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journal homepage: www.elsevier.com/locate/jeboMandatory disclosure of managerial contracts in NGOs[☆]Michael Kopel^{a,*}, Marco A. Marini^b^a University of Graz, Institute of Organization & Economics of Institutions and Center for Accounting Research (CAR), Universitätsstraße 15, Graz 8010, Austria^b University of Rome La Sapienza, Department of Social and Economic Sciences, Piazzale Aldo Moro, 5, Rome, 00185, Italy

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ABSTRACT

Nongovernmental Organizations (NGOs) have been recently mandated to disclose the details of their executives' compensation packages. Contract information is now accessible not only to current and prospective donors, but also to rival NGOs competing for donations in the fundraising market. We analytically study the impact of publicly available contract information on fundraising competition of NGOs. Although such a provision makes contract information available to multiple stakeholders and increases the transparency of the NGO sector, we argue that it also induces NGOs to use properly designed managerial incentive contracts strategically to influence rival NGOs. In particular, we find that the observability of incentive contracts reduces existing fundraising competition. This can be beneficial in terms of NGOs' outputs and social welfare, in particular when these organizations are trapped in a situation of excessive fundraising activities. However, we show that when donors' willingness-to-give for projects are sufficiently different, publicly available contract information can distort the NGOs' choice of projects, leading to socially inefficient project clustering.

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1. Introduction

Since the 1970s, the nonprofit sector has recorded a continuous growth worldwide, both in terms of number of units as well as of received donations. The [National Center for Charitable Statistics \(2019\)](#) reports for the U.S. 1,54 million of nonprofit organizations in 2016, with a 4.5 percent increase from 2006. For 2017, [Giving USA \(2018\)](#) indicates donations of \$410.02 billion, with a 5.2 percent increase from 2016. In Europe, yearly philanthropic contributions were estimated at about 87.5 billion Euro ([ERNOP, 2017](#)). The majority of the received donations has been collected by large organizations. [McCleary and Barro \(2008\)](#) notice that from 1941 onward, revenues have been collected mainly by a restricted pool of NGOs. Similarly, [Atkinson et al. \(2012\)](#) confirm that over the last decades, 50% of all donations in the UK have reached only the four largest

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NGOs of the country. Hence, arguably we can conclude that the market for fundraising can be characterized as a tight oligopoly.

In fact, competition for funds in the market for donations is quite intense. From his empirical study on charitable giving, Meer (2014) draws the conclusion that “[t]he more competition a project faces, the less it draws in donations.” (p. 123). Using data collected by the Kiva micro-lending platform, Ly and Mason (2012) observe how competition has substantially increased the time that is needed by NGOs to collect funds. Although the detrimental effect of fundraising competition is well-known among those who work for these organizations (see, for instance, Edwards and Hulme (1996); Ebrahim (2003); Murdie and Davis (2012)), the few attempts to regulate and coordinate fundraising activities among NGOs have encountered difficulties (Prakash and Gugerty, 2010; Aldashev et al., 2014; Similon, 2015).

In this paper, we demonstrate that publicly available information about managerial compensation contracts has a crucial influence on fundraising competition. Executive compensation in large NGOs is comparable to their peers in the for-profit sector. A survey conducted on 286 U.S. charities even reported a substantial increase in the bonuses paid by large NGOs to top executives (Chronicle of Philanthropy, 2006).¹ To increase transparency in the nonprofit sector, in 2008 the U.S. regulation concerning the disclosure of executive payment in nonprofits has changed. Prior to 2008, nonprofits were not required to separately report incentive compensation (Balsam and Harris (2018)). This has been modified since then, and NGOs and charities now have to disclose the details of their executive compensation policies on Form 990 Schedule J. Such disclosure requirements of detailed compensation data of top management officials, e.g. the CEO or Executive Director, are mandated to inform donors and the public about a NGO’s pay practice. The disclosed information about managerial compensation contracts is further accessible to other charities and NGOs which compete for donations in the highly competitive fundraising market. Therefore, we argue, NGOs can use suitably designed compensation contracts of their managers to influence the fundraising efforts of their rivals.

Recent empirical evidence from the *for-profit* sector indeed demonstrates that a strong correlation exists between the structure of managerial pay and the characteristics of the competitive market environment of the firm. For example, Bloomfield (2021) uses a 2006 rule change that mandated public firms to disclose more details of executive pay – the Compensation Discussions and Analysis section of the proxy statement – to argue that firms use incentive pay strategically to gain a competitive edge against rival firms.² He finds evidence that firms add revenue-based incentive components to their CEO compensation package to induce more aggressive behavior in the market if such a strategic commitment is beneficial. Vrettos (2013) provides empirical evidence for the airline industry which shows that the use of relative performance measures in an executive’s compensation contract is associated with the type of strategic competition the firm faces. Executive pay is negatively associated with peer-group performance when firms compete as strategic substitutes and positively associated with strategic complements. This suggests that firms provide managerial incentives in order to strategically influence peer firms.³ In fact, these studies provide support for the theoretical findings on “strategic incentive contracts” (e.g. Fershtman and Judd, 1987; Kopel and Pezzino, 2018 for a survey).

Despite this strong evidence from the *for-profit* sector, a comparably high intensity of competition in the NGO sector, and similar regulatory and remuneration policies, the effects of publicly disclosed managerial compensation contracts on the behavior and performance of NGOs competing in the market for donations has not been studied so far. The nonprofits literature has focused primarily on donor behavior where it has been shown that disclosed high executive compensation commonly reduces the donors’ willingness-to-give (e.g., Jegers, 2020; Balsam and Harris, 2014; Balsam and Harris, 2018; Galle and Walker, 2016). To initiate a discussion about the interplay between NGO competition and managerial contract information, we use a stylized model of fundraising competition to study how mandatory disclosure of NGOs’ executive compensation affects the outcomes in the market for fundraising activities. First, we ask if mandated disclosure enhances competition or enables NGO boards to coordinate their fundraising activities (Aldashev et al., 2014). Can NGOs use the public information about managerial contracts to signal less aggressive fundraising efforts to rival NGOs by inducing managers to spend more time on their projects? How does the intensity of competition (e.g. measured by the similarity of NGO projects) interact with the managers’ compensation contracts? These questions are important since it has been shown that fundraising competition can be excessive (Rose-Ackerman, 1982; Aldashev et al., 2014; Thornton, 2006; Krasteva and Yildirim, 2016). We further know from empirical and anecdotal evidence that NGOs tend to cluster, i.e. choose the same or similar projects for their activities and that project clustering is excessive compared to the social optimum (Aldashev et al., 2020b; Heyes and Martin, 2015). Hence, the second question we ask is if we can expect more or less clustering if compensation information is made public. If mandatory disclosure of managerial contract information increases competition in the fundraising market, we might expect less clustering since NGOs would then try to escape competition by specializing in niche projects. The opposite would occur if the information on managers’ contracts reduces the existing fundraising competition, thus encouraging NGOs to cluster on projects which attract a higher number of donors.

¹ More specifically, the average bonus paid to top executives increased from \$69,477 in 2005 to \$142,700 in 2006. Although the *Association of Fundraising Professionals* – as part of its professional code of ethics – prohibits members from tying their compensation directly to fundraising performance, these practices are nonetheless very common and contribution-based incentive plans actually proliferate in fundraising and related fields.

² Interestingly, Gipper (2021) empirically finds that these disclosures lead to increasing – and not decreasing – manager pay.

³ Further evidence for the *for-profit* sector is provided by Feichter et al. (2022); Martin and Timmermans (2021); Ha et al. (2021), and Kedia (2006). Bushman (2021) emphasizes that cash-based bonus plans communicate a board’s commitment to specific strategic goals to outside investors and competitors.

Our main findings are as follows. Under intense fundraising competition and highly targeted fundraising activities, mandatory disclosure of information about CEOs' compensation contracts that are based on NGO output and collected donations is beneficial for NGOs since these contracts can be used strategically to reduce excessive fundraising competition. NGOs publicly adjust the managerial compensation contracts and provide incentives for project output and disincentives for fundraising activities. As a result, NGOs' project outputs rise and this has, taken in isolation, a positive impact on social welfare. However, we also highlight that mandated contract disclosure may alter the incentives of NGOs to select their projects. In particular, when donors' willingness-to-give to the NGOs' projects are sufficiently different, mandatory contract disclosure can be harmful in terms of social welfare. Under endogenous selection of projects, the NGOs' choice of projects is distorted, resulting in a more pronounced and socially inefficient project clustering.⁴ Furthermore, under high fundraising spillovers, the interplay between the intensity of fundraising competition and the fundraising technology can reverse the positive effect of contract disclosure on NGOs' outputs. The main intuition underlying our findings is that when suitably designed contracts are disclosed, they can be used strategically by NGOs as a coordination device to reduce costly fundraising activities. The lower amount of fundraising effort can be beneficial for output under very efficient (i.e. highly targeted) fundraising technology and closely related projects that would otherwise cause cut-throat competition among NGOs. However, curtailing fundraising competition may have, in turn, distortionary welfare-reducing effects on NGOs' choice of projects in all situations in which fundraising efforts are underprovided.

There are a few recent contributions that consider the effect of strategic delegation on fundraising (competition). Arya and Mittendorf (2015) study a career concerns model and show that disclosure of the functional classification of a nonprofit's expenses can reduce the executive's incentive to overinvest in fundraising and focus more on the nonprofit's mission. In contrast, we consider the effect of disclosure of nonprofits' explicit incentive contracts and study fundraising efforts under NGO competition. Paskalev and Yildirim (2017) raise the question why charities outsource fundraising despite the fact that commissions paid to professional solicitors frequently exceed half of the solicited donations. One explanation is that strategically and observably delegating the task of fundraising to a professional solicitor changes the donor's behavior through increasing warm-glow giving. Heyes and Oestreich (2018) model the interplay between an Environmental Protection Agency and an NGO and show that, as in a strategic delegation game, a donor may prefer to donate to an NGO with very different preferences from her own. Hagen (2006) explains the delegation by donors to NGOs and Aid Agencies as a strategic commitment device to smooth consumption across recipients and overcome the samaritan's dilemma occurring when donors are directly in charge of executing policy. Aldashev et al. (2020a) study the effect of transparency policies on the use of funds in NGOs. They show that, on the one hand, more transparency encourages NGOs to devote more resources to curbing rent-seeking inside organizations, which has also a positive impact on donors. On the other hand, because of the higher costs of monitoring, these policies can induce some NGOs to abandon their missions, thus reducing their diversity, to the detriment of the donors. Poret (2019) addresses the market for ecolabels and shows that competition between NGOs leads to a decrease in standards by quality-driven NGOs and an increase in standards by market-driven NGOs. Overall, this results in an increase in weighted sustainability quality. None of these studies consider the effects of mandated disclosure of executive contracts and its influence on NGO competition and project selection.

Our paper is organized as follows. In Section 2, we present the baseline model. In Section 3, we start with a benchmark scenario of no disclosure requirement where NGOs keep the details of their managerial contracts secret. We then illustrate the consequences of mandated disclosure for NGOs' fundraising and output equilibrium levels and discuss the influence of increased substitutability between projects. In Section 4, we introduce the endogenous choice of projects by NGOs and show how mandatory contract disclosure can provide incentives towards excessive project clustering of NGOs, which in turn reduces welfare. In Section 5, we consider several extensions of our baseline setting. We first study the influence of fundraising spillovers on NGOs' performance. We then take the well-documented negative dependence of disclosed executive compensation and donors' willingness-to-give into account and illustrate that mandated disclosure of managerial compensation might benefit or harm the performance of NGOs. We further demonstrate that the mechanism that drives our results is rather general and to a certain extent independent of the specific linear setting that we adopt in the baseline model. We finally discuss an extension to competition with more than two NGOs. Section 6 concludes.

2. Model setup

2.1. Nonprofit organizations

We start with two NGOs ($i = 1, 2$) competing for funds in the market for donations.⁵ Each NGO is led by a warm-glow social entrepreneur who aims at maximizing the output of her philanthropic project,

$$Q_i = Q_i(F_i, \tau_i), \quad (1)$$

where $Q_i : F_i \times \tau_i \rightarrow \mathcal{R}_+$ expresses the output of each organization as a function of the collected funds F_i and the amount of time τ_i devoted to the project. Funds come from voluntary donations and, thus, depend positively upon the time spent on

⁴ In an alternative model setting, Aldashev et al. (2020a) have recently proposed an alternative rationale to the observed inefficient clustering of non-governmental organizations.

⁵ We show in Section 5 that the main results in our paper can be extended to a more general setting including $n > 2$ NGOs.

fundraising activities. Let $D_i(y_i, y_j)$ indicate the amount of donations raised by organization i through its fundraising effort y_i if the rival NGO $j \neq i$ selects effort y_j . If there is a *non-distribution constraint* in place for NGOs, all received donations will entirely go to the NGO project and, hence⁶

$$F_i(y_i, y_j) = D_i(y_i, y_j). \tag{2}$$

Moreover, if each social entrepreneur allocates entirely its total amount of time T_i either to fundraising y_i or to working for the project, we have

$$\tau_i(y_i) = T_i - y_i. \tag{3}$$

Without loss of generality, let $T_i = 1$. Furthermore, to keep the model as simple as possible, let the output function (1) be of a simple multiplicative form. Then, from (1) to (3), we can simply write⁷

$$Q_i(y_i, y_j) = D_i(y_i, y_j) \cdot (1 - y_i). \tag{4}$$

2.2. Donors

The demand side of the market is as follows. Assume a *continuum* of atomistic donors $h \in I$ of unitary mass endowed with a warm-glow utility that is increasing in a *numeraire* good x and in the total donations made to the two NGOs. Formally,

$$U = U(x, d), \tag{5}$$

where $d = (d_1, d_2)$ and the budget constraint of each donor is

$$x + d_1 + d_2 \leq m,$$

where m denotes the available income. In order to model a direct channel through which NGOs by their fundraising efforts can affect donors' willingness-to-give to different projects, let the utility function in (5) be linear-quadratic and of the form (see Singh and Vives, 1984 and similarly Aldashev et al., 2014)

$$U(x, d) = x + \sum_{i=1}^2 \omega_i(y_i, y_j) d_i - \frac{1}{2} \sum_{i=1}^2 d_i^2 - b \sum_{j \neq i} d_i d_j \tag{6}$$

where $b \in [0, 1)$ measures the substitutability between the projects of the two NGOs. If $b = 0$, projects are independent and for increasing b , projects are increasingly similar. Each donor's willingness-to-give $\omega_i(y_i, y_j)$ is affected by the fundraising efforts exerted by a NGO as⁸

$$\omega_i(y_i, y_j) = w + y_i. \tag{7}$$

Here w denotes a *baseline willingness-to-give* to NGO i where we assume that $1 < w < 2$ to rule out zero donations (which occurs for $w \leq 1$) and no fundraising efforts by NGOs (which occurs for $w \geq 2$).

The first-order conditions for the constrained utility maximization problem of every representative donor with regard to donations d , yields the total amount of donations directly received by every NGO $i = 1, 2$ as

$$D_i(y_i, y_j) = \int_{h \in I} (d_i) dh = \frac{w - 1}{1 + b} + \frac{1}{1 - b^2} y_i - \frac{b}{1 - b^2} y_j, \tag{8}$$

and its output as

$$Q_i(y_i, y_j) = D_i(y_i, y_j)(1 - y_i) = \left(\frac{w - 1}{1 + b} + \frac{1}{1 - b^2} y_i - \frac{b}{1 - b^2} y_j \right) \cdot (1 - y_i). \tag{9}$$

It can be noticed that a higher fundraising effort exerts a *negative* effect on the rival's output and that this negative effect increases with the intensity of competition between projects (expressed by a higher b),

$$\frac{\partial Q_i}{\partial y_j} = -\frac{b}{1 - b^2} (1 - y_i).$$

In addition, since

$$\frac{\partial^2 Q_i}{\partial y_i \partial y_j} = \frac{b}{1 - b^2} > 0$$

for $b \in [0, 1)$, the NGOs' fundraising efforts are *strategic complements*. Hence, if a NGO increases its fundraising effort, there is an incentive for the rival to boost its fundraising effort in response in order to avoid being surpassed in the competition for donations. This basic mechanisms is somehow at the heart of the model results: disclosure turns out to be output-enhancing and NGOs use *mandatory contract disclosure* as a *coordination device* in order to curtail the existing and harmful fundraising competition.⁹

⁶ For simplicity, we abstract from overhead costs, although their inclusion would not change any of the results of our paper.

⁷ As shown in Section 5, our main results extend to a more general output function.

⁸ We write the willingness-to-give as a function of *both* nonprofits' fundraising efforts to indicate that under the assumption of fundraising spillovers σ , we have $\omega_i(y_i, y_j) = w + y_i + \sigma y_j$ with $\sigma \in [0, 1]$. For simplicity, in this section we abstract from spillovers ($\sigma = 0$) and relegate the discussion of its influence to Section 5.

2.3. Managers' contracts in NGOs

The corresponding literature on strategic incentives in for-profit firms (e.g., [Kopel and Pezzino, 2018](#)) demonstrates that in imperfectly competitive markets each firm is inclined to delegate the price or quantity decision to a risk-neutral manager in order to gain an advantageous (Stackelberg leader) position in the market ([Colombo and Scrimatore, 2018](#)). A manager's observable compensation contract is commonly based on a linear combination of verifiable performance measures like profit (i.e. the firm owner's objective) and, e.g., sales revenue, sales quantity, market share, or R&D effort. The owner determines the weights on the corresponding performance measures in order to maximize profit anticipating the manager's reaction. In other words, each owner uses the contract to strategically manipulate the manager's objective function. Optimally manipulating the players' objective functions has been shown to matter in settings beyond for-profit competition (e.g., [White, 2002](#); [Fershtman and Weiss, 1998](#)).

When a NGO determines its fundraising activity y_i (and, implicitly, the time $\tau_i = 1 - y_i$ spent on the project), the aim is to maximize project output Q_i . However, at the noncooperative equilibrium the negative effects of fundraising efforts are not internalized. Delegating the task of fundraising to managers and mandatory disclosure of the managers' compensation contracts provides an opportunity for the NGOs to use these contracts strategically. In contrast to for-profit firms, to evaluate NGO performance, measures like an NGO's output or outcome, revenues from fundraising or program services, or some ratio of these metrics are commonly used (see, e.g., [Lee, 2021](#); [Lee and Nowell, 2015](#)). Executive compensation is associated with these measures. For example, [Baber et al. \(2002\)](#) find that executives of charities are rewarded for spending resources on the charity's mission. [Carroll et al. \(2005\)](#) find that nonprofit executives are rewarded for performance where the latter is measured as revenue per dollar of noncompensation expenditure. [Mesch and Rooney \(2008\)](#) consider fundraising professionals (chief development officers) in nonprofits and find that their performance in terms of money raised has a strong and significant effect on their salary and bonus. [Sedatole et al. \(2013\)](#) show that the largest incentive weight in compensation contracts is put on revenue components that are more consistent with the charitable mission, e.g., donations and program service revenues. They also refer to anecdotal evidence that in practice nonprofits base incentive contracts on an equal combination of financial (e.g. revenues) and non-financial measures (e.g. output).

Hence, taking this evidence into account, in our stylized model we can assume that a manager's compensation is based on NGO output Q_i and the nonprofit's donation revenues D_i that are driven by a manager's fundraising effort y_i . Following the literature on strategic incentives in for-profit settings, the risk-neutral NGO manager i 's linear compensation contract is therefore

$$U_i^m = A_i + B_i[\delta_i Q_i + (1 - \delta_i)D_i], \quad (10)$$

where the fixed wage is denoted by A_i and $B_i \geq 0$ is the weight which is put on the manager's variable compensation component (the term in brackets). The incentive parameter $\delta_i \in \mathbb{R}$ determines the relative weight put on output and on donations and is chosen by each NGO to maximize output Q_i .¹⁰ If $\delta_i < 1$, the manager is rewarded for donation revenues and if $\delta_i > 1$, the manager is provided with disincentives for donations. The fixed wage A_i and the weight B_i are chosen to fulfill the manager's reservation constraint $U_i^m \geq \underline{U}$ (the reservation utility \underline{U} is obtained if the manager accepts a job outside the organization). For simplicity (but without loss of generality), we set $\underline{U} = 0$. A manager accepts the contract if the participation constraint is fulfilled and then selects the fundraising effort to maximize compensation U_i^m .¹¹ Observe that the manager's incentive for choosing a certain level of fundraising effort y_i stems solely from the incentive weight δ_i . Therefore, in line with the focus of our paper, we neglect the values of the fixed wage A_i and the weight B_i in the subsequent analysis.

The timing of the game is as follows. At the first stage, each NGO i simultaneously and non-cooperatively chooses a value for δ_i that maximizes project output Q_i . If contract disclosure is mandated and information about compensation contracts is publicly observable, the choices of δ_i will be revealed to the rival firm before the second stage. Otherwise, the incentive weights are kept secret.¹² At the second stage, each risk-neutral manager decides the level of fundraising effort y_i (and, thus, simultaneously the time spent for the project, $1 - y_i$) to maximize compensation U_i^m given the value of δ_i . Finally, the donors provide funds in favor of the projects proposed by the two NGOs and the output of each NGO is produced.

⁹ In case of high fundraising spillovers, mandatory contract disclosure can cause NGOs to spend *too little* effort on fundraising which causes a reduction of output in equilibrium. See [Section 5](#) for more details.

¹⁰ Note that we follow [Fershtman and Judd \(1987\)](#) and do not restrict the incentive weight to be nonnegative.

¹¹ In equilibrium the reservation constraint is binding since a manager is just paid enough to accept the contract. To justify the use of linear contracts, asymmetric information between the NGO and its manager (e.g., about the donors' willingness-to-give) plays a crucial role (see, e.g., [Fershtman and Judd, 1987](#) for a detailed discussion). Since managers are risk-neutral, risk costs do not play a role, which justifies our focus on the strategic effects of the incentive contracts under fundraising competition.

¹² This raises the question why NGOs do not voluntarily share information about executive contracts. [Schizer \(2020\)](#) argues that, in general, voluntary disclosure of information (e.g., program analyses) is undersupplied since (i) external stakeholders are free to use this information without paying for it, (ii) bad news are not shared, and (iii) nonprofits can point to the high costs of collecting and disclosing information and that they rather spend the money on their mission. Hence, [Schizer \(2020\)](#) recommends to mandate disclosure, at least for large nonprofits. In [Section 5](#), we show that if there is a negative dependence of disclosing executive contracts and the donors' willingness-to-give, then NGOs might get stuck in a *no disclosure equilibrium*. In this case, mandating disclosure would serve as a coordination device that might ultimately lead to higher outputs of the NGOs.

3. The effect of executive contract disclosure

The main economic effect of mandating disclosure of contract information can be analyzed by contrasting two alternative scenarios. In the benchmark scenario of pre-2008, disclosure is not mandated and contract information is kept private. We label this scenario by N (for no disclosure). In contrast, if disclosure of managerial contracts is mandated for all firms, contract information is publicly available and NGOs use contracts strategically. In this case, each NGO induces its manager to deviate from output maximization to influence the behavior of the other NGO organization. We label this as case D (for disclosure by all NGOs).

3.1. The benchmark of no contract disclosure

If contract disclosure is not mandated and NGOs keep contract information secret, then there is no reason for a NGO to manipulate its risk-neutral manager's contract in order to influence rival behavior (as this manipulation is not observable by the rival). Katz (1991) argues that an unobservable incentive contract has no strategic effects when residual claimant contracts are feasible, the parties are risk-neutral and have the same disutility of effort, and are symmetrically informed at the time of contracting. In case of agent moral hazard, residual claimancy solves the issue. It is easy to see that these conditions are fulfilled in our setting, so that unobservable managerial contracts in NGO competition lose their strategic value.¹³ The consequence for our setting is that NGOs will set $\delta_i = 1$ since a distortion from output maximization is only valuable if it changes the behavior of the rival NGO. As a result, managers will just select their fundraising efforts to maximize the NGO's output therefore yielding an equilibrium effort for both NGOs equal to

$$y^N = 1 - \frac{w(1 - b)}{2 - b} \tag{11}$$

with project output

$$Q^N = \frac{w^2(1 - b)}{(1 + b)(2 - b)^2}. \tag{12}$$

Note that $\partial y^N / \partial b > 0$ and $\partial Q^N / \partial b < 0$. Hence, when the two NGO projects are closer substitutes (higher b), the equilibrium fundraising effort rises whereas output suffers a reduction since time spent on fundraising is lost for working on the project.

3.2. Mandatory contract disclosure

When the managers' contracts are publicly disclosed, the NGOs have an interest to strategically manipulate their executives' contracts anticipating that each of the rival managers will set the fundraising effort to maximize the personal payoff U_i^m . This yields the following best-reply function of a manager working for NGO $i = 1, 2$

$$y_i(y_j) = R_i^D(y_j) = \frac{1}{2\delta_i} + \frac{(1 - b)(1 - w) + by_j}{2}. \tag{13}$$

The best-reply (13) depends on b and on the baseline donors' willingness-to-give toward the project w . Its intercept is decreasing in δ_i . Solving the managers' first order conditions yields the fundraising effort levels of NGO $i = 1, 2$,

$$y_i = \frac{\delta_i(b + \delta_j(2 - b - b^2)(1 - w)) + 2\delta_j}{\delta_1\delta_2(4 - b^2)}.$$

Plugging these expressions into NGO outputs (9) and solving the first order conditions for (δ_i, δ_j) yields, for every $i = 1, 2$,

$$\delta_i^D = 1 + \frac{(1 - b)b^2w}{4 - b(b + 2) - b^2w(1 - b)}. \tag{14}$$

Since the second term on the right-hand side of (14) is always nonnegative, it follows that $\delta_i^D > 1$ regardless of the values of $b \in [0, 1)$. Therefore, in equilibrium each NGO offers its manager a contract with a *positive incentive weight* on output but a *negative incentive weight* on donations. In other words, managers are given incentives for providing NGO output, but are given disincentives for fundraising efforts.¹⁴

Given the equilibrium bonus rates (14), the fundraising effort and output of every NGO are obtained as,

$$y^D = y^N - \frac{(1 - b)b^2w}{8(1 - b) + b^3} \tag{15}$$

¹³ In the same vein, Bagwell (1995) studies how much commitment value is lost if the first move of a rival is only imperfectly observed. He shows that a first-mover advantage is eliminated if there is even a *slight amount* of uncertainty about the first mover's decision. Again, full and perfect observability is key for commitment to work.

¹⁴ Note that if projects are independent ($b = 0$), managers are induced to maximize output, i.e. $\delta_i^D = 1$. If the managers' contracts cannot be used as a device to influence the behavior of the rival NGO since the rival NGO acts in a different market segment, there is no reason to distort a manager's incentive away from output maximization.

$$Q^D = Q^N + \frac{b^3 w^2 (1-b)(4-3b)}{(b+1)(8(1-b)+b^3)^2}. \quad (16)$$

Since the second terms on the right-hand side of both (15) and (16) are nonnegative, we can easily conclude that $y^D < y^N$ and $Q^D > Q^N$. Thus, each NGO manipulates the manager's contract strategically to reduce fundraising activity and this results in an increase in project outputs.¹⁵

A straightforward comparative statics shows that $\partial y^D / \partial b > 0$, i.e. the fundraising effort chosen by an executive is higher the closer the NGOs' projects. If we interpret the rate of projects' substitution b as a measure of competition, then we can conclude that an increase in competition between NGOs leads to an increase in fundraising efforts and a reduction in time spent on the projects.¹⁶ We further find that $\partial Q^D / \partial b < 0$ and that equilibrium donations are decreasing in b for $b < 0.6362$ and increasing otherwise. Concerning the influence of NGO competition on the incentive weight, we have $\partial \delta_i^D / \partial b > 0$ for $b < 0.778$ and $\partial \delta_i^D / \partial b < 0$ otherwise. Although the manager is always discouraged from fundraising, if the projects are very close substitutes, the disincentive for fundraising is reduced.¹⁷ For $b = 0$, we have $y^N = y^D$. The difference $y^N - y^D$ between the fundraising efforts increases in the "closeness" b of the NGOs' projects until it reaches a maximum at $b \approx 0.816$ and then decreases and converges towards zero if b gets closer to 1. The resulting equilibrium outputs decrease for increasing proximity of the proposed projects expressed by b . The maximum output advantage measured by $Q^D - Q^N$ occurs for $b \approx 0.866$, i.e. when the projects are perceived as rather close substitutes by the donors.¹⁸

Thus, a first conclusion that can be drawn here is that, when disclosure of managerial contract information is mandated, NGOs use observable managerial incentive contracts strategically as a *coordination device*. As a result, fundraising activity is reduced and yields an increase in individual and total project output. The advantage is particularly pronounced when projects are sufficiently close substitutes (b sufficiently high, but not too high). Hence, coordination is particularly beneficial for output when fundraising competition is *sufficiently intense* and fundraising activity high. Therefore, under high competition in the donation market, NGOs can benefit from the strategic use of executives' contracts that are mandated to be publicly revealed to rivals.¹⁹

We summarize our findings in the next proposition.

Proposition 1. *Absent fundraising spillovers, the mandatory disclosure of executive contracts has a beneficial effect for NGOs since fundraising efforts are reduced and project outputs are increased when compared to the benchmark case where contract information is kept private. Hence, we have $y^D < y^N$ and $Q^D > Q^N$.*

These results are illustrated graphically below. Notice that in Fig. 1, contract disclosure has the effect of moving both NGOs' upward-sloping best-replies (13) inwards (i.e. R_1^N to R_1^D and R_2^N to R_2^D), causing the fundraising equilibrium efforts of both NGOs to decrease (compare points D and N). Since fundraising activities exert a negative externality on NGOs' outputs and, hence, higher outputs are represented by iso-output contours which are closer to the origin, the output reached in D is higher for both NGOs than in N .

In the Appendix, we demonstrate that the increase in output generated by the mandated disclosure of executives' contracts is also beneficial in terms of social welfare. Hence, our findings in this section demonstrate that if the NGOs compete for funds for the same project, then mandating contract disclosure of managerial compensation can in fact reduce fundraising competition, lead to higher output and, in turn, lead to an increase in welfare.

4. Choice of projects

We have illustrated the effects of mandating contract disclosure if firms compete for funds for *similar and given types of the project*. However, NGOs commonly can choose the type of project they want to pursue. We now extend our analysis from above by exploring the effect of contract disclosure if the choice of project type made by every NGO is endogenized. As in Aldashev et al. (2020a), we can simply assume that NGOs have to decide between two types of projects $k = A, B$. These types are meant to capture the differentiation of NGO projects along various dimensions, either in terms of the sector of intervention (i.e. education/poverty alleviation), geographic (i.e. projects in the same/different countries or regions within a country), or in the technology used (relying more/less on local inputs and staff). We want to analyze if the requirement of contract disclosure induces the NGOs to a more or less efficient choice of project types.

¹⁵ To illustrate, for $b = 0.75$ and $w = 1.5$, we obtain $\delta_i^D = 1.1222$. For the fundraising efforts, $y_i^D = 0.6129 < 0.7 = y_i^N$. The corresponding outputs are $Q_i^D = 0.24617 > 0.20571 = Q_i^N$.

¹⁶ We refer the reader to Castaneda et al. (2008) and Thornton (2006) for empirical evidence.

¹⁷ The question if increased competition leads to higher or lower effort of the manager has been treated extensively in the for-profits literature. See for example, Schmidt (1997) and Raith (2003).

¹⁸ In Section 5, it is shown that when the fundraising spillovers are sufficiently high, the positive effect of mandatory disclosure on output can be overturned, so that $Q^D < Q^N$. The rationale underlying this result is that when spillovers are high and fundraising campaigns produce an informative and "awakening" effect on donors, they give rise to a positive externality for the whole donation market. The free-riding of rival firms on the fundraising effort of a nonprofit leads to curtailed efforts of the whole nonprofit industry.

¹⁹ This result continues to hold under sufficiently low fundraising spillovers; see Section 5.

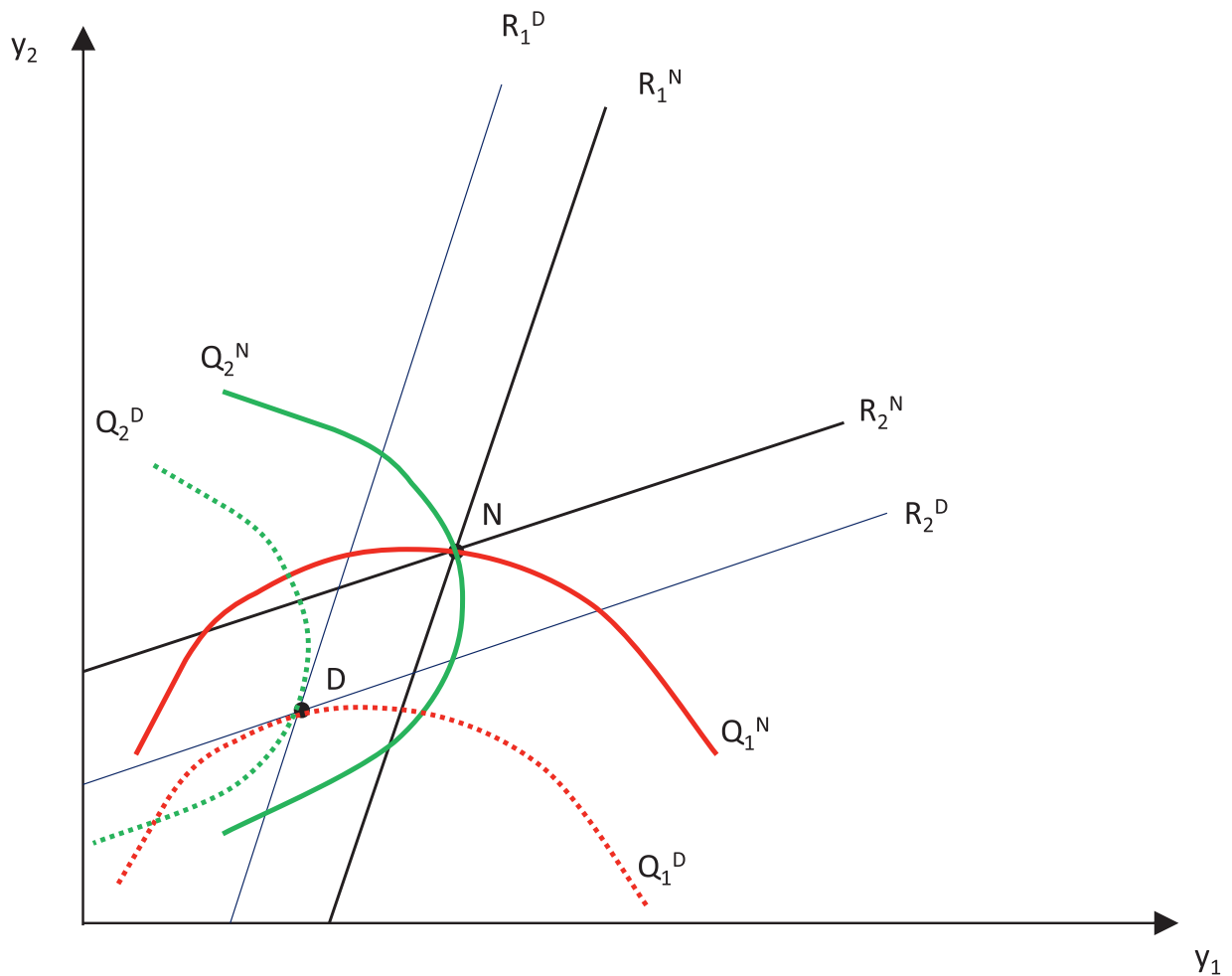


Fig. 1. The NGOs' best-replies without mandated disclosure (R_1^N and R_2^N) and with mandated disclosure (R_1^D and R_2^D) of managerial compensation contracts. Fundraising efforts are strategic complements and yield negative externalities. Equilibrium fundraising efforts are given by the intersection points N and D. Red = NGO 1's iso-output contours; Green = NGO 2's iso-output contours. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

To make the analysis as simple as possible, let us assume that if both NGOs select the same type of project (i.e., AA or BB), the donors perceive giving to the two NGOs' projects as *imperfect substitutes* and the parameter b , which captures the degree of substitutability of giving to the two NGOs, takes a value $b \in (0, 1)$. Contrarily, if each NGO selects a project of a different type (i.e., AB or BA), the donors perceive them as *independent* and the two NGOs operate as if they were each in a monopolistic donation market (with $b = 0$). This assumption is intentionally extreme, but assuming intermediate levels of b when NGOs select different project types would not alter the substance of our analysis. In addition, let us assume that every project type $k = A, B$ has a different baseline willingness-to-give w_k , where, as assumed in the previous sections, $1 < w_k < 2$.

In our extended game, the sequence of decisions is as follows. At stage 1, each NGO (simultaneously and non-cooperatively) chooses its type of project, A or B to maximize output. The remaining stages are like in the previous section. At stage 2, NGOs design the managers' contracts strategically under mandatory contract disclosure. At stage 3, managers determine their fundraising effort levels to maximize their compensation. Finally, donors make their donations, NGOs collect them and the selected projects are carried out.²⁰

4.1. Choice of projects under the benchmark of no disclosure

Consider stage 1, in which every NGO decides on the type of projects, A or B. Each NGO compares the output obtained when the two NGOs choose the same type of project (*project clustering AA or BB*) with the output obtained when the two

²⁰ We purposely assume that the choice of project types always remains in the hands of NGOs and is never delegated to managers. This is in line with what is usually observed in practice, where the decisions concerning their core mission remain appanage of the owners.

NGOs choose different project types (*project specialization AB or BA*). Under project clustering, the projects are perceived as imperfect substitutes and the output is as in (12),

$$Q_{kk}^N = \frac{w_k^2(1 - b)}{(1 + b)(2 - b)^2}, \tag{17}$$

where $k = A$ or B . Under project specialization in which NGO 1 selects project type A and NGO 2 selects project type B (or vice versa), the projects are perceived as distinct and with $b = 0$ we get

$$Q_{kl}^N = \frac{w_k^2}{4} \tag{18}$$

where $k, l = A$ or B and $k \neq l$. Note that since in the latter case the two NGOs are engaged in different project types, they act like monopolists on these projects. The NGOs' choice of project types at stage 1 can be represented by the following normal form game:

1 \ 2	A	B
A	Q_{AA}^N, Q_{AA}^N	Q_{AB}^N, Q_{BA}^N
B	Q_{BA}^N, Q_{AB}^N	Q_{BB}^N, Q_{BB}^N

NGOs' Choice of Project Types

To determine the best-response of each NGO, consider without loss of generality NGO 1. Suppose the rival NGO 2 has chosen the project of type A . In this case, by (17) and (18), NGO 1's choice of project type reduces to the comparison

$$\frac{2(1 - b)}{(2 - b)(1 - b^2)^{\frac{1}{2}}} w_A \geq w_B.$$

$X^N(b)$

Similarly, suppose NGO 2 has chosen the project of type B . Then, NGO 1 compares

$$\frac{2(1 - b)}{(2 - b)(1 - b^2)^{\frac{1}{2}}} w_B \geq w_A. \tag{19}$$

$X^N(b)$

Consequently, for the benchmark case of no disclosure of contract information we have the following choices of project types in equilibrium (see also Aldashev et al., 2017).

Proposition 2. Let $X^N(b) = 2(1 - b)/((2 - b)(1 - b^2)^{\frac{1}{2}})$. Then, we have the following result.

(i) AA is the unique Nash equilibrium in the choice of project types if

$$X^N(b)w_A > w_B \tag{20}$$

(ii) BB is the unique Nash equilibrium if

$$X^N(b)w_B > w_A \tag{21}$$

(iii) AB and BA are Nash equilibria in pure strategies in the choice of project types if²¹

$$X^N(b)w_A \leq w_B \quad \text{and} \quad X^N(b)w_B \leq w_A.$$

Fig. 2 illustrates the basic mechanism underlying the results of Proposition 2 where the lines $X^N(b)w_A = w_B$ and $X^N(b)w_B = w_A$ are denoted by (AA^N) and (BB^N) respectively. When the donors' willingness-to-give to the two different project types, w_A and w_B , are extremely different, either in favor of project type A or project type B , the two NGOs prefer to cluster their projects (either in AA or in BB respectively). Clustering raises the level of fundraising activity, regardless of the intensity of the competitive pressure b . In contrast, when the donors' willingness-to-give to the two project types are not too different (which occurs in the region around the 45° line), the two NGOs will be inclined to select different project types in equilibrium to escape the intensity of fundraising competition, the more so the higher is the level of b .

²¹ Case (iii) includes also a mixed-strategy equilibrium.

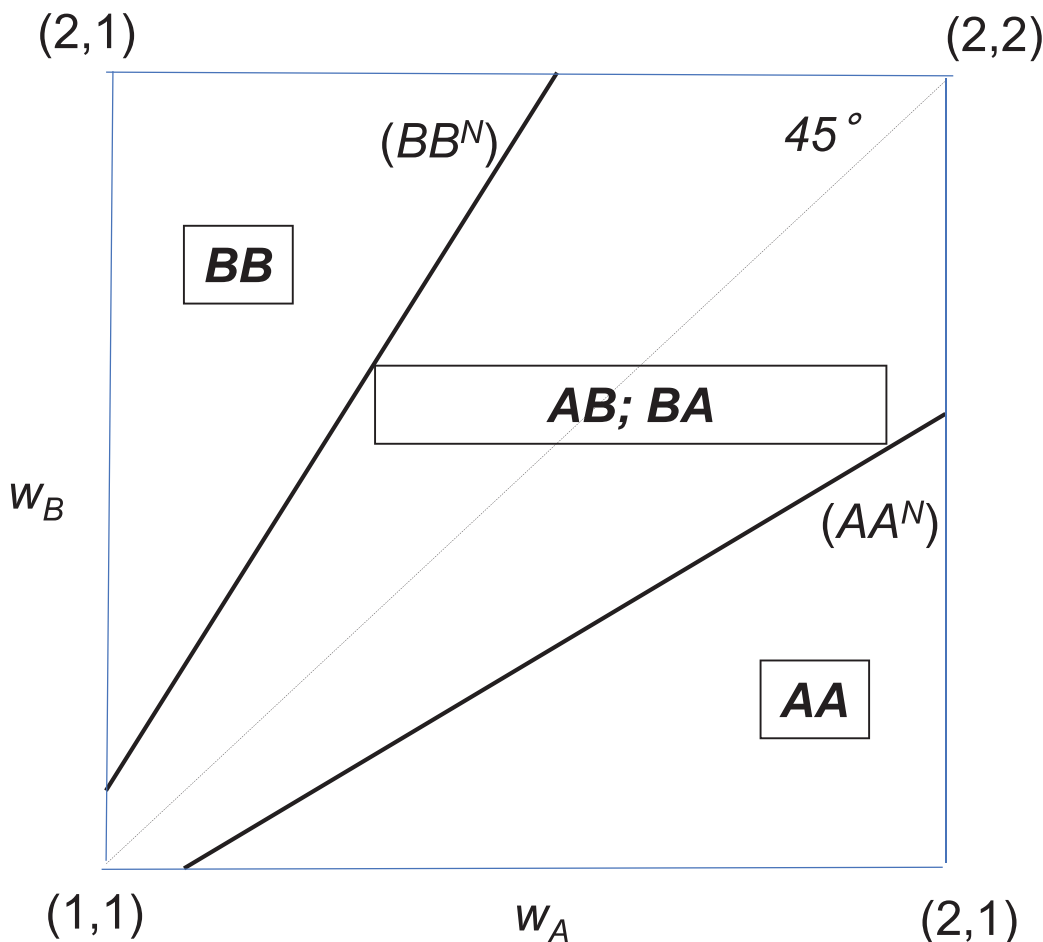


Fig. 2. Equilibrium choice of project types under no disclosure. Project clustering (AA or BB) occurs for sufficiently different values of donors' willingness-to-give, project specialization (AB or BA) for similar values.

4.2. Choice of project types under mandatory contract disclosure

Our analysis on mandatory contract disclosure and the associated strategic use of managerial compensation contracts raises the question if contract disclosure provides an *incentive* or a *disincentive* for NGOs to cluster in the same project type. Using a standard backward induction procedure, we assume that when both NGOs decide on the type of project ($k = A, B$) they anticipate that they can use their executive's contract (10) strategically and in turn can affect the intensity of fundraising activity.

Hence, under project clustering, analogously to the case of (14), the NGOs choose

$$\delta_{kk}^D = 1 + \frac{(1 - b)b^2w_k}{4 - b(2 - b) - b^2w_k(1 - b)}, \tag{22}$$

for $k = A, B$. Thus, following (15) the fundraising effort of every NGO will be

$$y_{kk}^D = 1 - \frac{2w_k(1 - b)}{4 - b(b + 2)},$$

with corresponding output (see (16))

$$Q_{kk}^D = \frac{2(2 - b^2)(1 - b)w_k^2}{(b + 1)(4 - b(b + 2))^2}. \tag{23}$$

Under project specialization (AB or BA), the NGOs work on completely different project types and $b = 0$. Obviously, as each NGO does not face a rival, it does not make any sense to strategically distort a manager's incentive away from output maximization. Therefore, $\delta_{kl}^D = 1$ for $k, l = A, B$ and $k \neq l$, as can be directly deduced from (22). Therefore, the fundraising

effort exerted in equilibrium by every NGO is

$$y_{kl}^D = 1 - \frac{w_k}{2}, \tag{24}$$

and the associated outputs are

$$Q_{kl}^D = \frac{w_k^2}{4}. \tag{25}$$

To determine the (subgame-perfect) Nash equilibrium choice of project types of every NGO, consider again NGO 1. Suppose its rival has selected a type-A project. In this case, re-arranging expressions (23)–(25), NGO 1’s choice at the type selection stage reduces to the comparison

$$\underbrace{2^{\frac{3}{2}}(2 - b^2)^{\frac{1}{2}}(1 - b^2)^{\frac{1}{2}}}_{X^D(b)} w_A \geq w_B. \tag{26}$$

A similar result with the roles of w_A and w_B swapped can be obtained for a type-B project. Our next Proposition summarizes the equilibrium choice of project types.

Proposition 3. Define $X^D(b)$ as in (26). Then, under mandatory contract disclosure, we have that:

(i) AA is the unique Nash equilibrium choice of project types if

$$X^D(b)w_A > w_B. \tag{27}$$

(ii) BB is the unique Nash equilibrium choice of project types if

$$X^D(b)w_B > w_A. \tag{28}$$

(iii) AB and BA are Nash equilibrium choices of project types in pure strategies if

$$X^D(b)w_A \leq w_B \quad \text{and} \quad X^D(b)w_B \leq w_A.$$

Note that $X^D(b) > X^N(b)$ for any value of $b \in (0, 1)$. As a consequence, the *specialization area* in the admissible region $(w_A, w_B) \in (1, 2) \times (1, 2)$ shrinks compared to the case of no contract disclosure, whereas the *project clustering area* widens. This is depicted in Fig. 3, where the dashed lines labeled (AA^D) and (BB^D) represent the boundaries between the regions of project specialization and project clustering under mandatory contract disclosure. The dashed lines are closer to the 45°-line than the bold lines (AA^N) and (BB^N) obtained for the benchmark case of no disclosure, indicating that the area of project specialization shrinks. A simple comparison of the results of Propositions 2 and 3 leads to our next Proposition.

Proposition 4. Project clustering (AA or BB) is more likely to occur under contract disclosure (D) than under no disclosure (N), thus implying that project specialization (AB or BA) is less likely to occur under contract disclosure than under no disclosure.

The proof of this Proposition follows directly from checking that $X^D(b) - X^N(b) \geq 0$ for any $b \in [0, 1)$, with the equality holding only for $b = 0$.

Intuitively, the finding illustrated by Fig. 3 simply reflects the influence of mandatory disclosure of compensation contracts that are used strategically to alter the decisions of the rival NGO on the choice of project types. As we have shown in the previous section, the disclosure of contract reduces the negative impact of fundraising competition. Consequently, *ceteris paribus*, it makes the trade-off between project specialization and project clustering more favorable to *project clustering*. In the figure, the dashed lines AA^D and BB^D under disclosure are closer to the 45°-line than the bold lines AA^N and BB^N under no disclosure. Consequently, the region of project specialization is smaller under disclosure.

In the next section, we study how this distortion on the choice of projects caused by the contract disclosure influences social welfare. As has already been shown in a different model setting by Aldashev et al. (2020a), in comparison to the welfare-maximizing choice of projects made by a social planner, the choice of projects made by NGOs at the Nash equilibrium is, not surprisingly, *suboptimal*. More precisely, it is characterized by *excessive clustering* if compared to the welfare-maximizing choice of project types. This raises the question if mandated contract disclosure worsens or improves the situation.

4.3. Welfare analysis

In this section, we aim to provide a normative analysis of the model with endogenous project selection. The notion of social welfare adopted here is the sum of donors’ utilities and NGOs’ outputs:

$$SW = \int_{h \in I} U_i \, dh + Q_1(y_1, y_2) + Q_2(y_1, y_2),$$

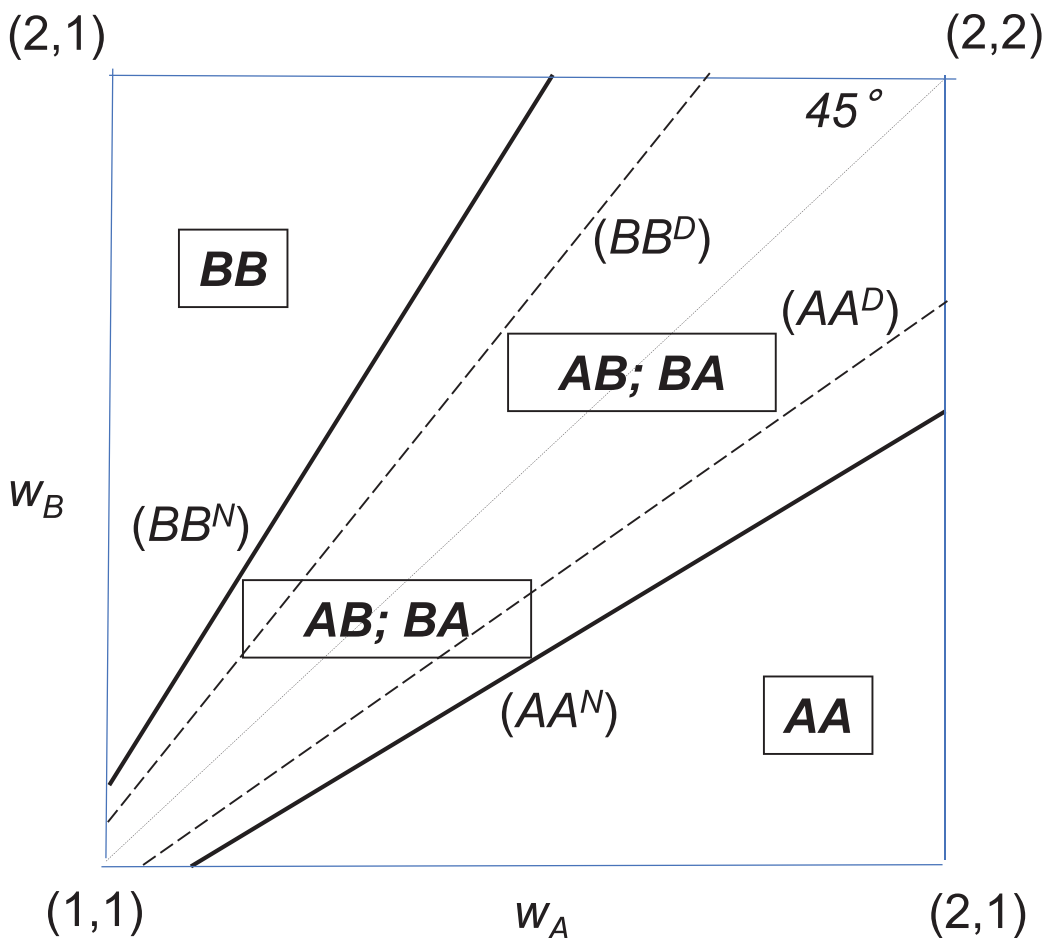


Fig. 3. Project clustering and project specialization without disclosure (N) and with mandatory contract disclosure (D).

where the utility of donors is taken at their initial levels, i.e. before the fundraising efforts of NGOs have altered the donors' willingness-to-give. In our analysis we have to consider three alternative scenarios which refer to the three possible choices of project types made by the NGOs at stage 1: (i) Project specialization (AB or BA); (ii) Project clustering in A (AA); or (iii) Project clustering in B (BB).

Consider first case (i) of project specialization and suppose that, without loss of generality, NGO 1's project is of type A and NGO 2's project is of type B.²² The social welfare is, in this case,

$$SW^{AB} = m + (w_A - 1)D_1(y_1) + (w_B - 1)D_2(y_2) - \sum_{i=1}^2 \left[\frac{1}{2} (D_i(y_i))^2 - D_i(y_i)(1 - y_i) \right] \tag{29}$$

where D_1, D_2 are the donations collected by the two NGOs. Thus, from the first-order condition for a maximum of (29), the socially optimal level of fundraising for NGO 1 is $y_1^{AB^*} = (2 - w_A)/3$. Similarly, for project B operated by NGO 2, we get $y_2^{AB^*} = (2 - w_B)/3$.

The corresponding optimal value of social welfare under project specialization scenario (AB) (and also (BA)) is, therefore,

$$SW_{AB}^* = m + \frac{2(w_A^2 + w_B^2) - 2(w_A + w_B) + 1}{3} \tag{30}$$

It is easy to see that in the noncooperative equilibrium where NGOs choose their fundraising efforts to maximize their outputs, there is too much fundraising as compared to the social optimum choice of fundraising. For example, the corresponding first-order condition for NGO 1 at the noncooperative equilibrium yields $y_1^{AB} = (2 - w_A)/2 > y_1^{AB^*}$.

²² Recall that in this case $b = 0$, so that the interaction terms in the donors' utility function vanish.

Consider next the two cases (ii) and (iii) of project clustering where both NGOs either choose project type A or project type B (AA or BB). Denoting $y = (y_1, y_2)$, social welfare is

$$SW_{kk} = m + (w_k - 1)D_1(y) + (w_k - 1)D_2(y) - \sum_{i=1}^2 \left[\frac{1}{2} (D_i(y))^2 - D_i(y)(1 - y_i) \right] - bD_1(y)D_2(y)$$

As a benchmark, let us first consider the choice that a planner would make in both stages (*first best*). The *optimal* values of fundraising are obtained as $y_1^{kk^\circ} = y_2^{kk^\circ} = (2 - w_k)/3$ and the resulting maximum social welfare under clustering is

$$SW_{kk}^\circ = m + \frac{(1 - 2w_k)^2}{3(b + 1)}. \tag{31}$$

We can now compare the social welfare in cases (i)–(iii). Since $\partial SW_{kk}^\circ / \partial w_k > 0$ for $2 > w_k > 1$, we have that $SW_{AA}^\circ \geq SW_{BB}^\circ \Leftrightarrow w_A \geq w_B$. Also, for $b = 0$, $SW_{AA}^\circ > SW_{AB}^\circ \Leftrightarrow w_A > w_B$, and $SW_{BB}^\circ > SW_{AB}^\circ \Leftrightarrow w_B > w_A$.

Therefore, when competition between NGOs is absent and both NGOs operate in monopolistic niches ($b = 0$), clustering is socially efficient and the optimal non-clustering area reduces to the 45°-line where $w_B = w_A$. In addition, when projects are clustered, the welfare decreases with b , as $\partial SW_{kk}^\circ / \partial b = -(1 - 2w_k)^2 / 3(b + 1)^2 < 0$.

Moreover, using (30) and (31), it is straightforward to see that, in general, at the *optimal fundraising choice*, $SW_{AA}^\circ > SW_{BA}^\circ$ for $a(b) + X^\circ(b)w_A > w_B$. Similarly, $SW_{BB}^\circ > SW_{AB}^\circ$ for $a(b) + X^\circ(b)w_B > w_A$.²³

Notice that for $b = 0$, the intercept $a(b)$ becomes equal to zero and the slope $X^\circ(b) = 1$. Thus, for this extreme case, clustering in AA (BB) is socially optimal for $w_A > w_B$ ($w_B > w_A$). As the intensity of competition b increases, the intercept $a(b)$ rises from 0 to 0.5, while the slope $X^\circ(b)$ decreases from 1 to 0. Consequently, the two lines separating the clustering and the specialization areas under social welfare maximization, (AA°) and (BB°), rotate outwards. The area of project specialization broadens, whereas the two zones favorable to clustering in project A or project B, shrink. Notice also that for $b \geq 0.8$ the socially advantageous clustering area disappears completely.²⁴

Fig. 4 contrasts the areas of clustering under *no contract disclosure* (bounded by AA^N and BB^N), *contract disclosure* (bounded by AA^D and BB^D), and under *social welfare maximization* (bounded by the dashed-dotted lines AA° and BB°).

If we compare the areas of the social optimum with the choice made by the NGOs at the Nash equilibrium under no contract disclosure, we can first observe that for any level of $b \in (0, 1)$ and for all admissible values of the willingness-to-give for the two projects (i.e. for $w_k \in (1, 2)$), we have

$$X^N(b)w_A > a(b) + X^\circ(b)w_A.$$

Therefore, the NGOs have an inefficiently high tendency to cluster at any level of fundraising competition, the more so the higher the intensity of competition. As we already know that $X^D(b) > X^N(b)$ for any value of $b \in (0, 1)$, it immediately follows that for all $w_k \in (1, 2)$ and $b \in (0, 1)$, we have

$$a(b) + X^\circ(b)w_A < X^N(b)w_A < X^D(b)w_A.$$

Hence, the *excessive clustering behavior* can, for certain range of the parameters, be exacerbated by a regulatory mandate to disclose the details of managerial compensation contracts. In particular, the inefficient choice of project types in the form of excessive clustering may occur if NGOs would voluntarily choose specialized projects but under the mandate to disclose managerial contract information switch to project clustering. This raises the question how a mandate to disclose managerial contract information affects social welfare. Our next Proposition summarizes our findings.

Proposition 5. *If NGOs choose the type of projects non-cooperatively, then the mandatory disclosure of managerial compensation contracts causes (i) a welfare gain when donors' willingness-to-give toward projects differ significantly; (ii) a welfare loss when donors' willingness-to-give toward projects are neither very different nor very close.*

The *rationale* of this result starts with the observation that delegating fundraising activities to managers results in lower fundraising efforts in the industry under observable compensation contracts. The mandate to make contract information public serves as a coordination device to decrease fundraising efforts. As a consequence, fundraising competition is reduced. This then leads to a higher incentive, *ceteris paribus*, toward project clustering, whenever clustering offers NGOs a larger provisions of funds from donations in comparison to project specialization. As a testable hypothesis, our result would therefore predict that the introduction of mandatory disclosure of managerial NGO compensation contracts has led NGOs to compete more intensively for the same projects instead of allocating their fundraising activities towards distinct projects.

Regarding the effect of a mandate to disclose managerial contracts on social welfare, our findings reported in the Proposition point to the following conclusion. First, we know that if firms compete for the same project, social welfare is higher under mandatory contract disclosure (see the Appendix), again because value-reducing fundraising competition can be moderated. Second, from our analysis above we also know that if the baseline willingness-to-give w_A is sufficiently different from the baseline willingness-to-give w_B , then NGOs would prefer project clustering. In Fig. 4, this is captured by the areas below

²³ In the expression, $a(b) \equiv (1 + b - \sqrt{1 - b^2}) / (2(1 + b))$ and $X^\circ(b) \equiv \sqrt{1 - b^2} / (1 + b)$.

²⁴ This can be seen by solving the equation $\min w_B = 1 = \frac{1+b-\sqrt{1-b^2}}{2(1+b)} + \frac{\sqrt{1-b^2}}{1+b} \cdot \max w_A$ for b which yields $b = 4/5$.

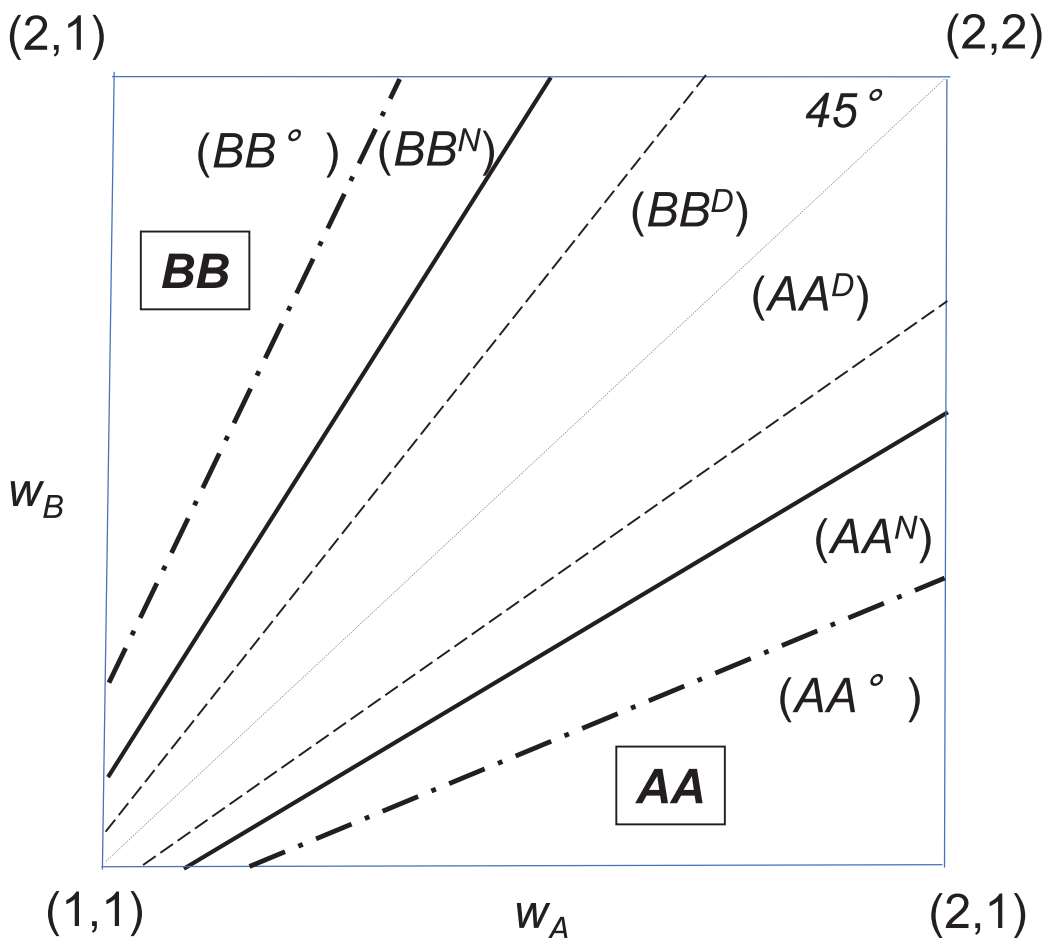


Fig. 4. Socially optimal versus decentralized choice of project types: without contract disclosure (N) and with mandatory contract disclosure (D), inefficient project clustering occurs compared to the socially optimal choice of project types (superscript^o). The region where project clustering is socially optimal is smaller than under decentralized choice of project types.

the bold line that marks region AA^N and above the bold line that marks the region BB^N . Here, project clustering would be the NGOs' preferred choice with and without a mandate to disclose managerial contracts. However, mandating disclosure of managerial contract information improves welfare. This then shows part (i) of the Proposition. Concerning part (ii) of the Proposition, consider a situation where a mandate to disclose managerial contracts leads to a switch from project specialization to project clustering since NGOs use their public contract information as a coordination device to reduce fundraising competition. Such a scenario is captured in Fig. 4 by combinations of (w_A, w_B) in the two areas between the bold lines and the dashed lines (i.e. between AA^N and AA^D , BB^N and BB^D). If there is no disclosure mandate, then the NGOs preferred choice is to focus on specialized (i.e. different) projects but with mandated disclosure NGOs choose the same projects. Comparing social welfare obtained for these two cases, we find that mandating disclosure of managerial contract information leads to a welfare loss.²⁵

5. Model extensions

5.1. The influence of fundraising spillovers

We now return to our baseline setting where each NGO engages in a given project and these projects are considered as imperfect substitutes by the donors. Let us assume now that every donor's willingness-to-give to each NGO project $i = 1, 2$

²⁵ If contract disclosure is mandated and NGOs choose the same type of project $k \in \{A, B\}$, social welfare is given by $SW_{kk}^D = m + [w_k(2 - b^2)(2(b^2 + 2b - 4) + w_k(10 - b(b + 8)))] / (b + 1)(b^2 + 2b - 4)^2$. If contract disclosure is not mandated and NGOs choose different projects, social welfare is $SW_{AB}^N = SW_{BA}^N = m + [5(w_A^2 + w_B^2) - 4(w_A + w_B)] / 8$. Comparing these expressions under the corresponding restrictions described above, we find that $SW_{AB}^N > SW_{kk}^D$. Details of the calculations are available upon request from the authors.

is, differently from (7), not only affected by the fundraising effort y_i of NGO i , but also by the fundraising effort y_j exerted by the rival NGO, as

$$\omega_i(y_i, y_j) = w + y_i + \sigma y_j. \tag{32}$$

Here w denotes again the baseline willingness-to-give and $\sigma \in [0, 1]$ represents *fundraising spillovers* that capture how much a NGO's fundraising activity increases the donors' willingness-to-give to the rival project $j \neq i$. A high spillover rate σ indicates that the fundraising technology is not very sophisticated and donors are only imperfectly targeted by NGO organizations through their fundraising activity. The opposite occurs for σ close to 0.

Solving the constrained utility maximization problem of every representative donor yields the donation received by every NGO $i, j = 1, 2$ with $j \neq i$ as

$$D_i(y_i, y_j) = \left(\frac{w-1}{1+b} + \frac{1-b\sigma}{1-b^2} y_i + \frac{\sigma-b}{1-b^2} y_j \right),$$

with the associated output

$$Q_i(y_i, y_j) = \left(\frac{w-1}{1+b} + \frac{1-b\sigma}{1-b^2} y_i + \frac{\sigma-b}{1-b^2} y_j \right) (1-y_i).$$

Note that with spillovers, the sign of the effect of a rival's fundraising activity on the output of a NGO depends on the intensity of competition in relation to the spillover rate σ ,

$$\frac{\partial Q_i}{\partial y_j} = \frac{\sigma-b}{1-b^2} (1-y_i).$$

In contrast to the situation without spillovers, this influence can be *positive* if spillovers are high, i.e. $\sigma > b$. In other words, every NGO's fundraising effort exerts a positive (negative) externality on its rival when the level of the spillover is sufficiently high (sufficiently low). At the same time, since

$$\frac{\partial^2 Q_i}{\partial y_i \partial y_j} = \frac{b-\sigma}{(1-b)(b+1)},$$

and $b \in (0, 1)$, NGOs' fundraising efforts are *strategic substitutes* if $\sigma > b$ and are, conversely, *strategic complements* if $\sigma < b$. This can be explained by saying that when the fundraising spillovers are *very intense*, an increase of the rival's fundraising activity causes a reduction of the fundraising of a NGO, with the purpose to save in costly fundraising activity. When, in contrast, the fundraising spillovers are not very intense, we are back to the previously studied situation where an increase in the rival's fundraising effort triggers a more intense effort in response. Below we analyze the influence of spillovers on the NGOs' choice of fundraising efforts and resulting outputs under no disclosure and under mandatory disclosure. For simplicity (but without loss of generality), we set the baseline willingness-to-give $w = 1$ for the remainder of this subsection.

Without contract disclosure, since managerial compensation contracts are kept secret, NGOs' entrepreneurs have no reason to strategically manipulate the managers' choices. The optimal bonus rates are $\delta_i = 1$ for $i = 1, 2$ and the the managers are induced to exert fundraising effort in order to maximize the NGOs' outputs. This yields

$$y^N = \frac{1-b\sigma}{2-b+\sigma(1-2b)},$$

with project outputs equal to

$$Q^N = \frac{(1+\sigma)^2(1-b)(1-b\sigma)}{(1+b)(2-b+\sigma(1-2b))^2}.$$

Obviously, these expressions reduce to (11) and (12) respectively if $\sigma = 0$ and $w = 1$. Note that $\partial y^N / \partial \sigma < 0$ as expected. Free-riding leads to less individual efforts as a NGO benefits from the fundraising effort of the rival NGO. The impact of σ on output is ambiguous, since $\partial Q^N / \partial \sigma < 0$ only when b is sufficiently large, whereas $\partial Q^N / \partial \sigma > 0$ occurs otherwise.

Alternatively, when contract information is publicly disclosed, both NGOs' entrepreneurs use the executives' contracts strategically to influence the choices of output. More precisely, each NGO uses the contract to induce the fundraising effort a Stackelberg leader would choose. The managers choose the efforts to maximize their payoffs. This yields the following best-reply function for each NGOs' managers $i = 1, 2$

$$y_i(y_j) = \frac{1}{2\delta_i} + \frac{(b-\sigma)}{2(1-b\sigma)} y_j. \tag{33}$$

It can be noticed that the slopes of the best-replies are determined by the difference between b and σ . Again, the intercept is decreasing in δ_i .

The equilibrium value of the bonus rate is obtained as

$$\delta_i^* = 1 + \frac{(1-b)(b-\sigma)^2(1+\sigma)}{(2-b+\sigma(1-2b))(2-b^2-\sigma(2b+\sigma(1-2b^2)))}, \tag{34}$$

which coincides with (22) for $\sigma = 0$ and $w = 1$. Notice that since the second term on the right-hand side is always non-negative, we have $\delta_i^* \geq 1$ for all values of b and σ . Therefore, each NGO provides its manager with a positive incentive in terms of output and a negative incentive for donations. Given the equilibrium incentive rate (34), the equilibrium fundraising activities and the outputs are obtained as

$$y^D = y^N - \frac{(1-b)(b-\sigma)^2(1+\sigma)}{(2-b+\sigma(1-2b))B},$$

$$Q^D = Q^N + \frac{(1-b)(b-\sigma)^3(1+\sigma)^2(1-b\sigma)(4-3b+\sigma(3-4b))}{(1+b)(2-b+\sigma(1-2b))^2B^2},$$

where $B = 4 + (2 - \sigma)\sigma - b^2(1 - 2\sigma - 4\sigma^2) - 2b(1 + \sigma(3 + \sigma)) > 0$. Since the second term on the right-hand side of the first line is nonnegative, we can conclude that $y^D < y^N$ independently of b and σ . Thus, the NGO strategically manipulates the compensation contract of its manager to reduce fundraising activity and to increase its project output. A straightforward comparative statics analysis shows that, in equilibrium, spillovers reduce the fundraising effort, since $\partial y^D / \partial \sigma < 0$. Together, these two ingredients provide an incentive for the manager to reduce the NGO fundraising effort (compared to the case without contract disclosure). This raises the question if the resulting equilibrium output levels increase or decrease with respect to the situation without contract disclosure. The answer depends on the difference between the spillover rate σ and the similarity of projects for donors, i.e. b . For $b - \sigma > 0$, it turns out that $Q^D \geq Q^N$. If, in contrast, spillovers are sufficiently high ($\sigma > b$), we have $Q^D < Q^N$. Consequently, when fundraising efforts are not proprietary to projects and spillovers are large, mandatory contract disclosure is harmful to NGOs' outputs. We summarize this result in the following proposition.

Proposition 6. *If spillovers are sufficiently small compared to the intensity of competition, i.e. $\sigma < b$, contract disclosure is beneficial for NGOs' outputs, i.e., $Q^D > Q^N$. If, conversely, spillovers are large, i.e. $\sigma > b$, then $Q^D < Q^N$, and contract disclosure is detrimental to NGOs' outputs.*

The result of this Proposition is illustrated in Fig. 5. When fundraising spillovers are sufficiently high, i.e. for $\sigma > b$, the NGOs' best-replies are now negatively sloped and the fundraising efforts exert positive externalities (and not negative externalities as before) on the rival's output. High spillovers also change the shape of the iso-output contours which are now convex in the fundraising space of the two NGOs. Thus, under mandatory contract disclosure, NGOs reduce their fundraising efforts as in a situation without spillovers. However, in contrast to the low-spillovers case, for high spillovers the two NGOs also reduce their outputs (compare points D and N). Whenever NGO fundraising campaigns work as echo chambers inducing a generalized increase in donors' willingness-to-give, the curbing effect of contract disclosure on fundraising can be counter-productive for welfare.

5.2. Impact of bonus pay on donations

To focus on the strategic effect of disclosure of executive contracts under NGO competition, in the baseline model we have neglected an important point, which is the influence of bonus pay on the donors' willingness-to-give. In fact, there is sufficient evidence for a negative relationship between top management wages and donations (e.g., Jegers, 2020 for a survey). Balsam and Harris (2018) find that bonuses are common in NGOs, that (future) donations and grants are negatively associated with bonus payments, but (future) profitability is positively related. Bonus pay is also positively related to competition the NGO faces. Likewise, Balsam and Harris (2014) show that nonprofit organizations whose executive compensation attracts media attention receive lower donations. Further support is found by Gaver and Im (2014). Kaden et al. (2022) document that this negative association between high relative CEO compensation and donations is much more widespread than previous literature suggested. Galle and Walker (2016) provide evidence that appearing in the Chronicle of Higher Education's annual top 10 list of highest-compensated private college and university presidents is associated with an increase in the effectiveness of stakeholder monitoring and a reduction in average donations. De Azevedo and de Aguiar (2021) find that nonprofit organizations can counter the potentially negative effect of high executive compensation on donations by voluntarily disclosing information about third-party endorsements or by investing in institutional trust. Balsam et al. (2020) find that even the disclosure of perks that are given to nonprofit managers have a negative impact on (future) donations.

To capture the negative association of disclosed executive compensation and donors' willingness-to-give in the most simple way, we can assume that in the case of no disclosure the baseline willingness-to-give is w , whereas under disclosure of executive compensation becomes $w - d$, with $d > 0$ (sufficiently) small. In other words, if donors learn about the executive's bonus pay (e.g. since there is plenty of media coverage), then all donors have a lower willingness-to-give where d measures the difference or donors' "dislike". Due to continuity, as long as d is sufficiently low (and all constraints on nonnegativity hold) our analysis in section 3 would go through. If no NGO discloses, then the outputs are still $Q^N = w^2(1 - b)/((1 + b)(2 - b)^2)$ from (12). If both NGOs disclose, then the willingness-to-give is $w - d$ for both NGOs and the outputs are $Q^D = 2(w - d)^2(1 - b)(2 - b^2)/((1 + b)(4 - b(2 + b))^2)$ which reduces to (16) for $d = 0$. If only one NGO (voluntarily) discloses its executive's compensation contract,²⁶ only the disclosing NGO suffers from a reduction in the

²⁶ Note that the asymmetric case is not studied in the main text of the paper since we have assumed that disclosure is mandated. We consider this case here since we want to highlight the additional point that NGOs might face a coordination problem and might get stuck in a "no disclosure" equilibrium.

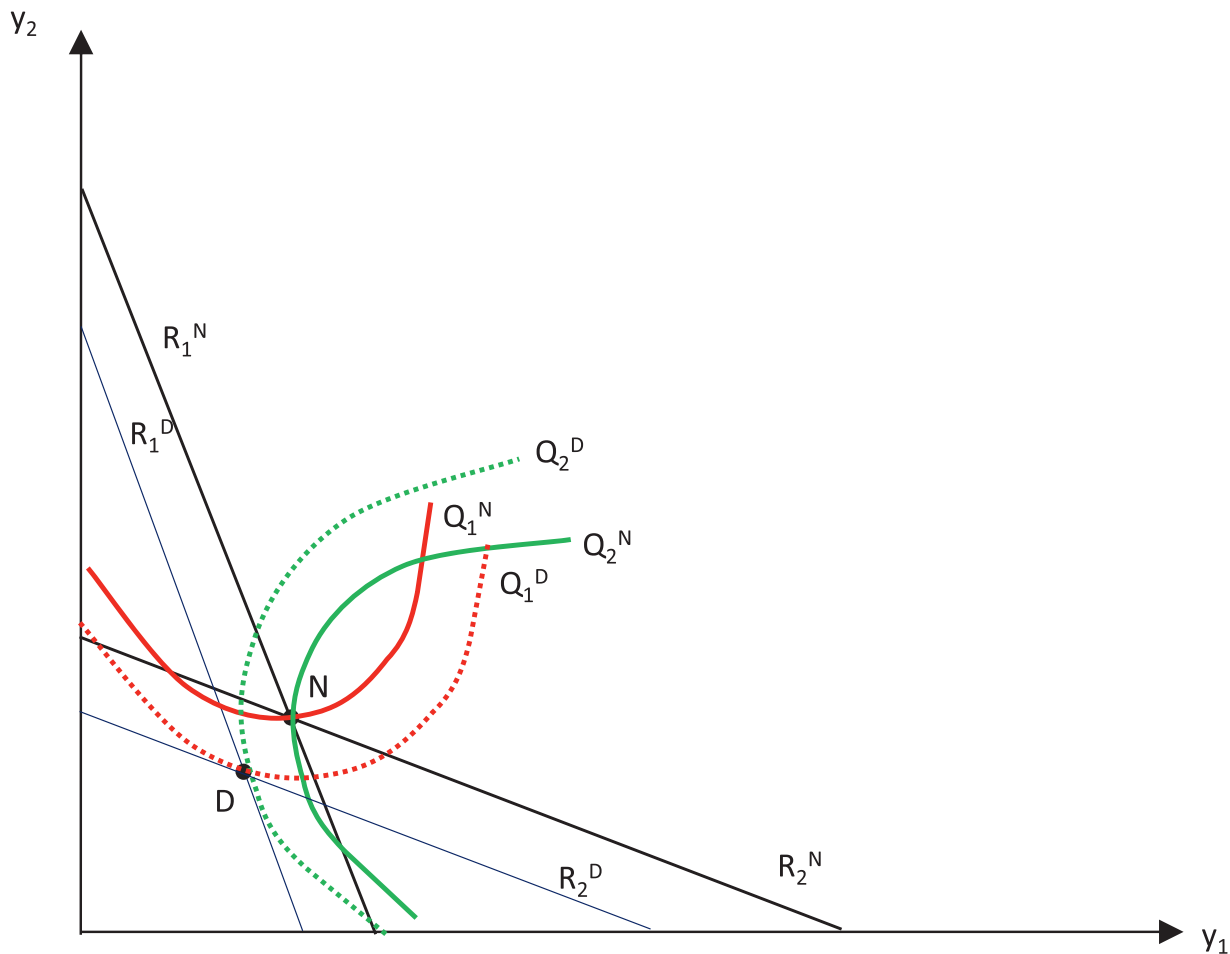


Fig. 5. NGOs' best replies with high fundraising spillovers ($\sigma > b$). Fundraising efforts are strategic substitutes and yield positive externalities. Red = NGO 1's iso-output contours; Green = NGO 2's iso-output contours. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

donors' willingness-to-give. For example, if NGO 2 discloses while NGO 1 stays silent, only NGO 2 suffers from a reduced willingness-to-give $w - d$ but can use its contract strategically, while for NGO 1, we have $\delta_1 = 1$. The resulting outputs are $Q_1^{ND} = (1 - b)(2bd - (4 + (2 - b)b)w^2)/(16(1 + b)(2 - b^2)^2)$ and $Q_2^{ND} = (1 - b)((2 + b)w - 2d)^2/(8(1 + b)(2 - b^2))$. Considering an extended game where firms in stage 0 can choose either to disclose (D) or not to disclose (N), the endogenous disclosure decision is now the outcome of a 2×2 normal form game. The resulting equilibrium depends on the baseline willingness-to-give w , the intensity of fundraising competition measured by $b \in (0, 1)$, and the donors' "dislike" d of executive bonus payments. For example, with $d = 0.1$ and $b = 0.9$, $w = 1.8$, we obtain two equilibria, "all NGOs disclose" or "no NGO discloses", and the NGOs face a coordination problem. Without a mandate to disclose, the nonprofit industry might get stuck in a "no disclosure equilibrium" since no NGO wants to unilaterally disclose due to the fear of being punished by donors. In such a situation, mandatory disclosure might move the industry to the disclosure equilibrium and despite being punished by the donors for paying bonuses to their executives, the NGOs might benefit since they are able to use the (now) observable compensation contracts as a commitment device to reduce excessive fundraising competition. Notice however that if d becomes too large, then NGOs might be worse off under the mandatory disclosure regime.

5.3. General mechanism in a setting with n nonprofits

Qualitatively, under certain conditions our finding that mandatory disclosure of managerial compensation contracts works as a coordination device for reducing fundraising efforts carries over to a more general setting with n NGOs. These conditions can be derived as follows. Denote the output of NGO i by $Q_i(y_1, y_2, \dots, y_n)$. Donations are denoted by $D_i(y_1, y_2, \dots, y_n)$. Now assume that the compensation contracts for the NGOs' managers are based on output Q_i and donations D_i , so that managers maximize their compensation

$$U_i^m = A_i + B_i[\delta_i Q_i + (1 - \delta_i) D_i]. \tag{35}$$

All firms are mandated to disclose the details of the contracts with their managers. From the first order condition of manager i , i.e. $\frac{\partial U_i^m}{\partial y_i} = 0$, we obtain

$$\delta_i \frac{\partial Q_i}{\partial y_i} + (1 - \delta_i) \frac{\partial D_i}{\partial y_i} = 0.$$

Hence, in equilibrium

$$\frac{\partial Q_i}{\partial y_i} = -\frac{(1 - \delta_i)}{\delta_i} \frac{\partial D_i}{\partial y_i}. \tag{36}$$

Solving this system of n first order conditions would yield the chosen equilibrium fundraising efforts $y_i^*(\delta_1, \delta_2, \dots, \delta_n)$. Substituting all fundraising effort $y_i^*(\delta_1, \delta_2, \dots, \delta_n)$ into the NGO i 's output yields $Q_i(y_1^*(\delta), y_2^*(\delta), \dots, y_n^*(\delta))$ where $\delta = (\delta_1, \delta_2, \dots, \delta_n)$. At the first stage, every NGO $i = 1, 2, \dots, n$ then chooses δ_i to solve

$$\max_{\delta_i} Q_i(y_1^*(\delta), y_2^*(\delta), \dots, y_n^*(\delta)).$$

Using (36), this leads to the first order conditions

$$\frac{dQ_i}{d\delta_i} = \frac{\partial Q_i}{\partial y_i} \frac{\partial y_i^*}{\partial \delta_i} + \sum_{j \neq i} \frac{\partial Q_i}{\partial y_j} \frac{\partial y_j^*}{\partial \delta_i} = -\frac{(1 - \delta_i)}{\delta_i} \frac{\partial D_i}{\partial y_i} \frac{\partial y_i^*}{\partial \delta_i} + \sum_{j \neq i} \frac{\partial Q_i}{\partial y_j} \frac{\partial y_j^*}{\partial \delta_i}.$$

Evaluating the right-hand side at $\delta_i = 1$ (which coincides with the case where the NGO induces the manager to just maximize output), we realize that the first term drops out. Hence, the sign of $\frac{dQ_i}{d\delta_i}$ evaluated at $\delta_i = 1$ depends on $\sum_{j \neq i} \frac{\partial Q_i}{\partial y_j} \frac{\partial y_j^*}{\partial \delta_i}$.

Consequently, if we have simultaneously

$$(i) \frac{\partial Q_i}{\partial y_j} < 0 \text{ and } \frac{\partial y_j^*}{\partial \delta_i} < 0, \text{ or } (ii) \frac{\partial Q_i}{\partial y_j} > 0 \text{ and } \frac{\partial y_j^*}{\partial \delta_i} > 0,$$

then the sum in the second term above is positive. Since this would imply that the derivative at $\delta_i = 1$ is positive, the bonus rate in equilibrium $\delta_i > 1$. In other words, our main result carries over to a general setting with n NGOs if there are positive externalities of fundraising and fundraising efforts are strategic substitutes or if there are fundraising negative externalities and fundraising efforts are strategic complements. Under these conditions we always obtain that the bonus rate $\delta_i > 1$.

In order to illustrate some of the arguments above, we consider a *general linear setting* with n firms and spillovers. In this case, following the procedure we have described in the two-NGOs case, donations can be derived as

$$D_i = \frac{w - 1}{1 + b(n - 1)} + \frac{1 + b(n - 2) - b\sigma(n - 1)}{(1 - b)(1 + b(n - 1))} y_i - \frac{\sigma - b}{(1 - b)(1 + b(n - 1))} \cdot \sum_{j \neq i} y_j.$$

In line with our model with two NGOs, output is given by $Q_i(y_1, y_2, \dots, y_n) = D_i(y_1, y_2, \dots, y_n)(1 - y_i)$. We have

$$\frac{\partial Q_i}{\partial y_j} = \frac{\sigma - b}{(1 - b)(1 + b(n - 1))} (1 - y_i).$$

Consequently, it follows that

$$\frac{\partial Q_i}{\partial y_j} = \begin{cases} > 0 \text{ if } \sigma > b \\ < 0 \text{ if } \sigma < b \end{cases}.$$

Therefore, we know that fundraising effort y_j yields positive externalities on the output of NGO i if spillovers are large (relative to the intensity of competition) and yields negative externalities otherwise. Concerning the condition under which fundraising efforts are strategic substitutes or strategic complements, we solve the manager's first order conditions (36) to obtain $y_j^*(\delta)$ as

$$y_j^* = -\frac{\alpha}{2\beta + \gamma(n - 1)} + \frac{\beta(2\beta + \gamma(n - 2))}{(2\beta - \gamma)(2\beta + \gamma(n - 1))} \frac{1}{\delta_j} - \frac{\beta\gamma}{(2\beta - \gamma)(2\beta + \gamma(n - 1))} \cdot \sum_{l \neq j} \frac{1}{\delta_l},$$

where $\alpha = (w - 1)/(1 + b(n - 1))$, $\beta = (1 + b(n - 2) - b\sigma(n - 1))/(1 - b)(1 + b(n - 1))$ and $\gamma = (\sigma - b)/(1 - b)(1 + b(n - 1))$.

It can now be checked that

$$\frac{\partial y_j^*}{\partial \delta_i} = \frac{\beta\gamma}{(2\beta - \gamma)(2\beta + \gamma(n - 1))} \frac{1}{\delta_i^2}.$$

Substituting the expressions for α , β and γ , into the right hand side leads to the conclusion that

$$\frac{\partial y_j^*}{\partial \delta_i} = \begin{cases} > 0 \text{ if } \sigma > b \\ < 0 \text{ if } \sigma < b \end{cases}.$$

Taken together, this provides the following insight for the general linear case with n NGOs and spillovers. If spillovers are sufficiently large compared to the intensity of competition, then fundraising effort y_j yields positive externalities on the output of NGO i and simultaneously fundraising efforts are strategic substitutes. If spillovers are sufficiently small compared to the intensity of competition, then fundraising effort y_j yields negative externalities on the output of NGO i and simultaneously fundraising efforts are strategic complements. Hence, if disclosure of managerial compensation contracts is mandated, then NGOs set $\delta_i > 1$ and use these contracts as a *coordination device* to collectively reduce their fundraising efforts. Our finding for the case with two NGOs carries over to fundraising competition with n NGOs.

6. Concluding remarks

The aim of this paper is to investigate the impact of mandatory disclosure of managerial contract information on the behavior of NGOs competing to raise funds for their projects. We find that, although such provision is implemented to increase the transparency of the NGO sector, it also induces NGOs to use their managers' incentive contracts strategically in order to reduce existing fundraising competition. Under highly targeted fundraising technologies and projects which are perceived as close substitutes this is beneficial for the NGOs' outputs. However, we also find that mandatory disclosure can distort NGOs' choices of project types. If donors preferences for different projects are neither very similar nor very different, then excessive and socially inefficient project clustering can occur. We further point out that our findings which are obtained in a specific setting seem to be rather general and extend to any number of NGOs and to the presence of fundraising spillovers among competing organizations.

It seems counter-intuitive that nonprofits do not collude voluntarily to alleviate the impact of excessive fundraising competition despite the fact that coordination of fundraising activities (in contrast to the for-profit sector) is legal. [Crettez et al. \(2020\)](#) provide three reasons why nonprofits might find it difficult to cooperate. First, a united charity imposes costs on the nonprofits, e.g., for monitoring. Second, cooperation might not be a stable outcome. Third, donors might have preferences for a particular charity. Our paper has demonstrated that NGOs can use the managerial compensation contracts of their CEOs to overcome all of these reasons. Monitoring should be enabled since disclosing the details of the compensation contracts is mandatory and in the interest of each NGO.²⁷ Cooperation that is based on observable outcomes is stable since it serves as a strategic commitment device. Finally, NGOs can stay independent so that donors can support their favorite organization.

More work needs to be done to fully understand the influence of managerial compensation contracts on competition between NGOs. The provisional findings presented in this paper hopefully serve as a starting point and lead to empirical studies which investigate the impact of mandatory disclosure regulations and other targeted policies on NGOs' fundraising competition and the choice of projects. In this vein, recent work in accounting (e.g. [Bloomfield, 2021](#); [Feichter et al., 2022](#)) that studies the for-profit sector might provide ideas on how to design such an empirical study.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A

Mandating disclosure of compensation contracts enhances social welfare

In this appendix, we consider the case where NGOs compete for funds for the same project showing that mandatory disclosure of managerial contract information has a positive effect on social welfare.

Social welfare is given by

$$SW = m + (w - y_1)D_1(y) + (w - y_2)D_2(y) - \frac{1}{2}(D_1(y))^2 - \frac{1}{2}(D_2(y))^2 - bD_1(y)D_2(y)$$

where $y = (y_1, y_2)$. Using the fact that in a symmetric equilibrium with $y_1^* = y_2^* = y^*$ we have

$$D_1(y^*, y^*) = D_2(y^*, y^*) = \frac{w + y^* - 1}{1 + b},$$

social welfare becomes

$$SW = m + 2D_i(y^*, y^*)(w - y_i^*) - (1 + b)(D_i(y^*, y^*))^2$$

which simplifies to

$$SW = m + \frac{(w + y^* - 1)(w - 3y^* + 1)}{b + 1}.$$

²⁷ If executive pay levels in different NGOs is comparable, then the donors' willingness-to-pay should not be drastically reduced. [Kaden et al. \(2021\)](#) demonstrate that relative CEO compensation levels in nonprofits matter more for donor reactions than absolute pay levels.

Since

$$y_1^N = y_2^N = 1 - \frac{w(1-b)}{2-b} \text{ and}$$

$$y_i^D = y_i^N - \frac{(1-b)b^2w}{8(1-b) + b^3},$$

we easily obtain that

$$SW^N = m + \frac{w(2b-4 + w(5-4b))}{(2-b)^2(b+1)}$$

and

$$SW^D = m + \frac{w(2-b^2)(2(b^2+2b-4) + w(10-b(b+8)))}{(b+1)(b^2+2b-4)^2}.$$

The difference

$$SW^D - SW^N = \frac{(b^2w(1-b))(16(1-b) + 4w(5b-2) - wb^2(b+9) + 2b^3)}{(b+1)(b-2)^2(2b+b^2-4)^2}$$

has the same sign as

$$A(b, w) = (16(1-b) + 4w(5b-2) - wb^2(b+9) + 2b^3),$$

which is easily seen to be positive for the allowed range of parameters $w \in (1, 2)$ and $b \in (0, 1)$. Consequently, mandatory disclosure of managerial contract information is welfare-enhancing if NGOs compete in trying to raise funds for the same project.

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