The Organization of Social Enterprises: Transacting versus Giving

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Abstract

Traditional models of organizations focus on the distinction between for-profits and non-profits. This article presents a model where entrepreneurs receive subsidy-donations and have a choice not only between the for-profit and non-profit forms, but also between (1) giving to the beneficiaries, and (2) forming social enterprises that transact with them. Entrepreneurs form social enterprises to measure beneficiaries' abilities and tailor disbursals to their needs when variance in abilities is high. When variance is very high, social entrepreneurs choose to form for-profits rather than nonprofits. This analysis has implications for the theory of the firm and subsidy policies to promote development.

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1 Introduction

In recent years, many forms of hybrid organizations that combine profit and social missions have emerged to address a variety of social problems. In particular, social enterprises, such as microfinance institutions and fair trade social enterprises, are increasingly influential in addressing a variety of development missions, such as facilitating access to capital, improving employment opportunities and productivity and enhancing consumer welfare (see Dees, 2008; Eldar, 2017). These organizations signal a shift from the traditional model of pursuing development through donative funding to more entrepreneurial organizations that transact directly with their beneficiaries. For example, microfinance institutions lend to poor people, fair trade social enterprises source products from low-income farmers and work-integration firms employ low-income people.

The evolution of these firms presents a puzzle for theories of the firm. First, it is not clear why altruistic entrepreneurs would opt to form as for-profits, as many social enterprises do. Traditional theories claim that the non-profit form is essential for entrepreneurs to commit to using donative funding to benefit third parties, in circumstances where monitoring the use of such funds is costly (Hansmann, 1980; Glaeser & Shleifer, 2001). By subjecting the entrepreneur to the non-distribution constraint, the non-profit form mitigates her profit incentives to expropriate donative funds, and hence makes it more likely that the entrepreneur will deliver the donation to the ultimate beneficiaries. A classic example is Oxfam, which receives donations and distributes them to the poor.

While these models correctly identify the critical function of the non-distribution constraint in preventing expropriation, they do not address the issue of subsidy-effectiveness. The entrepreneurs that form donative organizations may be altruistic, but they are not always able to alleviate poverty or fix other social problems simply by transferring subsidies to the relevant beneficiaries; for example, by conducting training programs or delivering goods or services. The experience of many donative organizations, particularly NGOs and development agencies, in their quest to alleviate poverty and pursue development missions suggests that the effectiveness of their programs is often limited (Easterly, 2009; McKenzie & Woodruff, 2013). This problem is particularly acute in the context of complex missions, such as increasing access to capital or improving employment opportunities (Eldar, 2017).

Second, since many social enterprises are formed as non-profits (e.g., non-profit microfinance institutions), the emergence of social enterprises calls into question the traditional distinction between for-profits and non-profits. If microfinance institutions or fair trade firms can form as for-profits as well as non-profits, and both serve a similar role, then arguably this distinction is of limited relevance. Many of the most influential social enterprises are non-profits, such as ASA and BRAC, two non-profit microfinance institutions with millions of customers. But many similarly large and influential microfinance institutions, such as Compartamos and BancoSol, are for-profits, and they have had a similar impact on increasing access to capital in developing countries.

In this article, I offer a theory of social enterprises that focuses on the transactional relationship with the social enterprises' beneficiaries, rather than their organizational form. Social enterprises, I argue, address information asymmetries with respect to their beneficiaries' attributes (e.g., productivity or creditworthiness). Social enterprises that transact with their beneficiaries have the ability and incentives to measure their beneficiaries' attributes. This information enables them to tailor the subsidies they allocate to their beneficiaries effectively. For example, the training programs of fair trade and work-integration firms are geared towards improving the productivity of their low-income workers. The measurement function thus makes social enterprises relatively effective in addressing development missions, such as increasing employment and access to capital. In contrast, donative organizations that do not transact with their beneficiaries have limited information about their needs and attributes, and as a result their programs may be ineffective. This information is particularly important in the context of complex development goals where subsidies' effectiveness can be critical to the success of the program. For example, an organization that wishes to increase access to credit or improve employment rates may need to tailor price discounts and business or employment training to the specific needs of different individuals. In these circumstances, transacting with beneficiaries arguably works better than simply giving to them.

The measurement function of social enterprise is similar in spirit to the metering function of corporations discussed in the well-known paper of Alchian & Demsetz (1972). Alchian & Demsetz argue that for-profit corporations allocate capital efficiently because they continuously "meter" or "measure" their input productivity. In other words, corporations transact in competitive markets with creditors, employees, suppliers, etc. On the other hand, Alchian & Demsetz argue that non-profits shirk on quality because the entrepreneurs who control the organization have no financial incentives to "meter" or measure input productivity, for example, the quality of a training program.

My theory modifies this analysis in several ways. First, measurement is primarily related to the transactional relationship between firms and their counterparties rather than the legal form. Non-profit social enterprises, similar to for-profit ones, also perform a measurement function when they transact with their beneficiaries because they have financial (as well as altruistic) incentives to allocate capital, including donative capital, efficiently. Thus both for-profit and non-profit social enterprises that transact with their beneficiaries can be effective in pursuing development missions.

Second, the problem with donative organizations is not their lack of goodwill or incentives to improve quality, but rather an informational problem associated with any organization, including for-profits. Following Hansmann (1980), Glaeser & Shleifer (2001) show that non-profits may actually produce higher quality than for-profits, because the non-distribution constraint mitigates entrepreneurs' incentives to cut costs by shirking on quality. The major problem with this model is that it assumes that entrepreneurs can simply increase the quality of their services, including complex tasks, such as alleviating poverty, at will. However, entrepreneurs may have limited information on how to accomplish such complex tasks. To address this issue, quality in my model is measured in terms of the effectiveness of the subsidy, which depends on tailoring it to the needs of the beneficiaries. When the organization's task is to improve employment rates and productivity, it is difficult to know what general policy or training would be effective in accomplishing this objective, and specific policies need to be tailored to the particular attributes of different beneficiaries. Donative organizations have no market platform through which they can observe or measure their beneficiaries' attributes. They are thus more likely to make mistakes in allocating subsidies to beneficiaries by providing too much, too little, or even the wrong type of subsidy altogether.

This type of informational problem derives not from the non-profit form (as Alchian & Demsetz (1972) seem to suggest), but because donative organizations engage in giving. Therefore, this problem applies also to for-profits that engage in corporate charity without transacting with their beneficiaries. For example, for-profit corporations, such as Google, have large segments that engage in philanthropy. Despite enthusiasm for corporate philanthropy, it has, like donative organizations, a relatively poor record in pursuing complex social goals (Eldar, 2017). In this respect, I make a distinction between for-profit social enterprises that transact with their beneficiaries, and those that simply transfer subsidies to third parties through corporate charity or corporate social responsibility initiatives. In this way, I hope to offer a broader distinction between organizations that pursue social goals by transacting with their beneficiaries and those that engage in giving.

Third, although my theory focuses on the relationship between the firm and its beneficiaries, it also explains entrepreneurs' choice between the for-profit and non-profit forms, and the implications of such choice on the effectiveness of subsidies. In particular, it explains why under some conditions even socially motivated entrepreneurs will choose to incorporate as for-profits. On one hand, when the variance in beneficiaries' abilities is relatively low, the non-profit form may actually induce firms to transact with their beneficiaries (and tailor subsidies to their needs) rather than just transferring subsidies to them. The intuition is that, consistent with Glaeser & Shleifer (2001), the non-profit entrepreneur produces higher quality, which in my model is measured in terms of the effective use of subsidies. However, when the variance in abilities is high, there is a higher risk that the entrepreneur will make mistakes in allocating subsidies to beneficiaries. Therefore, her incentives (both financial and altruistic) to measure beneficiaries' abilities and needs are strong enough to make the entrepreneur use all available donations or subsidies to transact with disadvantaged groups (rather than just giving them the subsidies). In these circumstances, the non-profit form as a commitment device to use subsidies effectively becomes redundant, and does not improve the incentives of the entrepreneur to pursue social missions effectively.

To be sure, my analysis admits a role for each type of organization, whether it is a corporation that pursues corporate charity, a donative organization or a social enterprise, either for-profit or non-profit. For example, donative organizations and corporations that engage in corporate charity can be effective if there is little need for measurement, that is, when the variance in beneficiaries' abilities is low. In fact, when we examine the evolution of many social enterprises, a certain pattern emerges. Many of these organizations start out as donative organizations that cater to the neediest of society. Donative organizations operate in an environment where the beneficiaries have low variance and low mean in abilities. As the abilities of some of them increase, so does the variance in their abilities, in which case there is a greater need to tailor the subsidies to their individual attributes. At this stage, a non-profit social enterprise that makes loans to beneficiaries or employs them becomes an efficient form for pursuing their development. That business ultimately converts to a for-profit social enterprise, and over time, when the beneficiaries become fully competitive, the firm becomes largely equivalent to a standard corporation. As such, it may still engage in corporate charity as most corporations do.

This article is related to literature on corporate social responsibility ("CSR"), corporate charity, and social entrepreneurship (e.g., Baron, 2007; Benabou & Tirole, 2010). Whereas most accounts of CSR do not differentiate between social enterprise and CSR, I draw an analytical distinction between social enterprises that transact with their beneficiaries, and CSR or corporate charity that generally involves giving. The main reason is that most accounts of CSR do not take into consideration the effectiveness of subsidies or giving, but simply assume that entrepreneurs, donors and investors can create public benefits at will by spending money or exerting efforts. De Bettignies & Robinson (2015) demonstrate that CSR may be harmful to social welfare when it is coupled with lobbying to pass sub-optimal levels of regulation. However, they also assume that the CSR policies themselves increase social welfare or public benefits, and therefore their model does not apply to circumstances where it is costly to measure the public benefits of specific actions. Besley & Ghatak (2017) acknowledge the difficulty for founders in measuring public benefits, but they nonetheless assume that this task can be delegated to socially-motivated managers who presumably know how to increase the quality of such benefits. In practice, however, even socially motivated entrepreneurs often fail in pursuing social missions because they lack of knowledge and information. The contribution of this article is to identify an organizational form that gives the entrepreneurs both the ability to acquire such information, and incentives to pursue social missions effectively.

The theory of social enterprises I present in this article is also related to studies that assess different strategies for pursuing development missions. Most of the literature to date evaluates the impact of different forms of giving through aid and training programs (for reviews, see Banerjee & Duflo, 2009; McKenzie & Woodruff, 2013). These studies are critical for creating sophisticated mechanisms to pursue development of the poorest members of society. However, to the best of my knowledge, there is a dearth of studies that compare giving to true social enterprises that have financial and altruistic incentives to measure the needs of particular beneficiaries, as well as educate the beneficiaries about their products.[1] In particular, the measurement theory of social enterprise predicts that transacting with the beneficiaries is likely to be more effective when there is a high variance in the beneficiaries' abilities, whereas giving might be preferable when there is a low variance in these abilities.

This article is structured as follows. Section 2 defines the different forms of organizations and lays out the basic set-up of the model. Section 3 describes the traditional form of giving through corporate charity. Section 4 introduces and explains the role of social enterprises that transact with their beneficiaries. Section 5 discusses the impact of the non-profit form on the entrepreneur's choices. Section 6 analyzes the entrepreneur's choice of organizational form. Section 7 examines the impact of the entrepreneur on social welfare. Section 8 considers various government subsidy policies to encourage the formation of social enterprises. Section 9 discusses regulation to address the risk of mission-drift and exploitation of the beneficiaries. Section 10 simulates the evolution of organizations over time from traditional non-profits, to social enterprises, and finally to standard for-profits. Section 11 considers several extensions. Section 12 concludes.[2]

2 A Taxonomy of Organizations and Basic Set-up

The analysis focuses on organizations that receive a subsidy or a donation, and are expected to deliver or utilize it for the benefit of third-party beneficiaries.[3] As shown in Table 1, such organizations may adopt one of four models which differ along two main parameters: (1) giving to beneficiaries versus transacting with them, and (2) for-profits versus non-profits.

[1] For two recent empirical studies of social enterprises, see Cortes & Lerner (2013) who focus on community development financial institutions, and Kovner & Lerner (2015) who study community development venture capital.

[2] In addition, section A of the Online Appendix discusses robustness of the model to various specifications. Second B of the Online Appendix lays out all proofs not included in the main text.

[3] Note that as a result, this theory has no relevance for analyzing organizational choice that does not involve such a subsidy. Following Hansmann (1980), Glaeser & Shleifer (2001) and Choi (2015) apply their model of organizational choice to both circumstances where (1) organizations receive a subsidy from donors (who are viewed as the firm's customers) and deliver it to third-party beneficiaries, and (2) when consumers have difficulty in observing the quality of the services (such as educational or health services) provided to them. My article deals only with the first case, whereas the second case does not involve a firm that receives a subsidy.

Table 1: **Taxonomy of Organizations**

	Giving	**Transacting**
For-profits	Corporate Charity	For-profit Social Enterprises
Non-profits	Donative Organizations	Non-profit Social Enterprises

Corporations that engage in corporate charity are for-profits that distribute subsidies to the beneficiaries. Donative organizations are non-profits that distribute subsidies to the beneficiaries. Social enterprises, whether for-profits or non-profits, transact with their beneficiaries as patrons and also distribute a subsidy to them.

The basic set-up of the model is as follows. The firm has a single entrepreneur (representing managers and shareholders). The entrepreneur runs a business, for example a bakery, a restaurant, or an agricultural farm. The entrepreneur also faces reputational pressure to help the community, for example by providing training and other assistance to low-income workers with no employment track record. The entrepreneur may decide to help the disadvantaged by (1) giving them some of her earnings by organizing a training program for them, and/or (2) deciding to employ them and train them in her business. In the main model, I will focus on beneficiaries who suffer from systemic unemployment and need professional training, but the analysis applies to other disadvantaged groups, such as low-income borrowers or consumers. The entrepreneur also has a choice to form as either (1) a for-profit or (2) a non-profit.[4]

I will consider the entrepreneur's utility from forming each of the four types of organization. The entrepreneur chooses to assist n beneficiaries, where $n \geq 0$, and delivers a subsidy to each beneficiary i in the amount of $d(i)$, where i is defined over a continuum for convenience. In all these cases, the firm receives a subsidy or donation from some source to fund the costs of these disbursals. For the purposes of this article, I am indifferent as to the source of the subsidy. For example, consumers may pay a premium over the price that reflects the market price of products of equivalent quality; investors may accept below-market returns for their investments; or workers may be willing to work for lower salaries.[5] Alternatively, the donations or subsidies may simply be funded by donors who make a donation to the firm.

The donors can contract for quantity or scale but not for quality. Thus, the subsidy amount D is an increasing continuous function in n, $D(n)$ is concave, and $D(0) = 0$.[6] For simplicity, I assume

[4]Note that in principle donative organizations also form businesses or hold stakes in businesses to generate revenues while focusing their charitable activities on giving to the beneficiaries. An example is a private foundation that has revenues from its investment activities.

[5]The donation may even flow from the entrepreneur herself to the firm.

[6]The donor's utility function may be given by $Y - D(n) + F(n)$, where $F(n)$ is an increasing function that reflects the donor's utility from making charitable contributions. The first order conditions imply that

that the donation function is exogenous, but this can be understood as part of a decision process by a donor who can only contract for the number of beneficiaries the organization will assist, but does not observe how effectively the donation is used.[7]

In addition, I assume that standard workers who are not disadvantaged have the same abilities, $\bar{a}$. The standard workers' abilities (i.e., $\bar{a}$) are observable. By contrast, each disadvantaged worker i has a lower level of ability, $a(i) \in [0, \overline{a}) \; \forall i \in \boldsymbol{\mathcal{R}}_{+}$. The true abilities of the disadvantaged cannot be observed by the entrepreneur. The reason is that disadvantages groups have limited means to signal their abilities. For example, they may have no employment or credit history or educational record.

Disadvantaged workers may receive training which increases their abilities up to $\bar{a}$. To reach $\bar{a}$, they must receive the appropriate amount of training, which I quantify at $\bar{a} - a(i)$. Any training above this amount is a waste. Of course, they must also receive the appropriate type of training (and not just the appropriate quantity), but for simplicity, I focus on the extent to which the size of disbursals is tailored to the needs of the beneficiaries.

I further assume that the size of the firm proxied by the number of employees (w) and the returns on human capital (r) are fixed by market processes that are outside the scope of my inquiry. Firm revenues equal $w \times r \times a$, where $r \times a$ is the revenue per worker the firm employs, and w is a fixed number of workers employed by the firm. Thus, the firm's revenues depend linearly on the workers' abilities (a), and the revenues of a "standard" commercial firm that employs only standard workers are equal to $w \times r \times \bar{a}$, i.e., a constant. I further assume $r \geq 1$ to limit the inquiry to viable productive firms that generate non-negative returns on capital.[8]

The entrepreneur may choose to form as a non-profit, and thus subject herself to the non-distribution constraint. If the entrepreneur chooses the non-profit form, she can only distribute a fraction (V) of the organization's net earnings to herself. V is an increasing concave function (following Glaeser & Shleifer, 2001; Choi, 2015), and $V(x) \leq x$, $\forall x$, $V''(\infty) = 0$. For simplicity we assume that $V = v$, and $0 < v \leq 1$. When $v = 1$, the firm is a for-profit rather than a non-profit.

I start the analysis with the traditional mode of charity through giving. I focus first on a for-profit that gives assistance to some beneficiaries through its corporate charity arm; the reason being that this is the simplest organizational form in the sense that it is not subject to the non-distribution constraint, and does not transact with the beneficiaries. I then consider for-profit social enterprises that transact with the beneficiaries. Finally, I consider the impact of the non-profit form and the

$F'(n^*) = D'(n^*)$, and therefore, $F''(n^*) < D''(n^*)$. This implies that $F(n^*)$ must be concave for there to be a real solution.

[7] This is also consistent with the view that donors have no incentives to learn about the effectiveness of the social mission either before or after making the donation (see Niehaus, 2014).

[8] In section A.3, I show that the main results are robust to the case where $r < 1$.

non-distribution constraint on the choices of the entrepreneur and the entrepreneur's choice of legal form.

3 The Traditional Model of Giving

Suppose the entrepreneur chooses to help the disadvantaged through giving, that is, the firm makes a disbursal or transfer to the beneficiaries. Because our interest is in promoting development missions, the disbursals in this context take the form of assisting the beneficiaries to acquire the capacity to transact with commercial firms. The most obvious example would be employment or business training. Such a disbursal is designed to help the beneficiaries to find employment or start a business. In other contexts, the disbursal can take the form of vouchers to purchase a product (such as bed-nets or eye glasses), a contribution of capital to help borrowers repay a loan (essentially, subsidizing loans); or providing subsidized input (e.g., fertilizers) that can help farmers improve the quality of their produce. For simplicity, I will focus on the employment context by comparing a firm that provides a training program to disadvantaged people, and a firm that employs them. However, the analysis carries over to other contexts too.[9]

In this section, I restrict the entrepreneur to the traditional forms of giving. Accordingly, the firm only employs standard workers and does not employ the disadvantaged. The entrepreneur makes a decision about the number of beneficiaries to whom she will allocate a subsidy (n) and the amount of subsidies ($d(i)$) she allocates to each beneficiary i. A key element of the model is that the the entrepreneur cannot observe the beneficiaries' abilities, and therefore does not know what allocations the beneficiaries need.

The entrepreneur's utility is given by:

$$\max_{n,d(i)} v\left(w \times r \times \bar{a} + D(n) - \int_0^n d(i)di\right) - \gamma \times E\left[\int_0^n \left(d(i) - (\bar{a} - a(i))\right)^2 di\right], \tag{1}$$

where $0 < v \leq 1$ denotes the portion of the earnings that the entrepreneur can distribute to herself. For simplicity, this section focuses on the for-profit entrepreneur who is not subject to any constraint on distribution (i.e., $v = 1$), and leaves the discussion of non-profits ($0 < v \leq 1$) to section 5 below.

The last term reflects the non-cash component of the entrepreneur's utility. The expression $\int_0^n \left(d(i) - (\bar{a} - a(i))\right)^2 di$ is a measure of the effectiveness or quality of the allocations to the beneficiaries, and E denotes the expectation over the abilities of the beneficiaries. If the allocations

[9]For example, it is possible to compare a firm that gives a voucher for say 50% of the purchase price of bed-nets to a firm that sells the bed-nets at a discount to the beneficiary.

to beneficiaries (i.e., $d(i)$) are too high or too low (i.e., $d(i) \neq \bar{a} - a(i)$), the entrepreneur's utility decreases. γ is a parameter that measures the extent to which the entrepreneur dislikes ineffectiveness. This dislike may reflect her own altruism or reputational costs for failing to help the community effectively. In contrast, the traditional models of non-profits assume that subject to the costs of making allocations of higher quantity to beneficiaries, the entrepreneur can increase her utility infinitely by increasing the amount of allocations to the beneficiaries, without regard to whether or not the beneficiaries actually need these subsidies.[10]

In my model, the entrepreneur clearly has no altruistic (or other) incentive to increase $d(i)$ beyond the amount that would help the beneficiary to reach the competitive level. This is consistent with the increasing concerns in recent years that donative funds should be used effectively to help disadvantaged groups gain competitive abilities, rather than spent without regard to their effectiveness.

To pin down the entrepreneur's choices, we can first fix $i = i'$ and find the optimal allocation $d(i')$ for any given n. The solution for every i is the same, i.e.,

$$d^*(i) = \bar{a} - E(a) - \frac{1}{2\gamma} \;\; \forall i \in [0, n]. \tag{2}$$

The last term $\frac{1}{2\gamma}$ reflects the entrepreneur's dis-utility from paying, and this dis-utility vanishes as $\gamma \to \infty$.[11] Thus, the more the entrepreneur cares about effectiveness, the closer she will set the disbursal to the average need of the beneficiaries ($\bar{a} - E(a)$). The choice of n depends on the marginal utility of increasing n. Accordingly,

$$D'(n^*) = d^*(n^*) + \gamma \times E\left(d^*(n^*) - (\bar{a} - a(n^*))\right)^2.$$

If we plug in d^*, this condition becomes:

$$D'(n^*) = \bar{a} - E(a) + \gamma Var(a) - \frac{1}{4\gamma}. \tag{3}$$

The following Lemma follows immediately from the concavity of $D(n)$.

[10]The entrepreneur in Glaeser & Shleifer (2001) chooses q, the quantity of the subsidy distributed to the beneficiaries, and her utility is essentially given by $P - c(q) + \gamma \times q$, where P is a constant which is independent of q because quality is not observed when the consumer buys the products, $c(q)$ is a convex cost function, and γ is a parameter that measures the entrepreneur's altruism.

[11]To see why equation (2) holds, we can assume that the entrepreneur decides to set $d^*(i) = \bar{a} - E(a) - \frac{1}{2\gamma} - \varepsilon$ for j workers, and the amount in equation (2) for all other beneficiaries, where $\varepsilon > 0$. The utility of the entrepreneur in equation (1) would then be increased by $j \times \varepsilon$ (because of the savings in disbursals to the beneficiaries), but it would be decreased by $j\left(\varepsilon + \varepsilon^2\right)$.

Lemma 1. *The greater $\gamma Var(a)$, the fewer beneficiaries the entrepreneur will choose to give to (i.e., n is lower).*

Using equation (2), the ex ante utility of the entrepreneur is,

$$r \times w \times \bar{a} + D(n^*) - n^* (\bar{a} - E(a)) - n^* \left(\gamma Var(a) - \frac{1}{4\gamma}\right), \tag{4}$$

where n^* is defined by equation (3). Note that the entrepreneur suffers the costs of uncertainty or ineffectiveness (i.e., $n^* \times \gamma \times Var(a)$) due to her inability to observe a. The higher $Var(a)$, the greater is the information asymmetry and the ensuing costs of ineffectiveness. These costs reflect the risk that the entrepreneur underpays disadvantaged workers whose abilities are lower than $E(a)$, and overpays those with abilities higher than $E(a)$. These costs may reflect the entrepreneur's own dissatisfaction from failing to provide adequate training to low-income people or pressures from donors (and people at large) who are unhappy with the impact of the charity program. Note also that as expected, the larger γ is, the greater the costs. As Lemma 1 makes clear, the entrepreneur seeks to mitigate the costs of $\gamma Var(a)$ by giving to fewer beneficiaries.

4 Social Enterprises

To address the costs of uncertainty, the entrepreneur may instead form a social enterprise. Social enterprises employ disadvantaged workers and allocate subsidies to them through the transactional relationship rather than by giving subsidies to the workers as external beneficiaries. The advantage of a social enterprise is that when the entrepreneur interacts with the beneficiaries, she is capable of measuring their true abilities, and as I show below, also has incentives to do so under certain conditions. The firm may expend a cost $C(m)$ on measuring the abilities of the m disadvantaged workers it employs. $C(m)$ is an increasing convex function, and $C(0) = 0$. If the entrepreneur expends $C(m)$ at $t = 0$, she can observe the true abilities $a(i)$ for those m workers. Note that setting $d(i) = \bar{a} - a(i)$ eliminates reputational costs and increases the revenues for the firm.

The entrepreneur does not necessarily have to measure the attributes of all the beneficiaries it employs. Thus, it may also employ k beneficiaries, but decide not to expend the costs of measurement; therefore, the entrepreneur does not observe the true abilities of those k workers. The firm will employ $m + k$ disadvantaged workers and $w - m - k$ standard workers, where $m + k \leq w$. The firm may still disburse a subsidy to the g disadvantaged workers that it does not employ through a corporate charity program, such that $m + k + g = n$, the total number of beneficiaries.

At $t = 0$, the entrepreneur chooses m, k, and g. At $t = 1$, the entrepreneur finds out the true abilities of m workers, and sets the allocations $d^m(i)$, $d^k(i)$ and $d^g(i)$, which respectively refer to

- the allocations to m beneficiaries she employs after measuring and observing their abilities,
- the allocation to k beneficiaries she employs but whose abilities she does not measure or observe, and
- the allocations to g beneficiaries through the firm's corporate charity program, where again, the entrepreneur does not observe the beneficiaries' abilities.

Note that $D(n) = D(m+k+g)$ so that the firm faces a choice as to how to allocate each marginal donation it receives. The social entrepreneur's problem is:

$$\max_{m,k,g,d(i)} v\left[r(w-m-k)\bar{a} + r \times E\int_0^m \left(a(i)+d^m(i)\right)di + r \times E\int_0^k \left(a(i)+d^k(i)\right)di + \right. \tag{5}$$

$$\left. D(n) - \int_0^m d^m(i)di - \int_0^k d^k(i)di - \int_0^g d^g(i)di - C(m)\right] -$$

$$\gamma \times E\left[\int_0^m \left(d^m(i) - (\bar{a}-a(i))\right)^2 di\right] - \gamma \times E\left[\int_0^k \left(d^k(i) - (\bar{a}-a(i))\right)^2 di\right] -$$

$$\gamma \times E\left[\int_0^g \left(d^g(i) - (\bar{a}-a(i))\right)^2 di\right] \text{ s.t.}$$

$$a(i) + d(i) \leq \bar{a} \ \ \forall i \text{ , and } \ n = m+k+g.$$

4.1 The Entrepreneur's Incentive to Measure

Before analyzing the choices of the entrepreneur, I first lay out several propositions that demonstrate the role of the transactional relationship with the beneficiaries in resolving information asymmetries with respect to beneficiaries' abilities and needs. In particular, I demonstrate that an entrepreneur that commits to transacting with the beneficiaries has incentives to (a) tailor subsidies to their needs, and (b) measure or gather information on the beneficiaries' abilities, if the costs of measurement are not too high.

Proposition 1. *If the social entrepreneur expends C(m) on measurement at t=0, she has financial and altruistic incentives to tailor the subsidies to the needs of these m beneficiaries at t=1, i.e.,* $d^{m*}(i) = \bar{a} - a(i) \ \ \forall i \in [0, m]$.

The importance of Proposition 1 is that the entrepreneur has a financial stake in using the subsidies effectively by tailoring them to the needs of the beneficiaries. If she deviates from $d^m(i) = \bar{a} - a(i)$, the entrepreneur loses revenues because the beneficiary would perform poorly.

Proposition 2. *The social entrepreneur that commits to transacting with the beneficiaries has financial and altruistic incentives to measure the abilities of the beneficiaries, as long as the marginal costs of measurement ($C'(m)$) are lower than the marginal revenues from increasing the productivity of the beneficiaries and reputational gains from tailoring the subsidies to their needs.*

If the entrepreneur has already committed to employing the beneficiaries, then her revenue depends on their productivity. Without measuring their abilities, the entrepreneur does not know what subsidy to allocate to them, and therefore she will give too little assistance to at least some of them, and too much assistance to others. This will result in loss of revenues. Moreover, because the allocations will not be tailored to the needs of each beneficiary, the entrepreneur will also suffer altruistic or reputational loss due to the mismatch between what the beneficiaries need and what they get. In other words, the profit and altruistic missions are aligned.

The financial and altruistic incentives to measure are stronger when (a) many beneficiaries have abilities that are below $E(a) - \frac{r-1}{2\gamma}$, (b) the variance of beneficiaries' abilities ($Var(a)$) is high.[12] Proposition 2 shows that the entrepreneur has a financial motive to measure. However, as stated in Lemma 2, if measurement is too costly, the entrepreneur will choose not to transact with the beneficiaries at all; rather she will always prefer to help the beneficiaries by giving.

Lemma 2. *The entrepreneur will always prefer to distribute subsidies through corporate charity rather than transact with the beneficiaries without measuring their attributes. Thus, $k^* = 0$.*

Corollary 1. *If the entrepreneur chooses to employ the beneficiaries, she will expend the measurement costs and tailor subsidies to beneficiaries' abilities.*

When the entrepreneur does not measure and observe a, she is likely to set the disbursals in a way that does not help the beneficiaries reach the capabilities of standard workers, and hence she will lose revenues. She will also suffer the reputational costs of ineffectiveness. If she is going to suffer the reputational costs of ineffectiveness anyway, she might as well employ standard workers and earn more revenues, and confine her altruistic endeavors to giving only. Note that when the entrepreneur chooses to give, she sets $d^{g*}(i) = \bar{a} - E(a) - \frac{1}{2\gamma}$, as per equation (2), and that the choice of n is defined by the same equation as in equation (3). In the following discussion, I turn to the entrepreneur's choice between transacting and giving.

[12] See equation (29) in section B.2 of the Online Appendix.

4.2 Transacting and Giving as Strategic Substitutes

The entrepreneur still faces a choice between a social enterprise that measures the beneficiaries and corporate charity, i.e., choosing between increasing m or g. Whenever the entrepreneur increases n by one unit, she has a choice between employing the beneficiary (and measuring) and disbursing a subsidy to the beneficiary. Giving and transacting operate as strategic substitutes. The entrepreneur can give and face the costs of ineffectiveness, or "save" the costs of ineffectiveness, by expending the costs of measurement. Using Lemma 1, and letting $n = n', m = m',$ and $g = g'$, we can write the ex ante utility of the entrepreneur as follows:

$$r \times w \times \bar{a} + D(n') - C(m') - n'\left(\bar{a} - E(a)\right) - \gamma \times g' Var(a) + \frac{g'}{4\gamma}. \tag{6}$$

If we increase n by increasing m, the marginal change in expected utility is $D'(n') - (\bar{a} - E(a)) - C'(m')$, whereas if the entrepreneur increases n by increasing g, the marginal change in utility is $D'(n') - (\bar{a} - E(a)) - \gamma Var(a) + \frac{1}{4\gamma}$. Thus, the entrepreneur will increase n by increasing m only if (1) $C'(m') < \gamma Var(a) - \frac{1}{4\gamma}$, and (2) $C'(m') < D'(n') - (\bar{a} - E(a))$, i.e., where the costs of measurement are lower than the reputational costs of ineffectiveness, and lower than the marginal donation received minus the expected disbursals to the beneficiaries. Otherwise, she would prefer to increase n by increasing g. Note that $D(n)$ is concave, and $C(m)$ is convex, and that increasing m means also increasing n. At the optimum, there can be two results. The first result (m_1^*) is one that satisfies what I call the "effectiveness constraint"; beyond that point the measurement costs of employing more beneficiaries exceed the gains in effectiveness $\left(\text{i.e., } \gamma Var(a) - \frac{1}{4\gamma}\right)$, even if the entrepreneur has more donations available.

$$C'(m_1^*) = \gamma Var(a) - \frac{1}{4\gamma} < D'(m_1^*) - \left(\bar{a} - E(a)\right). \tag{7}$$

The second result (m_2^*) satisfies the "measurement compensation constraint," which means that the entrepreneur demands to keep some of the donations minus the disbursal transferred to the beneficiaries as compensation for the costs she incurs for performing the measurement function.

$$C'(m_2^*) = D'(m_2^*) - \left(\bar{a} - E(a)\right) < \gamma Var(a) - \frac{1}{4\gamma}. \tag{8}$$

These conditions show that social enterprise (corporate charity) is preferable when $Var(a)$ is large (small), and hence the informational advantages of social enterprise due to its measurement function are relatively high (low), and when γ is high (low). This leads to the following proposition.

Proposition 3. *An entrepreneur will prefer to transact with the beneficiaries if the variance in* *abilities is high and she cares about effectiveness (γ is high). Otherwise, the entrepreneur will prefer to help the beneficiaries through corporate charity.*

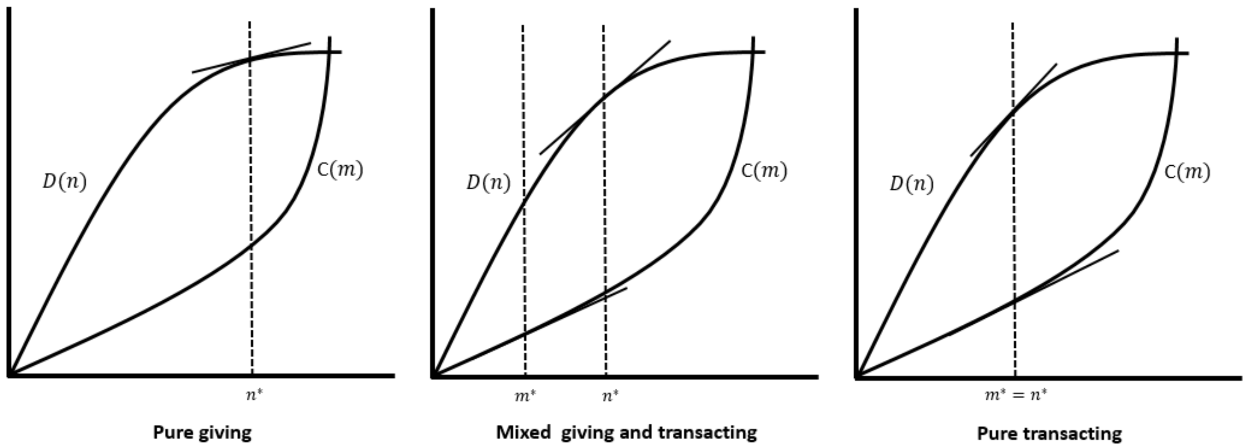
As depicted in Figure 1, three main results may emerge depending on $Var(a)$ and γ:

Case 1. **Pure Giving** : a firm will choose to engage only in giving if the effectiveness constraint is not satisfied for any m, i.e., $C'(0) > \gamma \times Var(a) - \frac{1}{4\gamma}$. The firm will then choose n^*, such that equation (3) is satisfied. This means that if $Var(a)$ is low or γ is small, the firm will prefer to focus only on corporate charity. Most for-profit corporations in fact engage in corporate charity, in part because their γ is small, the intended beneficiaries have low $Var(a)$, and because they lack an efficient measurement technology, and hence $C'(0)$ is very high.

Case 2. **Mixed Giving and Transacting**: this result arises when at the optimum level $m^* = m_1^*$ as per equation (7). Note that when $n = m_1^*$, the entrepreneur will continue to increase n until n satisfies equation (3). Thus, the entrepreneur will mix employing the beneficiaries and giving to them through corporate charity. This case is likely to occur where $Var(a)$ and γ are not too high or too low, such that the advantages of measuring are limited, and the entrepreneur will continue to use available donations beyond the point at which measurement is effective. Many social enterprises also have a corporate charity arm, for example fair trade firms that donate money to donative organizations or conduct training programs on a pro bono basis.

Case 3. **Pure Transacting**: this result arises when at the optimum level $m^* = m_2^*$, per equation (8), i.e., the measurement compensation constraint is satisfied. This scenario is more likely when $Var(a)$ and γ are large. As $D(n)$ is concave, the marginal income from donations decreases with n, and therefore at high level of $\gamma Var(a)$, the measurement compensation constraint will bind. When the informational advantages are high, social enterprises focus exclusively on transacting.

Figure 1: **The Entrepreneur's Choice between Transacting and Giving**



This figure shows the three key results of the entrepreneur's problem in choosing m and n as described in detail in section 4.2.

5 The Non-profit versus the For-profit Form

In this section, I examine the effect of the non-profit form on the choices of the entrepreneur, and compare them to the choices of the for-profit-entrepreneur. The traditional theory of non-profits shows that non-profits produce higher quality (Glaeser & Shleifer, 2001). As will be shown below, this is also the case in this model when the entrepreneur is restricted to giving only (see section 5.1), or when the informational asymmetry is relatively low (see section 5.2). However, when the information asymmetry is high, and the entrepreneur forms a social enterprise, the quality defined as subsidy-effectiveness produced by non-profits is the same for both for-profits and non-profits. The reason is that the transactional mechanism already gives the entrepreneur ample incentives to tailor subsidies to the needs of the beneficiaries. I again start the analysis with pure giving.

5.1 Donative Organizations versus Corporate Charity

Donative organizations are firms that largely engage in pure giving (for example, through training disadvantaged groups). Examples include Oxfam or the Red Cross. The utility function of the entrepreneur is the same as in equation (1), except that $0 < v < 1$.[13] The entrepreneur's choices

[13] Note that donative organizations may and often do form businesses or invest capital to make profits, and thereby increase their donative capital as well as the ability of the entrepreneurs that manage them to make profit. Most private foundations earn revenues by investing the donations they receive in the stock market. Another example is Housing Works which is an organization dedicated to helping homeless people who suffer from AIDS, but also operates coffee shops and second-hand clothing stores in New York City.

in this case are:

$$d^*(i) = \bar{a} - E(a) - \frac{v}{2\gamma} \;\; \forall i \in [0, n], \text{ and} \tag{9}$$

$$D'(n^*) = \bar{a} - E(a) + \frac{\gamma}{v} Var(a) - \frac{v}{4\gamma}. \tag{10}$$

Compare these choices to those of the for-profit entrepreneur. Since $0 < v < 1$, d^*_{np}, the disbursal by a non-profit donative organization in equation (9) is larger and closer to $\bar{a} - E(a)$ than d^*_{fp}, the disbursal made by a for-profit in equation (2). The reason is that the non-profit entrepreneur cares less about monetary incentives and more about effectiveness. Note however, that $n^*_{np} < n^*_{fp}$, because $D(n)$ is concave, and the right-hand side in equation (10) is larger than the right-hand side in equation (3). This leads to the following Lemma.

Lemma 3. *A donative organization will provide each beneficiary a larger disbursal than a for-profit that engages in corporate charity ($d^*_{np} > d^*_{fp}$), but will make disbursals to fewer beneficiaries ($n^*_{np} < n^*_{fp}$).*

Accordingly, donative organizations care more than for-profits that engage in corporate charity about quality defined as subsidy-effectiveness as opposed to mere quantity. The number of beneficiaries is not only smaller for donative organizations because the disbursals are larger (and hence $D'(n)$ is larger too), but primarily because donative organizations give greater weight to the problem of effectiveness due to the non-distribution constraint ($\frac{\gamma}{v} Var(a) > \gamma Var(a)$).

This result may be counter-intuitive because we may think that non-profits will tend to help more people. However, many non-profits are relatively slow to give out charity and disburse donations. For example, large foundations have a great deal of untapped capital that is often just invested in profitable projects (Brest & Harvey, 2010). One reason may be that they are concerned about the effectiveness of charitable programs. This suggests that in order to encourage foundations to disburse more of their funds towards projects with a social mission, there is a need to provide them with greater assurance about the effectiveness of the program. Note though that in practice, tax deductions (discussed below) extended to donors to non-profits, such as foundations, induce these organizations to make disbursals to more beneficiaries. This is possibly one of the main rationales for the tax deductions on donations. However, as discussed below, such tax deductions do not necessarily increase subsidy-effectiveness and social welfare.

5.2 Non-Profit versus For-profit Social Enterprises

I now consider the non-profit entrepreneur's decision to employ the beneficiaries. The entrepreneur problem is defined in equation (5), except that this time we assume that $0 < v < 1$. It is easy to show that $d^{g*}(i) = \bar{a} - E(a) - \frac{v}{2\gamma}$, and that Propositions 1 and 2, Lemma 2 and Corollary 1 all apply to the non-profit entrepreneur, such that $k^* = 0$, and $d^{m*}(i) = \bar{a} - a(i)$. Again, we need to consider the entrepreneur's choice between m and g. Thus, we fix $n = n', m = m'$, and $g = g'$, so that the ex ante utility of the non-profit entrepreneur is:

$$v \times (r \times w \times \overline{a} + D(n') - C(m') - n'(\bar{a} - E(a))) - \gamma \times g' Var(a) + \frac{v^2 g'}{4\gamma}. \tag{11}$$

The entrepreneur will choose m^*, such that either the new effectiveness constraint or the measurement compensation constraint is satisfied, that is

$$C'(m_3^*) = \frac{\gamma}{v} Var(a) - \frac{v}{4\gamma} < D'(m_3^*) - (\bar{a} - E(a)), \text{ or} \tag{12}$$

$$C'(m_4^*) = D'(m_4^*) - (\bar{a} - E(a)) < \frac{\gamma}{v} Var(a) - \frac{v}{4\gamma}. \tag{13}$$

As in the case of a for-profit social enterprise, the higher $Var(a)$ and γ, the more likely that the entrepreneur will employ the beneficiaries and measure their abilities. The same three cases depicted in Figure 1 may emerge as in the case of a for-profit social enterprise: pure giving (i.e, a donative organization), mixed transacting and giving (i.e., the result represented by equations (12) and (10)), and pure transacting (see equation (13)).

In comparing the choices of the for-profit and non-profit entrepreneurs, it is useful to look again at these three cases, which depend again primarily on the term $\gamma \times Var(a)$. A critical factor in this comparison is that the threshold for expending the cost of measurement for the non-profit entrepreneur is higher; i.e., $\frac{\gamma}{v} Var(a) - \frac{v}{4\gamma} > \gamma \times Var(a) - \frac{1}{4\gamma}$ (compare the thresholds in equations (7) and (12)). Figure 2 summarizes the following analysis of the three main cases:[14]

Case 1. $\gamma \times Var(a)$ is low. Suppose $C'(0) > \frac{\gamma}{v} \times Var(a) - \frac{v}{4\gamma}$, such that the non-profit entrepreneur chooses to form a donative organization. In this case, the for-profit entrepreneur would also focus exclusively on giving because $\frac{\gamma}{v} \times Var(a) - \frac{v}{4\gamma} > \gamma Var(a) - \frac{1}{4\gamma}$ and $C(m)$ is convex. Note that per Lemma 3, $n_{np}^* = g_{np}^* < g_{fp}^* = n_{fp}^*$.

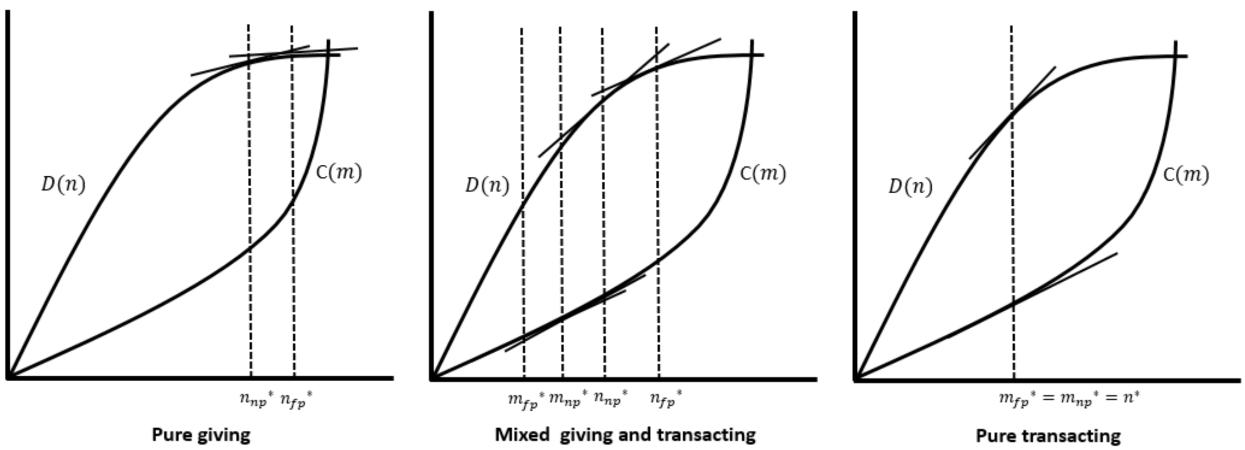
Case 2. $\gamma \times Var(a)$ is medium. Suppose $C'(m_{fp}) = \gamma Var(a) - \frac{1}{4\gamma}$ (see equation (7)). At $m = m_{fp}^*$,

[14] Note that these cases are not exhaustive. For example, in case 2 it is possible that the for-profit will mix between transacting and giving, while the non-profit will engage exclusively in transacting.

the non-profit entrepreneur will continue to increase the number of beneficiaries she will employ because $C(m)$ is convex, such that $m^*_{np} \geq m^*_{fp}$. Note however that the non-profit entrepreneur will increase n up to the level at which $D'(n^*_{np}) - (\bar{a} - E(a)) = \frac{\gamma}{v}Var(a) - \frac{v}{4\gamma} > \gamma Var(a) - \frac{1}{4\gamma} = D'(n^*_{np}) - (\bar{a} - E(a))$. Therefore, $n^*_{np} < n^*_{fp}$ because $D(n)$ is concave. It follows then that $g^*_{fp} > g^*_{np} \geq 0$ because $n = m + g$.

Case 3. $\gamma \times Var(a)$ is high. Suppose that $C'(m_{fp}) = D'(m_{fp}) - (\bar{a} - E(a))$ (see equation (8)). This means that $g^*_{fp} = 0$, as the for-profit entrepreneur chooses to engage only in transacting. This is however also the choice of the non-profit entrepreneur, since equation (8) is essentially identical to equation (13), $\frac{\gamma}{v}Var(a) - \frac{v}{4\gamma} > \gamma Var(a) - \frac{1}{4\gamma}$, and $D(n)$ is concave. This means that at m_{fp}, the measurement compensation constraint for the non-profit entrepreneur will also bind. Therefore, $m^*_{fp} = m^*_{np}$, and $g^*_{np} = 0$.

Figure 2: **Legal Form and the Entrepreneur's Choice between Transacting and Giving**



This figure shows the three key results of the entrepreneur's problem in choosing m and n depending on whether the firm is a for-profit or a non-profit as described in detail in section 5.2. The subscript np denotes non-profit, and the subscript fp denotes for-profit.

In addition, it is important to emphasize that in all cases, it is always the case that $d^{g*}_{np} = \bar{a} - E(a) - \frac{v}{2\gamma} > d^{g*}_{fp} = \bar{a} - E(a) - \frac{1}{2\gamma}$, and that $d^{m*}_{np} = d^{m*}_{fp} = \bar{a} - a(i)$. The following proposition follows:

Proposition 4. *When $\gamma \times Var(a)$ is medium or low, a non-profit will produce higher quality measured as subsidy-effectiveness ($m^*_{np} \geq m^*_{fp}$, and $d^{g*}_{np} > d^{g*}_{fp}$), and a for-profit will produce higher quantity than a non-profit ($n^*_{np} < n^*_{fp}$). When $\gamma \times Var(a)$ is high, non-profits and for-profits produce the same quality ($m^*_{np} = m^*_{fp}$, and $d^{m*}_{np} = d^{m*}_{fp}$) and quantity ($n^*_{np} = n^*_{fp}$ and $g^*_{np} = g^*_{fp} = 0$).*

This result shows that non-profits, at least without tax incentives, do not produce more charity than for-profits, but rather produce higher quality. This is consistent with the view that non-profit entrepreneurs produce higher quality, which in this model is measured in terms of the effective use of subsidies. However, when the informational asymmetries are high, the incentives of the entrepreneur to measure and gather information on beneficiaries' abilities are already very strong. Therefore, the non-profit form is not necessary to induce the entrepreneur to use subsidies effectively, because the entrepreneur will have strong incentives to expend all donative funding on measurement anyway.

6 The Entrepreneur's Choice of Legal Form

To determine which form the entrepreneur will actually choose, we need to compare the utilities she derives from her decisions. As a preliminary step, I will compare these utilities on the assumption that the entrepreneur mixes between social enterprise and giving. The ex ante utility of the non-profit entrepreneur is given by equation (11), except that n' and m' should be replaced with n^* and m^*. The utility of the for-profit entrepreneur is the same except that we set $v = 1$. Accordingly, the social entrepreneur will choose the non-profit form if the utility from forming a non-profit is higher than the utility from forming a for-profit, i.e.,

$$\begin{aligned} &\underbrace{(v-1)\, r \times w \times \bar{a}}_{<0} \quad + \underbrace{v \times D\left(n^*_{np}\right) - D\left(n^*_{fp}\right)}_{<0} \\ &+ \underbrace{\left(n^*_{fp} - v \times n^*_{np}\right)(\bar{a} - E(a))}_{>0} \quad + \underbrace{\left(g^*_{fp} - g^*_{np}\right)\gamma Var(a)}_{>0} \quad + \underbrace{\frac{1}{4\gamma}\left(v^2 \times g^*_{np} - g^*_{fp}\right)}_{<0} \\ &+ \underbrace{C(m_{fp}) - v \times C(m_{np})}_{?} \quad > 0. \end{aligned} \tag{14}$$

In evaluating the entrepreneur's choice, note that in Case 1, the last two terms equal 0, $n^*_{fp} = g^*_{fp}$, and $n^*_{np} = g^*_{np}$. In Case 2, we know that $m^*_{np} > m^*_{fp} > 0$ and $g^*_{fp} > g^*_{np} \geq 0$. Note that in both Cases 1 and 2, we cannot tell if the condition in equation (14) would increase or decrease in $Var(a)$ and $E(a)$. This makes it hard to predict the circumstances in which entrepreneurs will choose between for-profit and non-profit social enterprises as well as between corporate charity and donative organizations. In fact, this might actually explain the difficulty of many commentators in articulating whether a for-profit or a non-profit would be a better vehicle for channeling subsidies, and why many have argued that the distinction between the two forms appears to be increasingly illusory (Battilana et al., 2012). This is however subject to one important caveat.

In Case 3, the non-profit entrepreneur's utility is:

$$U_{np} = v \times \Big(r \times w \times \overline{a} + D(m^*_{np}) - m_{np}\left(\bar{a} - E(a)\right) - C(m^*_{np})\Big) \tag{15}$$

The utility of the for-profit entrepreneur is:

$$U_{fp} = r \times w \times \overline{a} + D(m^*_{fp}) - m^*_{fp}\left(\bar{a} - E(a)\right) - C(m^*_{fp}). \tag{16}$$

Assuming the entrepreneur's profits are positive, it is clear that the entrepreneur will choose the for-profit form because $U_{fp} > U_{np}$, as $m^*_{fp} = m^*_{np}$. This finding leads to the following proposition.

Proposition 5. *The entrepreneur will form a for-profit social enterprise that engages exclusively in transacting with the beneficiaries if the variance of abilities (Var(a)) is high and the entrepreneur is very altruistic (γ is large).*

If both for-profits and non-profits produce the same quality, the non-distribution constraint becomes redundant and merely imposes costs on the entrepreneur. There are many examples of dedicated for-profit social enterprises that operate in environments where information asymmetries are likely to be severe due to a high variance in abilities. For example, fair trade firms that buy products from many disaggregated farmers that have varying abilities tend to be for-profit firms, and rarely incorporate as non-profits. These firms also tend to have relatively thin corporate social responsibility programs, and their assistance is channeled primarily through the transactional relationship with their farmers. Proposition 5 suggests that the reason why the for-profit form may be the preferred legal form in the context of certain social problems is the severity of information asymmetries. This partly explains the puzzle why in some contexts we observe for-profits as the dominant form for organizations dedicated to pursuing social missions.

It is important to emphasize that the main results are robust to several specifications discussed in section A of the Online Appendix. In particular, the main results hold even if (a) the donation function depends on the expected quality produced by the entrepreneur, such that the entrepreneur can give ex ante fewer donations if the expected quality is lower; and (b) and when the donor cannot contract for quantity as well as quality.

The results further hold when we measure quality in such a way that the entrepreneur is not penalized when she wastes subsidies, but only when the subsidy falls short of the needs of the beneficiaries. They do not hold, however, when quality is measured as quantity. This reinforces the role of social enterprises in producing higher quality charity which is tailored to the needs of the beneficiaries.

Finally, it is important to emphasize that none of the key results hold if there are no information asymmetries, such that the entrepreneurs can observe a. In fact, in these circumstances, social enterprises are redundant.

Proposition 6. *Without information asymmetries (i.e., when $a(i)$ is observable for every i), the entrepreneur will never form a social enterprise by transacting with the beneficiaries (i.e., $k^* = 0$ and $m^* = 0$).*

The intuition is that when there are no information asymmetries, there are no benefits to measurement. Social enterprises evolve mainly in the development context where disadvantaged groups include individuals with varying abilities, for example, with respect to productivity or creditworthiness. In the context of other social problems, such as assistance to the destitute, information asymmetries are not particularly potent, and therefore the need for tailoring is less acute. When the beneficiaries have relatively homogeneous levels of abilities and needs, there is no need for measurement. In this case, we are more likely to observe policies, such as training programs or credit subsidies, rather than work-integration firms or microfinance institutions.

7 Social Welfare

The choices of the entrepreneur can have an effect on social welfare. I define a social welfare function (S), which incorporates (1) the utility of the entrepreneur (U_{ent}), (2) the utility of the donor (U_d), and (3) the utility of the beneficiaries who get employment assistance (U_b). The utility of the entrepreneur is given above. The utility that the donors derive from making donations is assumed to be equal to the value of their donations to the firm ($D(n)$). Thus, by assumption, U_d is normalized to zero because donors give just as much as they receive from making their donation. The benefit to the workers is quantified at the amount of disbursals they receive (e.g., through a training program), but only to the extent that such disbursals are effective.[15] Thus, if worker $a(i)$ receives $d(i)$, such that $a(i) + d(i) \geq \bar{a}$, the worker's utility increases by $\bar{a} - a(i)$.[16] But if $a(i) + d(i) < \bar{a}$, the worker's utility increases only by $d(i) < \bar{a} - a(i)$. Using equations (2) and (9), the probability that $a(i) + d(i) < \bar{a}$, is the same as the probability that $a < E(a) + \frac{1}{2\gamma}$ for a

[15]In other contexts, this wasteful subsidy may be analogous to giving products or discounts on products to individuals who don't need them, or giving free or discounted capital to individuals to invest in projects with negative present value (or increasing the scale of a project with negative marginal return).

[16]To keep the analysis simple, I ignore the impact that effective disbursals may have on beneficiaries' consumption due to the increase in their abilities, and essentially assume that U_b is linear in the disbursals to the extent they are effective. This makes the analysis more conservative in assessing the benefits of transacting with the beneficiaries.

for-profit firm and $a < E(a) + \frac{v}{2\gamma}$ for a non-profit. Let P_{fp} and P_{np} be these respective probabilities for a for-profit and a non-profit. When the entrepreneur chooses the non-profit form, S is given by:

$$
\begin{aligned}
S &= U_d + U_{ent} + U_b \qquad (17)\\
&= 0 + v \times (r \times w \times \bar{a} + D(n^*) - n^*\left(\bar{a} - E(a)\right) - C(m^*)) - g^* \times \gamma Var(a) + \frac{v^2 g^*}{4\gamma} + m^*\left(\bar{a} - E(a)\right)\\
&\quad + P_{np} g^* d(i)^* + (1 - P_{np})\, g^* \left(\bar{a} - E\left[a | a > E(a) + \frac{v}{2\gamma}\right]\right)\\
&= v \times r \times w \times \bar{a} + v \times D(n^*) - v \times C(m^*) + n^*\left(1 - v\right)\left(\bar{a} - E(a)\right) - g^* \times \left(\gamma Var(a) - \frac{v^2}{4\gamma}\right)\\
&\quad - g^* \times \left(P_{np}\frac{v}{2\gamma} + (1 - P_{np})\left(E\left[a | a > E(a) + \frac{v}{2\gamma}\right] - E(a)\right)\right).
\end{aligned}
$$

In the case of a for-profit entrepreneur ($v = 1$), S turns into:

$$
\begin{aligned}
S = r \times w \times \bar{a} + D(n^*) - C(m^*) - g^* \times \left(\gamma Var(a) - \frac{1}{4\gamma}\right) \qquad (18)\\
- g^* \times \left(P_{fp}\frac{1}{2\gamma} + (1 - P_{fp})\left(E\left[a | a > E(a) + \frac{1}{2\gamma}\right] - E(a)\right)\right).
\end{aligned}
$$

Note that the second-to-last term denotes the reputational costs to the entrepreneur from making low-quality disbursals that are too high or too low, and the last term is the cost to the beneficiaries, first by the entrepreneur underpaying them by $\frac{1}{2\gamma}$ when it engages in giving (which bites only when $a < E(a) + \frac{1}{2\gamma}$), and second, the waste from overpaying those who have higher abilities ($a < E(a) + \frac{1}{2\gamma}$). It is apparent from this expression that there is a trade-off between the costs of measurement and the costs of disbursals that don't meet the needs of the beneficiaries. When $Var(a)$ is high, such that the entrepreneur sets $g^* = 0$, the social welfare function further simplifies and the last two terms disappear.

It is easy to show that the choices made by the entrepreneur are not socially optimal. For simplicity, I will focus on the case where the entrepreneur chooses the for-profit form, but the analysis is similar for non-profits. Let m_{opt} be the optimal number of beneficiaries. If a social planner chooses m in order to maximize S, its effectiveness constraint and measurement compensation constraint are clearly laxer than those of the entrepreneur (see equations (7) and (8)). The optimal m_{opt} is defined by one of the following two equations.

$$C'(m_{opt1}) = \gamma Var(a) - \frac{1}{4\gamma} + \left(P_{fp}\frac{1}{2\gamma} + (1-P_{fp})\left(E[a|a > E(a) + \frac{1}{2\gamma}] - E(a)\right)\right) < D'(m_{opt1}), \text{ and} \tag{19}$$

$$C'(m_{opt2}) = D'(m_{opt2}) < \gamma Var(a) - \frac{1}{4\gamma} + \left(P_{fp}\frac{1}{2\gamma} + (1-P_{fp})\left(E[a|a > E(a) + \frac{1}{2\gamma}] - E(a)\right)\right), \tag{20}$$

where the latter applies when $\gamma Var(a)$ is higher and the optimal giving is then $g_{opt} = 0$. This leads to the following proposition.

Proposition 7. *The entrepreneur transacts with fewer beneficiaries than is socially optimal ($m^* < m_{opt}$).*

Accordingly, the quality of the entrepreneur's social program is lower than the optimal quality from a social perspective. The reason is that the entrepreneur only internalizes her own reputational costs, but not the benefits to the beneficiaries. Thus, she will expend less on measurement costs than is socially optimal.[17]

8 Subsidy and Tax Policy

The foregoing analysis ignored tax considerations and government subsidies in the choice of organizational form. In the following discussion, I discuss the effect of such policies on promoting social entrepreneurship. First, I start by identifying the policy that maximizes social welfare, namely subsidies conditional on employing a certain number of beneficiaries. Second, I show how standard tax benefits, such as the tax deduction or income tax exemptions, may actually decrease subsidy-effectiveness and social welfare. The discussion focuses on the impact of policies on for-profit entrepreneurs that adopt the for-profit form when $\gamma Var(a)$ is very high. The reason is that

[17] It can also be shown that giving itself may not be socially optimal when $Var(a)$ is medium or low, which applies where $m_{opt} = m_{opt1}$. In this case, the optimal number of beneficiaries, n_{opt}, is defined by $D'(n_{opt}) = \gamma Var(a) - \frac{1}{4\gamma} + \left(P_{fp}\frac{1}{2\gamma} + (1-P_{fp})\left(E[a|a > E(a) + \frac{1}{2\gamma}] - E(a)\right)\right)$, which implies that $n_{opt} > n^*$, where n^* is the number of beneficiaries chosen by the entrepreneur as defined by equation (3). This is easy to show using the constraint that $d(i) > 0$. The intuition is that the social planner is concerned with the marginal waste generated by the disbursals, whereas the entrepreneur is concerned with the marginal costs of the disbursals. But the latter is higher than the former in this set-up. Note that it does not follow that the entrepreneur's choice of g is smaller than the optimal level of giving g_{opt}, because $m^* \leq m_{opt}$. Accordingly, from a social welfare perspective, policies to encourage transacting may be more critical than encouraging giving.

these are the instances in which social entrepreneurship is most critical for resolving information asymmetries, and because the current policy issue at stake is whether for-profits that pursue social missions should be allocated government subsidies (Posner & Malani, 2007; Mayer & Ganahl, 2014). Thus, I will assume throughout this section that $m^* = m_2$ as per equation (8), $g^* = 0$, and $m_{opt} = m_{opt2}$ as per equation (20).

As a preliminary point, in the following sub-sections, I will consider a government that seeks to maximize social welfare. The government represents the interests of the citizens and can choose to make transfers. We take these transfers into account in calculating social welfare S, such that $S = -T + U_d + U_{ent} + U_b$, where T is the amount of any government transfers. Such transfers reflect the aggregate loss in utility to the taxpayers. Transfers have no effect on social welfare if they entail a corresponding benefit to the transferee. Thus, cash transfers to the entrepreneur have no impact on S. On the other hand, government spending on training programs might actually generate waste because the government presumably faces informational problems (just like the entrepreneur). Suppose the government gives $\bar{a} - E(a)$ to g beneficiaries. The government loses $T = g\left(\bar{a} - E(a)\right)$, but the corresponding benefits to the beneficiaries are lower, and the ensuing loss is $(1 - P_{fp})\left(E[a|a > E(a)] - E(a)\right)$, i.e., the waste from over-spending on those who have higher abilities than the average. Accordingly, the government must consider policies to encourage social entrepreneurship, because only entrepreneurs can gain information on beneficiaries' abilities by transacting with them, albeit at a cost.

8.1 Conditional Subsidies

The government can condition its grant on the firm taking certain actions, in particular, employing the beneficiaries. Assume $Var(a)$ is high such that $m_{opt} = m_{opt2}$. The government can therefore subsidize the employment of the beneficiaries up to the optimal level at which $C'(m_{opt}) = D'(m_{opt})$. Recall that when $\gamma Var(a)$ is high, the entrepreneur will increase n until $C'(m^*) = D'(m^*) - \left(\bar{a} - E(a)\right)$. The government can incentivize the entrepreneur to employ m_{opt} beneficiaries by providing the firm with $(m_{opt} - m^*)\left(\bar{a} - E(a)\right)$ conditional on the firm employing m_{opt} beneficiaries. Note that if the government can fully observe the donation function and the costs of measurements per each beneficiary, it might be able to provide a lower subsidy that reflects the marginal increase in measurement costs and decrease in donations, i.e., $\int_{m^*}^{m_{opt}}(D'(m) - C'(m))dm$, though any excess subsidy does not affect the choices of the entrepreneur or social welfare.

Remark 1. When $Var(a)$ is high, a subsidy to for-profits in the amount of at least $\int_{m^*}^{m_{opt}}(D'(m) - C'(m))dm$ conditional on transacting with m_{opt} beneficiaries will cause the entrepreneur to employ the number of beneficiaries (m_{opt}) that maximizes social welfare.

At this point, the entrepreneur will not engage in any giving. The reason is that for giving to take place, it is necessary that $D'(m_{opt}+g) > \bar{a}-E(a)+\gamma Var(a)-\frac{1}{4\gamma}$, but $D'(m_{opt}) < \bar{a}-E(a)$. We also know that $D'(m_{opt}) < C'(m^*) < \gamma Var(a) - \frac{1}{4\gamma} < \frac{P_{fp}}{2\gamma} + (1-P_{fp})\left(E[a|a > E(a) + \frac{1}{2\gamma}] - E(a)\right) + \left(\gamma Var(a) - \frac{1}{4\gamma}\right)$. Therefore, it is also not socially desirable for the entrepreneur to increase n above m_{opt} by increasing g.

It is also not desirable to require the entrepreneur to employ more than m_{opt} because $D'(m) < C'(m)$ for $m > m_{opt}$. This means that if the government does not know the shape of the donation or measurement function it may not be able to design an optimal policy, and there may be excess measurement in the market. I briefly discuss possible institutional mechanisms to help the government identify m_{opt} through a competitive auction below in section 11.3.

8.2 Other Tax Benefits

8.2.1 Tax deductions

Consider the effect of allocating tax deductions to donors to for-profit firms. This can be implemented by multiplying $D(n)$ by a scalar $(\lambda > 1)$ in equations (1). From a social welfare perspective, a tax deduction is essentially a government transfer amounting to $(\lambda - 1)\, D(n^*)$ to the entrepreneur. Such a transfer does not affect welfare itself. But the transfer may affect the incentives of the entrepreneur in choosing n,m, and g. Note that the tax deduction only relaxes the measurement compensation constraint, but it has no effect on the effectiveness constraint. The effect of λ is first to increase n by increasing m. In principle, this is socially desirable. It is critical however that λ is not set too high. The optimal tax deduction, λ_{opt}, is such that it encourages the entrepreneur to employ m_{opt} beneficiaries. It is easy to show that $\lambda_{opt} = \frac{C'(m_{opt})+\bar{a}-E(a)}{D'(m_{opt})}$. Thus, if $\lambda > \lambda_{opt}$, the effect of the tax deduction would be to encourage the entrepreneur to help the beneficiaries through giving. Moreover, increasing giving in this case reduces social welfare because $g_{opt} = 0$ (see section 7). If $\lambda = \lambda_{opt}$, the effect of the tax deduction is the same as the conditional subsidies described in Remark 1.

Remark 2. Social welfare with tax deductions to donors to for-profits is at best equivalent to social welfare with conditional subsidies. When $Var(a)$ is high and the tax deduction is too high $(\lambda > \lambda_{opt})$, such a tax deduction reduces subsidy-effectiveness and decreases social welfare by encouraging wasteful giving.

Remark 2 may partly explain why the Internal Revenue Service (IRS) is cautious in recognizing social enterprises as tax exempt organizations under section 501(c)(3) on the basis that they are commercial in nature even if they commit to employing the poor or providing them with low-cost services. It further explains why the federal government and tax authorities have resisted recent proposals to extend tax deductions to donors to for-profit social enterprises. The tax deduction applies broadly to a specific organizational form, but setting $\lambda = \lambda_{opt}$ requires a case-by-case evaluation of the donation function, the measurement technology and the informational asymmetry. Extending it broadly to for-profit social enterprises runs the risk that it will generate wasteful giving, rather than desirable transacting.

8.2.2 Income Tax Exemption

Tax exemptions may in theory be extended to for-profits. Within this model this is similar to imposing $v > 1$. The income tax exemption itself (similar to tax deductions) constitutes a transfer from the government to the entrepreneur (amounting to the cash component of the entrepreneur's utility multiplied by $(v-1)$). Such a transfer does not by itself change social welfare; rather, the change in S is due to changes in the choices of the entrepreneur.

Unlike the tax deduction, the income tax exemption (like the non-distribution constraint) does not have any effect on the measurement compensation constraint. Therefore, the entrepreneur will choose the same m even with the tax exemption. The tax exemption may however reduce the threshold for expending the measurement costs in the effectiveness constraint. If it is large enough, the effectiveness constraint will be satisfied, and the entrepreneur will employ fewer beneficiaries, and engage instead in giving. Note also that n will be higher, and the disbursals to the beneficiaries through giving ($d^g(i)$) would be lower. It is not possible to determine whether the income tax exemption increases or decreases social welfare. On the one hand, the entrepreneur's utility naturally increases because her income is higher, but on the other hand, the costs of ineffectiveness and waste are higher.

Remark 3. Income tax exemptions to social enterprises reduces quality measured as subsidy-effectiveness, and may decrease social welfare.

9 Regulation of Social Enterprises

9.1 Mission-Drift

A potential concern with social enterprises is that they may focus primarily on transacting with the beneficiaries who, albeit disadvantaged (in the sense that they belong to groups that are unable to transact with commercial firms), have the highest abilities among the disadvantaged. This concern is voiced against many social enterprises, particularly microfinance institutions which lend only to marginally vulnerable borrowers, fair trade firms that source products from highly skilled farmers from rural communities, and work-integration firms that avoid employing workers that require substantial training. The analysis above can accommodate these concerns.

Suppose that the abilities of the beneficiaries (a) are uniformly distributed, and (b) that a social entrepreneur can choose the workers she will employ after she expends the measurement costs. Naturally, she will then choose to employ those who have the highest abilities, i.e., those with $a \in [\bar{a} - m^*, \bar{a})$, assuming $m^* < \bar{a}$. By transacting with those with the highest abilities, the entrepreneur can make the least expensive disbursals, and therefore retain as profits any excess donations she has received. For simplicity, I restrict the problem to for-profit social enterprises that engage exclusively in transacting. The excess donations can be quantified as $D(m^*) - \frac{m*^2}{2}$, given the distributional assumptions with respect to a and Proposition 3. By comparison, if the entrepreneur was required to employ the m^* workers around the mean abilities (i.e., $\frac{\bar{a}}{2}$), she would retain a smaller amount of $D(m^*) - \frac{m^*\bar{a}}{2}$, or if required to employ those with the lowest abilities, she would retain only $D(m^*) - m^*\bar{a} + \frac{m*^2}{2}$.

One potential solution for this problem is for the donor to require that the beneficiaries be drawn from communities with individuals whose average abilities are lower (i.e., lower than $\frac{\bar{a}}{2}$) or where the maximum abilities are lower (i.e., lower than $\bar{a}$). To be sure, the donor in this case does not observe a, but she knows the distribution of a. For example, the donor could require that the firm employs workers from an area where income is lower and unemployment rates are higher. This way even if the social entrepreneur chooses to employ those beneficiaries with the highest abilities, those beneficiaries will not be only the marginally vulnerable, but individuals who are substantially disadvantaged.

This means that the donation function will also depend on beneficiaries' mean abilities. Assume that $D = D(n, \ddot{a})$, where $\ddot{a}$ represents the average abilities of the beneficiaries that actually receive assistance, and $D(n, \ddot{a})$ is convex and decreasing in $\ddot{a} \in [\frac{m*}{2}, \frac{\bar{a}}{2}]$. The entrepreneur's utility is then $r \times w \times \bar{a} + D(m^*, \ddot{a}) - m^* (\bar{a} - \ddot{a})$, where m^* is the number of worker-beneficiaries at the optimum defined by equation (8). Since $D(n, \ddot{a})$ is decreasing in $\ddot{a}$, $D(m^*, \ddot{a} - \varepsilon) > D(m^*, \ddot{a})$ $\forall \varepsilon > 0$. Therefore, the entrepreneur can increase the amount of donations she receives by reducing $\ddot{a}$ without changing m^*. Furthermore, because of the convexity of the donation function in $\ddot{a}$, as long as $D(m^*, \frac{m*}{2}) - D(m^*, \frac{\bar{a}}{2}) > m^* \left(\frac{\bar{a}}{2} - \frac{m*}{2}\right)$, she will ultimately choose to focus on the most vulnerable beneficiaries, i.e., $\ddot{a} = \frac{m*}{2}$.

Remark 4. Conditional donations based on the average abilities ($\ddot{a}$) of those that transact with the entrepreneur can mitigate the risk of mission-drift.

This type of conditional donation to social enterprises seems to occur in practice. For example, some consumers buy coffee from, say, Starbucks, which focuses on small farmers with higher abilities, and others buy coffee from more dedicated fair trade firms (such as Equal Exchange or Cafedirect) that source products from less skilled farmers (Eldar, 2017). Accordingly, legal policies should focus on developing certification mechanisms for verifying the classes of beneficiaries that social enterprises commit to transacting with based on their average abilities, and communicating this information to the donors.

9.2 The Risk of Exploitation

One issue not modeled in this article is the risk that a social entrepreneur will have financial incentives to exploit the beneficiaries with whom she transacts. This is a probable scenario in circumstances where the social enterprise is a monopolist (which is likely since social enterprises arise when commercial firms ignore certain groups), or appropriate regulation is lacking (as is often the case in developing countries). Such exploitation can take the form of predatory pricing practices, exploitative wages or extreme working conditions. A comprehensive assessment of the mechanisms for addressing such exploitation is outside the scope of this article, but naturally, any business, whatever its organizational form needs to be regulated.[18] The major concern is with for-profit social enterprises. Two main policies are often proposed to regulate them: (a) caps on distribution and (b) price regulation.

Caps on distribution are supposed to mitigate the profit incentives to exploit the beneficiaries. Paradoxically, such caps can actually eliminate the incentives of the entrepreneur to pursue social missions effectively. Suppose we cap the total revenues that can be distributed to the entrepreneur at $r \times w \times \bar{a}$, the revenues of a commercial for-profit with no regard for disadvantaged people (i.e., $\gamma = 0$). This policy could address public disgust from the idea that social entrepreneurs could earn greater profit than standard for-profits with no regard for social causes.

The social entrepreneur will effectively be required to relinquish the profit she makes by employing disadvantaged individuals (i.e., $D(m^*) - C(m^*) - m^* (\bar{a} - E(a))$). Accordingly, she has no incentives to transact with the beneficiaries, and will set $m = 0$. Furthermore, as firms that engage in corporate charity would presumably not be subject to caps, the incentive to engage in corporate charity rather than social enterprise will dominate (i.e., the entrepreneur's utility will

[18]Alternatively, in circumstances when regulation is lacking, one possible mechanism for mitigating the risk of exploitation is for the entrepreneur to adopt the non-profit form (see Glaeser & Shleifer, 2001; Bubb & Kaufman, 2013). The rationale is that a non-profit is more likely to act fairly towards the beneficiaries than a for-profit. In this context, quality is essentially measured as a higher quantity (i.e., more fairness). Note that there is in theory a possibility that beneficiaries will sanction for-profit firms by refusing to transact with those firms that have treated them unfairly in the past (see Choi, 2015). However, in practice, such sanctions do not seem to be a practical strategy for disadvantaged individuals who face difficulties transacting with commercial firms.

be larger than $r \times w \times \bar{a}$) as long as corporate charity attracts sufficient donative funding (i.e., if $D(n) > n(\bar{a} - E(a)) + \gamma \times n \times Var(a) - \frac{n}{4\gamma} > 0$). This will clearly result in a decrease to social welfare as it will reduce the utility of the entrepreneur and the beneficiaries.

Price regulation is another mechanism to mitigate exploitation by essentially setting the amount of subsidies allocated to the beneficiaries to amounts larger than those the entrepreneur has incentives to disburse. This means that $d(i)$ is fixed such that $d(i) = d^f$, where $m \times d^f > m(\bar{a} - E(a))$. For example, the amount of wages, prices and interest rates can be fixed through regulation, so that they appear to be fairer to the beneficiaries and distribute more wealth to them. This policy is similar to capping distribution of revenues to the entrepreneur because it requires the entrepreneur to forego her profit, and in this way reduces her incentives to measure the beneficiaries' abilities. To take a simple example, suppose $d^f = \bar{a}$. In this case, the social entrepreneur has no financial incentive to measure since she does not benefit financially from tailoring subsidies to the needs of the beneficiaries. Moreover, there will be substantial reputational costs, $\gamma \times n \times E(a^2)$, as the disbursals will be wasteful. Again, this will have the effect of discouraging social entrepreneurship in favor of corporate charity which is more beneficial financially (as the disbursals will be smaller than $\bar{a}$), and in this example also more effective and less costly for the entrepreneur's reputation (as $Var(a) < E(a^2)$). It will clearly also reduce social welfare due to its effect on the entrepreneur and the beneficiaries.[19]

Remark 5. Caps on distribution and price regulation can distort the entrepreneur's monetary incentive to measure and dissuade entrepreneurs from forming social enterprises, thereby reducing the effectiveness of subsidies and social welfare.

10 The Evolution of Social Enterprises Over Time

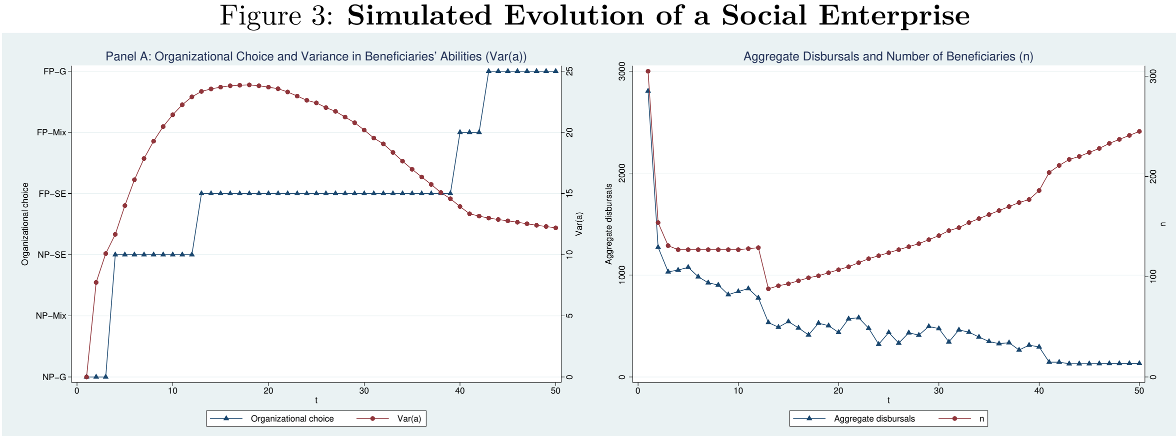
This section describes the evolution of social enterprises by simulating the choices of the entrepreneur over time. The motivation for the simulation is that many social enterprises, such as fair trade and microfinance firms, start out as traditional donative organizations, and ultimately evolve into standard for-profit corporations. Such donative organizations typically emerge to assist the most disadvantaged, which in the model have the lowest $E(a)$ and therefore also low $Var(a)$. Thus, the simulation assumes that at $t = 0$, there are 3000 disadvantaged workers ($n_{\max} = 3000$), all of whom have zero abilities ($a_0 = 0$). At the beginning of each period $t \geq 1$, the firm chooses the optimal type of organization, the number of beneficiaries (m and g), and the amount of disbursals

[19] It is easy to show that similar results follow when $d(i)$ is subject to a minimum cap, say $\bar{a} - E(a)$, but the entrepreneur has a choice to increase it to $\bar{a}$, although clearly the decrease in subsidy-effectiveness and social welfare will be less severe.

($d^m(i)$ and $d^g(i)$). The ability of beneficiary i at time t becomes $a_t(i) = \bar{a}$ if the beneficiary is helped through transacting, or $a_t(i) = \min\{\bar{a}, a_{t-1}(i) + d^g(i)\}$ if through giving. As time shifts to $t + 1$, the iteration continues until every beneficiary reaches $\bar{a}$. In practice, it takes time for beneficiaries' abilities to increase, so each period t may itself be understood as a process through which the beneficiaries are trained and enhance their abilities.

In addition, we assume that if the entrepreneur chooses the non-profit form, the firm receives a tax deduction amounting to $(\lambda - 1)D(n)$. This tax deduction may also be understood as a parameter that reflects donors' greater willingness to donate to a non-profit. The tax deduction parameter is not static, but also changes over time to reflect the public's decreasing willingness to afford tax benefits (or donate) to firms if the relative need for helping the beneficiaries decreases. Thus, we assume $\lambda_t = \max\left\{\lambda_0 \exp(-0.6 \times \frac{n_{trained,t}}{n_{\max}}), 1\right\}$, where $n_{trained,t}$ denotes the number of beneficiaries that have gained abilities $a = \bar{a}$ by period t. Therefore, the incentive to choose the non-profit form decreases in $n_{trained,t}$. Finally, for tractability of the simulation, the model parameters are set as follows: $r = 1.1$, $w = 100$, $\gamma = 0.5$, $v = 0.8$, $\bar{a} = 10$, $C(m) = \frac{m^2}{640} + 6m$, $D(n) = 100\sqrt{5n}$, and $\lambda_0 = 1.5$.

Figure 3: **Simulated Evolution of a Social Enterprise**



This figure shows the simulated evolution of a social enterprise. Panel A shows the organizational choice and the variance in beneficiaries' abilities ($Var(a)$) across time, and Panel B shows the number of beneficiaries (n) and aggregate disbursals. For the organizational choice, "NP" denotes non-profit and "FP" denotes for-profit; "G" denotes pure giving, "SE" denotes a social enterprise that engages exclusively in transacting, and "Mix" denotes mixed transacting and giving. Panel B shows the aggregate disbursals to the beneficiaries and the number of beneficiaries that the firm assists (n). Aggregate disbursals are measured by $\int_0^n d(i)di$. The process after $t = 50$ is omitted because the firm remains FP-G.

As shown in Panel A of Figure 3, the firm starts as a non-profit donative organization (NP-G) when $Var(a)$ is low. It quickly starts to employ its beneficiaries as $Var(a)$ increases (NP-Mix), and it then shifts to a non-profit social enterprise (NP-SE) that focuses exclusively on transacting. As the variance continues to increase and the tax deduction decreases, the firm converts to a for-profit social enterprise (FP-SE). Over time, as more beneficiaries become more competitive, and $Var(a)$ starts decreasing, the firm starts mixing between transacting and giving, until it switches into a standard corporation that engages in corporate charity (FP-G).

Panel B plots the total number of assisted beneficiaries (n) and the aggregate amount of disbursals, measured by $\int_0^n d(i)di = \int_0^m d^m(i)di + \int_0^g d^g(i)di$. Both n and the aggregate disbursals are large when $Var(a)$ and $E(a)$ are low, and they drop sharply when $Var(a)$ and $E(a)$ increase and the firm starts employing the beneficiaries. Naturally, the aggregate disbursals continue to decrease as $E(a)$ increases. Interestingly, throughout the social enterprise phase of the firm n remains relatively low. This reflects the notion that most social enterprises tend to be dedicated to assisting a relatively small number of beneficiaries and focus on tailoring subsidies rather than widespread distribution. As $Var(a)$ continues to decrease and $E(a)$ increases, n starts increasing, but the overall aggregate disbursals decrease because the firm makes smaller disbursals to each beneficiary. In fact, as this process continues and firm starts giving and stops transacting, corporate charity is very cheap because it allows the firm to receive large donations, yet make a smaller social impact by helping the less needy and giving away smaller disbursals.

In section A.4 of the Online Appendix, Figures 4-6 depict the results of the simulation with different variations to v, r and λ_0, respectively. The basic shape of the firm's evolution remains qualitatively the same for different specifications. As expected, if r is larger, the firm is likely to convert to a for-profit at an earlier period because it is more costly to subject the entrepreneur to the non-distribution constraint. Moreover, n is slightly lower because the firm is less dependent on donative income for its revenues. As a result, $Var(a)$ in later periods is a bit higher because the beneficiaries reach $\bar{a}$ more slowly. If v is larger, we get the reverse effect because the non-distribution constraint is less costly. The firm will usually choose a larger n, and in earlier periods the aggregate disbursals will be higher. Therefore, $Var(a)$ starts decreasing a bit faster as more beneficiaries reach $\bar{a}$ at an earlier period. Finally, if λ_0 is larger, the firm stays a non-profit for a longer period, and chooses a higher n. As a result, $E(a)$ increases faster, and $Var(a)$ starts decreasing at an earlier period; this leads the firm to switch back to giving at an earlier stage.

11 Extensions

The model presented in this article is deliberately simple, and does not address in detail other considerations that no doubt affect the formation of social enterprises. In this section, I lay out possible extensions.

11.1 Firm Size and Scale

Throughout the analysis, the size of the firm (w) remains constant. The common wisdom is that social enterprises tend to be small businesses, and face constraints in scaling their business. The reason for this is arguably the lack of sufficient subsidies (i.e., $D(n)$ is small and highly concave), which are necessary for the entrepreneur to employ the beneficiaries. But this explanation is not satisfactory since many large firms engage in extensive corporate social responsibility activities that do not involve transacting with the beneficiaries, and are presumably funded either by the owner (which in my model is represented by the entrepreneur), consumers or the government. An alternative reason for the small size of social enterprises is that the costs of developing measurement technology are higher for large commercial firms. For example, a firm like Walmart that employs thousands of workers might be ill-equipped to gather information on the abilities of its employees in the same manner as a small or mid-sized bakery that operates in one location. Thus, it's possible that under some circumstances $C(m)$ also depends on w, and that increasing w also increases the marginal costs of measurement (i.e., $C = C(m, w)$ and $C_{mw}(m, w) > 0$).

On the other hand, many social enterprises, such as microfinance institutions and some fair trade firms, serve millions of beneficiaries, and seem to be as large as many standard commercial firms. A possible reason for this is that these firms have developed very efficient measurement technology that can be scalable across many locations. In other cases, a donative organization (e.g., Technoserve) may partner with multiple large corporations (e.g., Starbucks), and assist them in developing a measurement technology on the ground. The donative organization essentially channels the training subsidies through the corporations (which structurally qualify as social enterprises; see Eldar, 2017) in order to benefit from the informational advantages of transacting, but also from aggregating knowledge acquired by working with different firms. This knowledge may in turn help reduce the costs of measurement.

11.2 Market Differentiation and Donors' Preferences

In this set-up, we observe essentially one model of social enterprise. But social enterprises differ on multiple dimensions, including, as discussed above, the scale of the social enterprise, and the level of abilities of the beneficiaries the entrepreneur chooses to transact with. Thus, social enterprises may offer differentiated "products" to donors, some of which focus on the marginally vulnerable, while others on the least endowed. The extent to which social entrepreneurs adopt different models depends on both supply and demand factors.

On the supply side, as discussed above, the measurement technology available to the entrepreneur may determine both the scale of the social enterprise (as discussed above), and probably also the group of beneficiaries she chooses to assist. On the demand side, the preferences of the donors could affect the decisions of the entrepreneur. The donors in this model were represented by a simple donation function, $D(n)$ based on the the assumption that donors cannot contract for quality ex ante. This is a reasonable assumption since donors rarely examine the impact of their donations on the intended beneficiaries who may be located far away from the donors (Hansmann, 1980), and it may take years before the impact of any subsidies (e.g., training) materializes.

Nonetheless, under some circumstances, short of measuring the social impact of subsidies, donors could contract with entrepreneurs for certain qualitative elements, for example, to address the risk of mission-drift and exploitation of the beneficiaries. Some donors are large foundations that control the social enterprise firm and can ensure that the social enterprise transacts with beneficiaries that belong to vulnerable communities where the average level of abilities is well below $\bar{a}$, and that the firm does not exploit them. Similarly, some government agencies may condition subsidies in part on the poverty level of the intended beneficiaries, as well as the type of subsidies (interest rate discounts and training) that would be provided to them. The CDFI Fund for example provides subsidies to Community Development Financial Institutions ("CDFIs") based on the level of need in the relevant target area and the terms of the financial services they promise to provide in that area. Accordingly, donors with heterogeneous preferences may be able to affect the entrepreneur's decisions to a greater extent than is suggested by this model.

Note though that not all donors are well positioned to do this. Despite the increasing availability of various certification mechanisms, such as the Fair Trade certification, consumers as donors may be less able to exercise such control over the social enterprise firm. Accordingly, policies that convey greater information to consumers may improve their ability to ensure that subsidies they provide to organizations are used for their intended purpose (Eldar, 2018).

11.3 Government Subsidies

Although the model in this article shows that government subsidies may be needed to induce the entrepreneur to employ the optimal number (m_{opt}) of disadvantaged people (see section 8.1 above), it does not provide a practical mechanism for the government to set the amount of subsidies the entrepreneur receives. Two problems may arise. First, the government does not know m_{opt}, and therefore may institute subsidy policies that encourage entrepreneurs to employ more or fewer disadvantaged people than is socially optimal. Second, the entrepreneur may receive government subsidies that exceed the amounts necessary to induce her to assist the beneficiaries. The government may wish to limit these excess subsidies to the entrepreneur, and put such monies to better use.

To address these problems, it may be possible to implement a competitive process whereby entrepreneurs bid for subsidies from the government. The government may offer a fixed amount of subsidies, and the entrepreneur will compete for such fixed sums by promising to transact with more beneficiaries and/or at better terms. To the extent that the government can monitor the fulfillment of such promises, this competitive process will likely reduce the excess subsidies, because transacting with more beneficiaries with lower abilities at better terms requires the entrepreneurs to expend higher costs. In a fully competitive process, the winning bid will require no more than $\int_{m^*}^{m_{opt}}(D'(m) - C'(m))dm$ to employ m_{opt} workers (see remark 1), the amount that will make the entrepreneur indifferent between employing m_{opt} beneficiaries and settling for $m*$. Moreover, it should be emphasized that in this process, no bidder will succeed by offering to employ $m_{opt} + \varepsilon$, because the amount of subsidy such a bidder will demand will be larger by more than $\bar{a} - E(a)$ per each additional beneficiary. As the government knows the distribution of a, it will also know that any bid that requires more than $\bar{a} - E(a)$ for employing an additional beneficiary is not welfare increasing. Thus, it will never accept such a bid.

This type of competitive process seems to takes place in practice. The CDFI Fund announces that a certain amount of funding is available in a given period, and certified CDFIs apply for subsidies in a competitive process in which each CDFI offers to provide financial services to a specific under-served area at pre-specified terms. The winning bids are those which promise to lend to the largest number of disadvantaged people on the most favorable terms.

11.4 Competition

In this analysis, there is only one entrepreneur, and therefore no competition. Recall that the reason there is a need for the entrepreneur to step in and transact with the beneficiaries is their lack of access to markets. By assumption, the market broke down due to the beneficiaries' lower abilities and information asymmetries. The first entrepreneur who is highly altruistic therefore expends the costs of creating a measurement technology that is presumably relatively expensive. But over time, other entrepreneurs may step in, and seek to assist the same individuals by copying the first entrepreneur's measurement technology. Over time, the costs of measurement decrease, and firms are better able to observe beneficiaries' abilities. The abilities of disadvantaged people also increase over time and get closer to $\bar{a}$. This further reduces the information asymmetry. Through this process, a market may be created in which firms no longer require a subsidy any more to transact with disadvantaged people. The evolution of the banking industry from microfinance into standard commercial banks in several countries, such as Mexico, appears to resemble this process (see Chu, 2007). Studying this process requires further theoretical and empirical work.

12 Conclusion

Recent literature on the growth of various forms of corporate philanthropy and the fading distinction between for-profits and non-profits has aptly identified the altruistic motives of both investors and entrepreneurs that led to this development. However, it has mostly failed to identify the key informational asymmetry that social enterprises are designed to address. The analysis in this article fills this void by explaining how committing to transacting with disadvantaged groups gives entrepreneurs the incentives to measure or gather information on their beneficiaries' attributes and needs. The main innovation of social enterprises is not the mixed motives of their entrepreneurs (which exist even in traditional non-profits), but their unique structure that is based on transacting with their beneficiaries. This structure gives the entrepreneurs both the ability and incentives to gather information on their beneficiaries' abilities, and to design effective subsidies to help their beneficiaries develop. When the informational asymmetries are severe, these incentives are so strong that the non-profit form may lose its usefulness for ensuring that entrepreneurs can be trusted to pursue social missions.

The analysis further sheds light on various policy issues concerning social enterprises. In particular, it suggests that the scale of social entrepreneurship is not socially optimal, and that conditional subsidies to entrepreneurs that commit to transacting with disadvantaged people would increase social welfare. Furthermore, to facilitate subsidized funding to social enterprises, policy makers should focus on developing certification mechanisms that provide information to donors and the government about the class of beneficiaries that firms transact with based on the beneficiaries' average abilities (e.g. through measures of income or employment). Such a certification can also serve as the basis for a new form of organization that has a commitment to transacting with its beneficiaries, such as CDFIs in the US, and work-integration firms in Europe (Eldar, 2018).

On the other hand, other policies such as tax deductions and income tax exemptions may actually be counterproductive and reduce the effectiveness of social entrepreneurship. Likewise, attempts to cap distributions to owners of social enterprises or regulate prices can reduce or even eliminate the incentives of social enterprises to pursue social missions effectively by gathering information on beneficiaries' abilities and tailoring subsidies to their needs. It is vital that social enterprises, like any business, be regulated to prevent exploitation through practices such as predatory pricing or unfair working conditions. However, regulation of social enterprises should be cautious so as not to defeat the role of social enterprises by interfering with entrepreneurs' incentives to design effective subsidies.

Variable Descriptions

a	The level of abilities of each beneficiary
$\bar{a}$	The maximum level of abilities for each beneficiary
$C(m)$	The costs of measurement
$d(i)$	The amount of disbursals to each beneficiary
$d^m(i)$	The amount of disbursals to each beneficiary the firm employs and measures
d^m_{fp}	The amount of disbursals to each beneficiary a for-profit firm employs and measures
d^m_{np}	The amount of disbursals to each beneficiary a non-profit firm employs and measures
$d^k(i)$	The amount of disbursals to each beneficiary the firm employs but does not measure
$d^g(i)$	The amount of disbursals to each beneficiary the firm does not employ
d^g_{fp}	The amount of disbursals to each beneficiary a for-profit firm does not employ
d^g_{np}	The amount of disbursal to each beneficiary a non-profit firm does not employ
$D(n)$	The amount of donations the firm receives
g	The number of beneficiaries that receive a subsidy through giving
g_{fp}	The number of beneficiaries that receive a subsidy through giving by a for-profit firm
g_{np}	The number of beneficiaries that receive a subsidy through giving by a non-profit firm
g_{opt}	The socially optimal number of beneficiaries that receive a subsidy through giving
k	The number of beneficiaries the firm employs, but does not measure
m	The number of beneficiaries the firm employs and measures
m_{fp}	The number of beneficiaries the firm employs and measures by a for-profit firm
m_{np}	The number of beneficiaries the firm employs and measures by a non-profit firm
m_{opt}	The socially optimal number of beneficiaries the firm employs and measures
n	The total number of beneficiaries the firm assists
n_{fp}	The total number of beneficiaries a for-profit firm assists
n_{np}	The total number of beneficiaries a non-profit firm assists
n_{opt}	The socially optimal number of beneficiaries a firm assists
P_k	The probability that $a(i) + d^k(i) < \bar{a}$
P_{fp}	The probability that $a(i) + d^g_{fp} < \bar{a}$
P_{np}	The probability that $a(i) + d^g_{np} < \bar{a}$
r	The return from employing one worker independent of the worker's abilities
S	The social welfare objective function, where $S = -T + U_d + U_{ent} + U_b$
T	The amount of any government transfers
U_b	The utility of the beneficiaries
U_d	The utility of the donor
U_{ent}	The utility of the entrepreneur
v	The portion of the firm's earnings the entrepreneur can appropriate, where $0 < v \leq 1$
λ	A parameter that denotes the increase in $D(n)$ due to tax deductions, where $\lambda > 1$
λ_{opt}	The socially optimal λ.

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Online Appendix

A Robustness to Alternative Specifications

A.1 Alternative Donation Functions

A.1.1 Donors' Preferences Depend on Quality

A potential concern with the model is that donors don't just care about quantity. They also care about quality, and even if they can't contract for quality, they can adjust the level of their donation to meet the expected quality and quantity produced by the entrepreneur. The donation function can be re-written such that it also depends on expected quality; i.e., $D = D(n, E(q))$, where $q = \int_0^n \left(d^n(i) - (\bar{a} - a(i))\right)^2 di$. Because the donor and entrepreneur cannot contract for quality, the entrepreneur does not choose $d(i)$ with the goal of increasing the donations she will receive from the donors, and thus $D(n, E(q^*))$ is fixed in $E(q)$, when the entrepreneur makes a decision to maximize her utility. Accordingly, all the choices made by the entrepreneur would remain the same. The main change however is that in instances where the expected quality produced by the entrepreneur is higher, she will receive more donations. Recall that as shown above, when $\gamma Var(a)$ is low or medium, the entrepreneur produces better quality if she forms a non-profit. In these instances, the donations the entrepreneur receives will be higher for the non-profit. This could affect the calculus the entrepreneur makes in choosing the legal form as reflected in equation (14) and tilt the balance in favor of the non-profit form. However, when $\gamma Var(a)$ is high, the entrepreneur still produces the same quality whether it forms a for-profit or a non-profit, and therefore she will get the same amount of donations whichever form she chooses. Therefore, proposition 5 continues to hold, and the entrepreneur would choose the for-profit form when $\gamma Var(a)$ is high.

A.1.2 The Donor Cannot Contract for Quality and Quantity

In this model, I use a specification where the donors can contract for quantity but not for quality. It may be argued that donors cannot contract for either. In this case, the entrepreneur simply takes n and thus also $D(n)$ as given when she makes decisions. Note though that the entrepreneur still has incentives to make disbursals to minimize the altruistic or reputational element of her utility function because she suffers if she doesn't help the n disadvantaged individuals. It is easy to show that the entrepreneur would simply make the same decisions with respect to $d^m(i)$, and $d^g(i)$, and that $k^* = 0$. The only difference would be that because n is fixed, when $\gamma Var(a)$ is medium or low, a non-profit would not only use subsidies more effectively, but would also produce higher quantity by making larger aggregate disbursals because $n \times d^*_{np} > n \times d^*_{fp}$ (see Lemma 3). However, again when $\gamma Var(a)$ is higher, both legal forms would make the same choices, and the entrepreneur would choose the for-profit form in accordance with proposition 5.

A.2 Alternative Functions of Quality

A.2.1 No Penalty for Waste

The quality function in the entrepreneur's utility may be considered too demanding because it penalizes the entrepreneur not only for giving too few subsidies, but also for wasting money by giving too much to the beneficiaries. While there is increasing concern about the wastefulness of donative funding, it could possibly be argued that altruistic entrepreneurs worry only about the risk that the beneficiaries receive too little help. The simplified entrepreneur's utility (with $k^* = 0$) would then be:

$$\max_{m,g,d(i)} v\left[r(w-m)\bar{a} + r \times E\int_0^m (a(i) + d^m(i))\, di + D(n) - \int_0^m d^m(i)di - \int_0^g d^g(i)di - C(m)\right] - \tag{21}$$

$$\gamma \times E\left[\int_0^m \left(1_{\bar{a}-a(i))>d^m(i)}\left((\bar{a}-a(i)) - d^m(i)\right)\right)^2 di\right] - \gamma \times E\left[\int_0^g \left(1_{\bar{a}-a(i))>d^g(i)}\left((\bar{a}-a(i)) - d^g(i)\right)\right)^2 di\right] \text{ s.t.}$$

$$a(i) + d(i) \leq \bar{a} \;\; \forall i \text{ , and } \; n = m + g.$$

It is still clear that $d^{m*}(i) = \bar{a} - a(i)$. It can further be shown that $d^{g*}(i) = \bar{a} - Ea - \varepsilon$, where $0 < \varepsilon < \frac{v}{\gamma P_{\varepsilon+Ea>a}} - 2$, or $\varepsilon = 0$ if $\frac{v}{\gamma P_{\varepsilon+Ea>a}} - 2 \leq 0$.[20] For simplicity, and without loss of generality, I will assume that $\varepsilon = 0$. Letting $n = n', m = m'$, and $g = g'$, the ex ante utility of the non-profit entrepreneur is: $v \times (r \times w \times \bar{a} + D(n') - C(m') - n'(\bar{a} - E(a))) - g'\gamma Var(a|Ea > a)$. It is clear that the measurement compensation constraint is the same as in equation (13). The threshold for satisfying the effectiveness constraint is different from equation (12), such that the entrepreneur only cares about $Var(a)$ conditional on $E(a) > a$. It is straightforward to show that all the key propositions apply to this case too, except that $Var(a|Ea > a)$ replaces $Var(a)$ as the main measure of information asymmetry.

[20] To prove this, we simply let $d^g(i) = \bar{a} - Ea - \varepsilon$, where $\varepsilon > 0$, and compare it to the utility of the entrepreneur if she chooses $d^g(i) = \bar{a} - Ea$. Using the same approach, it is easy to show that letting $d^g(i) = \bar{a} - Ea + \varepsilon$ yields a contradiction and therefore $d^g(i) \leq \bar{a} - Ea$.

A.2.2 Quality as Quantity

Suppose that quality is measured not as subsidy-effectiveness, but rather as quantity. Thus, the entrepreneur is evaluated based on the amount of disbursals she makes to the beneficiaries. To see this, assume that the simplified entrepreneur's utility (with $k^* = 0$) is:

$$\max_{m,g,d(i)} v \left[r(w-m)\bar{a} + r \times E \int_0^m (a(i) + d^m(i))\, di + D(n) - \int_0^m d^m(i) di - \right. \tag{22}$$

$$\left. \int_0^g d^g(i) di - C(m) \right] + \gamma \times E \left[\int_0^m (d^m(i))^\delta \, di \right] + \gamma \times E \left[\int_0^g (d^g(i))^\delta \, di \right] \text{ s.t.}$$

$$a(i) + d(i) \leq \overline{a} \ \ \forall i \ , \ \ n = m + g,$$

where δ is a scalar, and we assume $0 < \delta < 1$. The choices with respect to $d^g(i)$ and n are defined by $d^{g*}(i) = \left(\frac{\gamma\delta}{v}\right)^{\frac{1}{\delta-1}}$, and $D'(n^*) = \left(\frac{\gamma\delta}{v}\right)^{\frac{1}{\delta-1}} - 1$. If $m > 0$, the entrepreneur would choose $d^{m*}(i) \geq d^{g*}(i)$, because she may lose money if the disbursals to the beneficiaries she employs are too low. The important point, however, is that the entrepreneur clearly has no incentive to gamble on the beneficiaries by transacting with them, and therefore $m^* = 0$. At best, the entrepreneur will be indifferent between transacting and giving if the expected $d^{m*}(i)$ is equal to $d^{g*}(i)$. This again reinforces the idea that when subsidy-effectiveness is not at stake, social enterprises are redundant. Note that under these assumptions, the non-profit will still provide larger disbursals to each beneficiary, but would help fewer beneficiaries than a for-profit (see Lemma 3). To reach the same results in Glaeser & Shleifer (2001) in the sense that non-profits produce more charity (even absent tax advantages), we further need to assume, as they effectively do, that donors cannot contract for quantity as well as quality, and therefore n and $D(n)$ are fixed (as in section A.1.2 above). In that case, the total aggregate disbursals made by non-profits would be larger than those made by for-profits because $n \times d^*_{np} > n \times d^*_{fp}$.

A.3 Negative Returns on Human Capital ($r < 1$)

Some firms may generate negative returns on human capital (i.e., $r < 1$) when they employ the disadvantaged, which makes training less profitable for the entrepreneur. In this case, the entrepreneur's optimal disbursal becomes $d^{m*}(i) = \bar{a} - E(a) - \frac{v(1-r)}{2\gamma} \ \forall i \in [0, m]$ when she chooses to measure. Accordingly, her ex ante utility is

$$v \times (r \times w \times \overline{a} + D(n') - C(m') - n' (\bar{a} - E(a))) - \gamma \times g' Var(a) + \frac{v^2 g'}{4\gamma} + \frac{v^2(1-r)^2 m'}{4\gamma}, \tag{23}$$

where the last term is generated by the difference between the optimal disbursal ($d^{m*}(i)$) and the expected need ($\bar{a} - E(a)$). Hence, in the effectiveness and the measurement compensation constraints, the only change is that their left-hand sides decrease by $\frac{v(1-r)^2}{4\gamma}$. For example, in section 5, the constraints become

$$C'(m_3^*) - \frac{v(1-r)^2}{4\gamma} = \frac{\gamma}{v}Var(a) - \frac{v}{4\gamma} < D'(m_3^*) - (\bar{a} - E(a)), \tag{24}$$

$$C'(m_4^*) - \frac{v(1-r)^2}{4\gamma} = D'(m_4^*) - (\bar{a} - E(a)) < \frac{\gamma}{v}Var(a) - \frac{v}{4\gamma}. \tag{25}$$

Therefore, $m_1^*, m_2^*, m_3^*, m_4^*$ all become larger, and the main differences in the results could only be m_{np}^* and m_{fp}^* in Case 1-3. Note that $C'(m_3^*) = \frac{\gamma}{v}Var(a) - \frac{v}{4\gamma} + \frac{v(1-r)^2}{4\gamma} = \frac{\gamma}{v}Var(a) - \frac{v\times r(2-r)}{4\gamma}$ still decreases in v, so we still have $m_{np}^* \geq m_{fp}^*$ in Case 2 ($\gamma \times Var(a)$ is medium). However, in Case 3 ($\gamma \times Var(a)$ is high), since $C'(m_4^*) - D'(m_4^*) = (\bar{a} - E(a)) + \frac{v(1-r)^2}{4\gamma}$ increases in v, we have $m_{fp}^* \geq m_{np}^*$ (and $n_{fp}^* \geq n_{np}^*$) instead of an equality. This leads to minor changes in Proposition 4.

Nevertheless, Proposition 5 continues to hold, because $U_{fp} > U_{np}$ in Case 3 (i.e., the entrepreneur will choose the for-profit form). To see this, let

$$U(\tilde{v}) = \max_m[\tilde{v} \times (r \times w \times \bar{a} + D(m) - C(m) - m(\bar{a} - E(a))) + \frac{\tilde{v}^2(1-r)^2 m}{4\gamma}], \tag{26}$$

with $U_{fp} = U(1)$ and $U_{np} = U(v)$. Also, let $m^* = m^*(\tilde{v})$ be the maximizer of $U(\tilde{v})$, with $m_{fp}^* = m^*(1)$ and $m_{np}^* = m^*(v)$. Then, by the envelope theorem,

$$\frac{\partial U(\tilde{v})}{\partial \tilde{v}} = r \times w \times \bar{a} + D(m^*) - C(m^*) - m^*(\bar{a} - E(a)) + \frac{2\tilde{v}(1-r)^2 m^*}{4\gamma} \equiv \delta(m^*), \tag{27}$$

If we show that $\delta(m^*) = \frac{\partial U(\tilde{v})}{\partial \tilde{v}} > 0$ for all $\tilde{v} \in (v, 1)$, $U_{fp} > U_{np}$ will immediately follow. Note that

$$\delta'(m^*) = D'(m^*) - C'(m^*) - (\bar{a} - E(a)) + \frac{2\tilde{v}(1-r)^2}{4\gamma} > D'(m^*) - C'(m^*) - (\bar{a} - E(a)) + \frac{\tilde{v}^2(1-r)^2}{4\gamma} = 0,$$

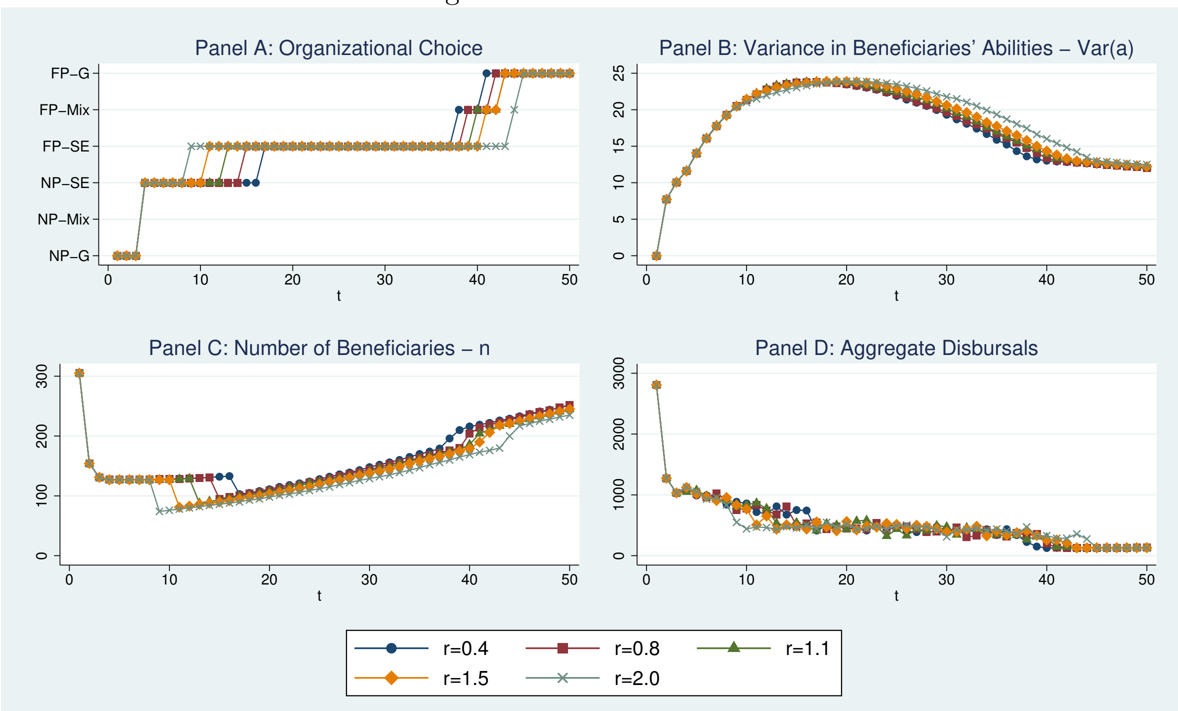
and that $\frac{\partial m^*(\tilde{v})}{\partial \tilde{v}} > 0$ because $C'(m^*) - D'(m^*) = (\bar{a} - E(a)) + \frac{\tilde{v}(1-r)^2}{4\gamma}$ increases in $\tilde{v}$. Thus,

$$\begin{aligned}\frac{\partial U(\tilde{v})}{\partial \tilde{v}} &= \delta(m^*) > \delta(m_{np}^*) = r \times w \times \bar{a} + D(m_{np}^*) - C(m_{np}^*) - m_{np}^*(\bar{a} - E(a)) + \frac{2v(1-r)^2 m_{np}^*}{4\gamma} \\ &> r \times w \times \bar{a} + D(m_{np}^*) - C(m_{np}^*) - m_{np}^*(\bar{a} - E(a)) + \frac{v(1-r)^2 m_{np}^*}{4\gamma} = \frac{U_{np}}{v} > 0, \ \forall \tilde{v} \in (v, 1).\end{aligned}$$

In addition, Proposition 6 still holds, because the additional term $\frac{v^2(1-r)^2 m^*}{4\gamma}$ vanishes as $m^* = 0$ (when there are no information asymmetries). Hence, the key results still apply to the case $r < 1$.

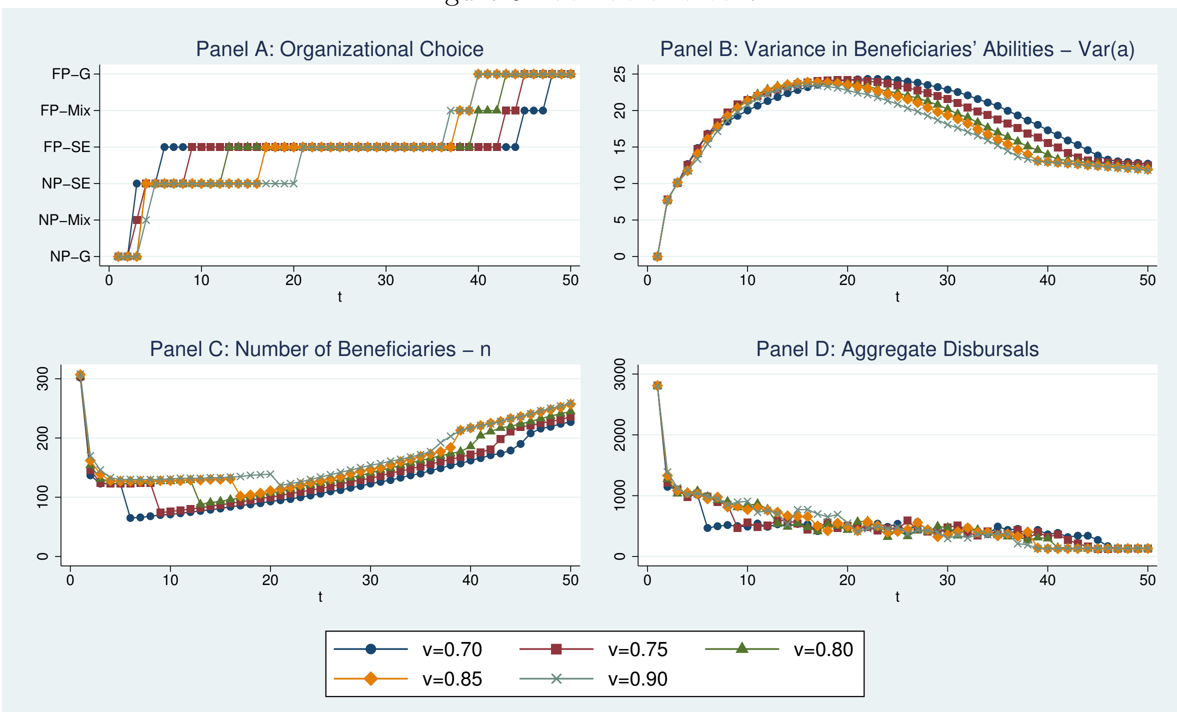
A.4 The Evolution of Social Enterprise over Time: Variations to r, v and λ_0

Figure 4: **Variations to r**



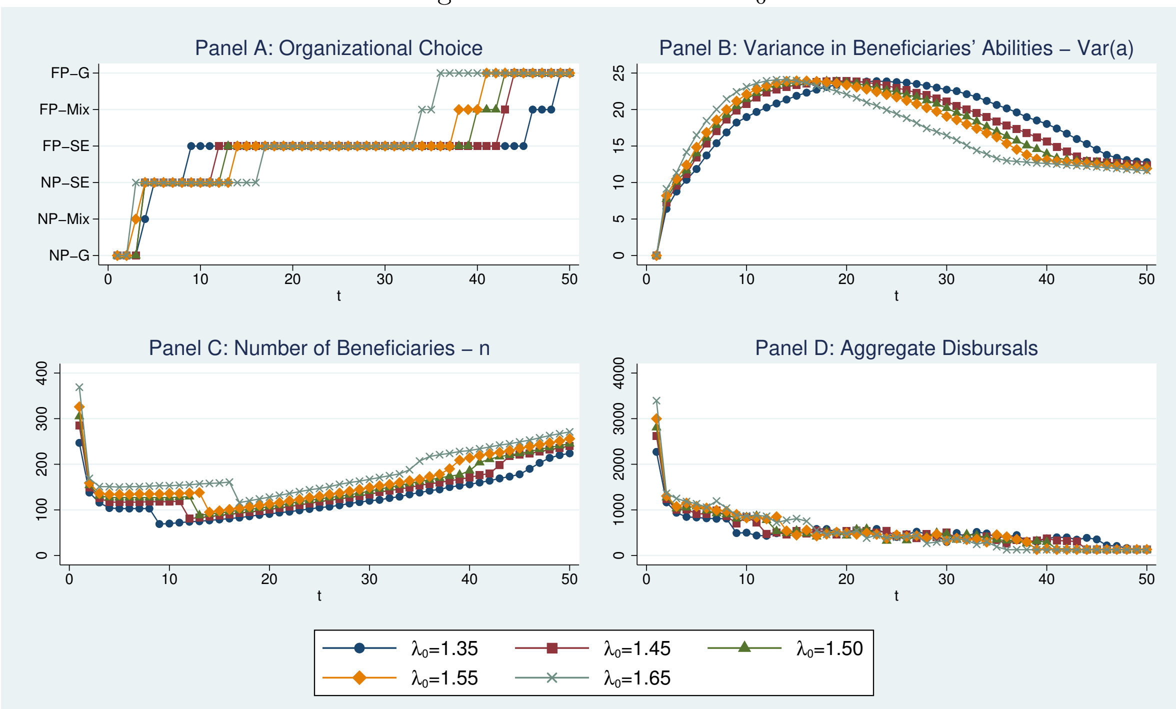
This figure shows the simulation results for different values of r. Panels A-D show respectively the organizational choice, the variance in beneficiaries' abilities ($Var(a)$), the number of beneficiaries (n), and aggregate disbursals. For the organizational choice, "NP" denotes non-profit and "FP" denotes for-profit; "G" denotes pure giving, "SE" denotes a social enterprise that engages exclusively in transacting, and "Mix" denotes mixed transacting and giving. The process after $t = 50$ is omitted because the firm remains FP-G.

Figure 5: **Variations to v**



This figure shows the simulation results for different values of v. Panels A-D show respectively the organizational choice, the variance in beneficiaries' abilities ($Var(a)$), the number of beneficiaries (n), and aggregate disbursals. For the organizational choice, "NP" denotes non-profit and "FP" denotes for-profit; "G" denotes pure giving, "SE" denotes a social enterprise that engages exclusively in transacting, and "Mix" denotes mixed transacting and giving. The process after $t = 50$ is omitted because the firm remains FP-G.

Figure 6: **Variations to λ_0**



This figure shows the simulation results for different values of λ_0. Panels A-D show respectively the organizational choice, the variance in beneficiaries' abilities ($Var(a)$), the number of beneficiaries (n), and aggregate disbursals. For the organizational choice, "NP" denotes non-profit and "FP" denotes for-profit; "G" denotes pure giving, "SE" denotes a social enterprise that engages exclusively in transacting, and "Mix" denotes mixed transacting and giving. The process after $t = 50$ is omitted because the firm remains FP-G.

B Proofs

B.1 Proof of Proposition 1

Suppose the entrepreneur decides to expend $C(m)$ and sets the allocations such that $d^{m'}(j) = \bar{a} - a(j) - \varepsilon$ for the j'th worker, and $d^m(i) = \bar{a} - a(i)$, $\forall i \neq j$, where $\varepsilon > 0$. It is clear that she can increase her utility by setting $d^{m'}(j) = \bar{a} - a(j)$. The reason is that increasing $d^{m'}(j)$ by ε increases her utility by $v\,(r-1)\,\varepsilon + \gamma \times \varepsilon^2$, the additional profit from setting the subsidy to the right amount, and the reputational benefits from additional effectiveness. Alternatively, setting $d^{m'}(j) = \bar{a} - a(j) + \varepsilon$ is clearly disadvantageous because it doesn't increase profits, but will only result in reputational costs from ineffectiveness.

B.2 Proof of Proposition 2

Suppose that at the optimum the entrepreneur chooses $n = n^*$ and $g = g^*$. This further implies that the amount of donations $D(n^*)$ is fixed and the number of disadvantaged workers the firm employs is fixed as well, i.e., $m + k = n^* - g^*$. We now want to examine the entrepreneur's decision to measure her workers. Suppose the entrepreneur expended the measurement costs with respect to m' workers, such that the number of workers she does not measure is $k' = n^* - g^* - m'$.

Using Proposition 1, she then sets $d^{m*}(i) = \bar{a} - a(i)$, $\forall i \in [0, m']$. With respect to the disadvantaged workers she employs but does not measure, her optimal choice is $d^{k*}(i) = \bar{a} - E(a) + \frac{r-1}{2\gamma}$ $\forall i \in [0, k']$; that is, the entrepreneur would like to set $d(i)$ higher than their expected need, $\bar{a} - E(a)$, because making disbursals to the beneficiaries (e.g., training to the workers) increases her profitability. Finally, she will set $d^{n*}(i) = \bar{a} - E(a) - \frac{1}{2\gamma}$, as in equation (2). Let P_k be the probability that $a(i) + d^{k*}(i) < \bar{a}$, which is the same as the probability that $a(i) < E(a) - \frac{r-1}{2\gamma}$. Then, her expected utility is equal to

$$r\,(w - k')\,\bar{a} + (1 - P_k)\,k' r \bar{a} + P_k k' r \left(E\left[a | a < E(a) - \frac{r-1}{2\gamma} \right] + \bar{a} - E(a) + \frac{r-1}{2\gamma} \right) + \qquad (28)$$

$$D(n^*) - n^*(\bar{a} - E(a)) + \frac{g^*}{4\gamma} - \frac{k'(r^2 - 1)}{4\gamma} - C(m') - \gamma\,(g^* + k')\,Var(a).$$

At this point, we want to examine the effect of choosing to measure more workers, i.e., increasing m, which implies decreasing k, holding n^* and g^* fixed. Using equation (28), the entrepreneur chooses m^*, such that,

$$C'(m^*) = P_k \times r\left(E(a) - \frac{r-1}{2\gamma} - E\left[a|a < E(a) - \frac{r-1}{2\gamma}\right]\right) + \gamma Var(a) + \frac{r^2-1}{4\gamma}. \qquad (29)$$

The first term on the right-hand-side reflects the marginal revenues from measuring. Measurement enables the entrepreneur to tailor the subsidies to the individual abilities of the beneficiaries and avoid wasting disbursals. If she does not expend the measurement costs, the entrepreneur overpays to train those whose abilities are greater than $E(a) - \frac{r-1}{2\gamma}$, and she underpays to train those with abilities below $E(a) - \frac{r-1}{2\gamma}$. This is similar to the case when she engages in corporate charity, but because here the firm employs the disadvantaged workers it also suffers economic loss if it fails to tailor the subsidies to the beneficiaries' needs. The second term that depends on γ reflects the reputational loss she suffers when the subsidies fail to improve the productivity of the beneficiaries.

B.3 Proof of Lemma 2

We fix $n = n^*$ and $m = m^*$, and let $k = k'$ and $g = g' = n^* - m^* - k'$. We now want to examine the entrepreneur's decision between employing a worker without measuring his abilities and making a disbursal to that worker through giving. Using equation (28) (but replacing g^* with g' and m' with m^*), the entrepreneur will increase g' (and decrease k') if

$$P_k \times r\left(E(a) - \frac{r-1}{2\gamma} - E\left[a|a < E(a) - \frac{r-1}{2\gamma}\right]\right) + \frac{r^2}{4\gamma} > 0, \qquad (30)$$

which is always satisfied. Therefore, the entrepreneur will always choose $k^* = 0$. Thus, it follows that $n^* = m^* + g^*$.

B.4 Proof of Proposition 6

If there are no information asymmetries, the entrepreneur observes a. When the entrepreneur knows the abilities of disadvantaged people, she need not expend any costs in measuring the abilities of the beneficiaries. It follows immediately that $m^* = 0$.

We consider the entrepreneur's choice of k, g and n. It is straightforward to show that $d^{g*}(i) = \bar{a} - a(i) - \frac{v}{2\gamma}$, and that the choice of n is defined by $D'(n^*) = \bar{a} - E(a) - \frac{v}{4\gamma}$. Comparing to equations (9) and (10), it is apparent that without information asymmetries, the entrepreneur will assist more beneficiaries through giving and allocates them higher disbursals. The reason is that giving can be tailored to the needs of the beneficiaries, and therefore does not suffer from the costs of ineffectiveness.

If the entrepreneur chooses to employ k beneficiaries she will set $d^{k*}(i) = \bar{a} - a(i)$. The reason is that if she sets $d^k(j) = \bar{a} - a(j) - \varepsilon$ for the j'th worker, where $i \neq j$, and $\varepsilon > 0$, the entrepreneur stands to lose $v\,(r-1)\,\varepsilon + \gamma \times \varepsilon^2$. Note that $d^{k*}(i) > d^{g*}(i)$, because when the firm employs the beneficiaries, the firm's profits depend on tailoring the subsidy to the needs of the beneficiaries. Letting $n = n', k = k',$ and $g = g'$, the ex ante utility of the entrepreneur is as follows:

$$v\left[r \times w \times \overline{a} + D(n') - n'\left(\bar{a} - E(a)\right)\right] + \frac{v^2 g'}{4\gamma}, \tag{31}$$

where $n' = k' + g'$. If we increase n by increasing k, the marginal change in expected utility is $v\left[D'(n') - (\bar{a} - E(a))\right]$, whereas if the entrepreneur increases n by increasing g, the marginal change in utility is $v\left[D'(n') - (\bar{a} - E(a))\right] + \frac{v^2}{2\gamma} - \frac{v^2}{4\gamma}$. Since the costs of ineffectiveness $(\frac{v^2}{4\gamma})$ are lower than the savings from giving a lower amount to the beneficiaries (i.e., $\frac{v^2}{2\gamma}$), the entrepreneur will set $k^* = 0$ as well as $m^* = 0$.