 2003. Trust, Accreditation, and Philanthropy in the Netherlands, *Nonprofit and Voluntary Sector Quarterly* 32(4), 596-615.

Bougheas, S., Dasgupta, I., Morrissey, O., 2011. Repayment vs. Investment Conditions and Exclusivity in Lending Contracts, *Journal of Institutional and Theoretical Economics* 167(2), 247-265.

Bougheas, S., Dasgupta, I., Morrissey, O., 2007. Tough Love or Unconditional Charity? *Oxford Economic Papers* 59(4), 561-582.

Castaneda, M., Garen, J., Thornton, J., 2008. Competition, Contractibility, and the Market for Donors to Non-Profits, *Journal of Law, Economics and Organization* 24(1), 215-246.

Greenlee, J. S., Brown, K. L., 1999. The Impact of Accounting Information on Contributions to Charitable Organizations, *Research in Accounting Regulation* 13, 111-125.

Guriev, S., 2004. Red Tape and Corruption, *Journal of Development Economics* 73(2), 489-504.

Hudock, A., 1999. *NGOs and Civil Society: Democracy by Proxy?* Polity Press, Cambridge, UK.

Martens, B., Mummert, U., Murrell, P., Seabright, P. 2002. *The Institutional Economics of Foreign Aid*, Cambridge University Press, Cambridge, UK.

Mookherjee, D., Png, I. P. L., 1995. Corruptible Law Enforcers: How Should They be Compensated? *The Economic Journal* 105, 145-159.

Overseas Development Institute, 1996. *The Impact of NGO Development Projects*, ODI Briefing Paper 1996(2), May 1996, London.

Riddell, R.C., Robinson, M., Coninck, J.D., Muir, A., White, S., 1995. *Non-Governmental Organizations and Rural Poverty Alleviation*, Clarendon Press, Oxford.

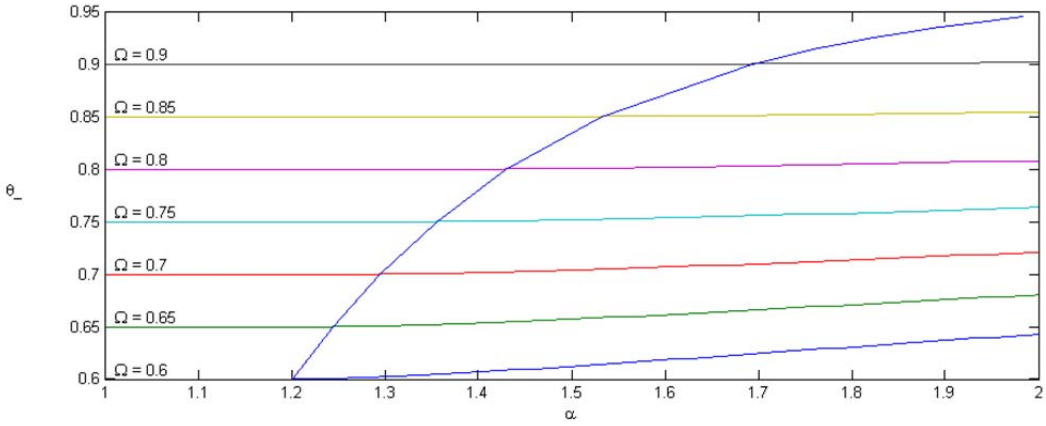
Shleifer, A., Vishny, R. W., 1993. Corruption, *Quarterly Journal of Economics* 108(3), 599-617.

Soledad, F.I., Tolentino, M. A., 2007. *CSO Self Regulation: Options for Increasing Accountability,* Civicus World Assembly, Glasgow, 24 May 2007.

Tinkelman, D., 1999. Factors Affecting the Relation Between Donations to Non-profit Organizations and an Efficiency Ratio, *Research in Government and Non-profit Accounting* 10, 135-161.

Werker, E., Ahmed, F., 2008. What Do NGOs Do? *Journal of Economic Perspectives* 22(2), 73-92.

**Figure 1: Plot of $\underline{\theta}$ optimizing J for values of α and Ω**




Note: The curvature of the plots for $\Omega \in [0.95,1)$ is too flat to define $\underline{\alpha}_{\Omega}$ when using a sensitivity parameter of 0.001

| **TABLE 1: $\underline{\alpha}_{\Omega}$ for a selection of values of $\Omega$** | |
|---|---|
| $\Omega$ | $\underline{\alpha}_{\Omega}$ |
| 0.6 | 1.2 |
| 0.65 | 1.244 |
| 0.7 | 1.295 |
| 0.75 | 1.355 |
| 0.8 | 1.43 |
| 0.85 | 1.532 |
| 0.9 | 1.693 |