A THEORETICAL MODEL OF THE EFFECTS OF PUBLIC FUNDING ON SAVING DECISIONS BY CHARITABLE NONPROFIT SERVICE PROVIDERS*

by

Femida HANDY
Faculty of Environmental Studies, York University

and

Natalie J. WEBB
Naval Postgraduate School, Monterey CA

ABSTRACT**: *Why do charitable nonprofit, service-providing organizations save? What are the tradeoffs between using income to build up cash reserves and serving more clients? Saving may generate income, protect the organization against a drop in donations, and increase the organization's chances of survival. Saving, though, may affect the likelihood that nonprofits receive private and public funding. We model the relationship among private and public income, economic conditions, and nonprofit savings. We find that anticipation of government help during difficult times tends to reduce the amount of saving done by the nonprofit. This effect is strengthened if government officials view unspent donations as indicative of a lack of need. Both these effects provide a strong incentive for nonprofits to spend on current consumption rather than to save for the future, and thus to increase the burden on the public purse.*

Introduction

In many societies services are provided to needy individuals through a variety of formal and informal mechanisms. In addition to government agencies, an entire array of nonprofit organizations exists to provide services to those with perceived needs. The clientele are diverse, including children and youth at risk, the elderly, the hungry and homeless, and victims of illness, addiction, child abuse, and violence. Many of the nonprofits providing such services are locally or regionally operated and depend on funding from a variety of public, nonprofit, and private sources to serve their clients. Such nonprofits typically survive on very short-term budgets, estimating income frequently and expending as needed to meet the needs of as many clients as possible given short-run income. These nonprofits typically focus on the immediate needs of their clients and spend little time on long-term planning, which would involve balancing revenues and expenditures with a focus on stabilizing or growing the organization.[1] This environment creates a strong incentive for nonprofit managers to save little or nothing.

The purpose of this research is to examine the financial decisions of nonprofit organizations in terms of the tradeoff between using income to build up cash reserves and serving more clients. From the standpoint of most nonprofit service providers, demand for services exceeds the organization's ability to respond. Spending nearly all income to serve clients, rather than saving, may better suit the mission of the nonprofit organization. As Bowman (1999) notes, though, [saving] may be used to generate income for current operations, store wealth to protect the organization in the event that its popularity with future donors wanes, and increase the organization's chances of survival. We question whether saving decreases the likelihood of receiving larger government grants in the future. If funders see unspent funds as indicative of a lack of need, nonprofit managers have strong incentives to expend available funds to meet current demand and to perhaps increase grants received in the future. In other words, managers may rationally reduce savings in an attempt

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1   Although not supported by peer-reviewed research, the authors have observed in conversation with board members and other researchers, in the media, and in their roles on nonprofit boards, that these organizations are somewhat myopic. They tend to balance several months' worth of operating reserves (for safety or solvency) against the possibility that funders will see them as having excess funds.

to ensure the future viability of donor funds. Similarly, if the potential exists for a government grantor to provide emergency funding to a nonprofit in times of duress, the nonprofit has an incentive to reduce savings.

We investigate whether these financial and institutional incentives create an environment where nonprofit managers rationally expend a significant portion (if not all) of current income and savings and rely on the expectation of government funds in times of duress to secure future funding. We argue that what may appear to be 'excessive' current spending by nonprofits can be viewed as a means of expanding the current (and future) client base and strengthening the nonprofit's ability to secure future grants.[2] In the following sections, we first review the literature and then develop a theoretical model of nonprofit savings that illustrates how incentives can shape the decisions of nonprofit managers.

1   Literature

While much work has been done on the relationship between saving and implicit tax subsidies, explicit grants and subsidies, production effects, portfolio choices, and 'spillover' effects and financial stability issues from for-profit to nonprofit conversion (or vice versa),[3] the behavior of nonprofit managers with regard to saving has received scant attention in the literature. Despite the fact that wealth-accumulating or savings decisions must predate portfolio choices and have consequences in terms of production, funding, taxes, and the ability to serve clients' needs in the future, how, and more importantly, why, nonprofit managers make investment and expenditure decisions remain unanswered questions.

The very existence and persistence of many nonprofits have been posited on the public subsidies available to the sector. James (1983) noted that nonprofits often abound in those areas where

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2   While many of the ideas in this paper could apply equally well to funding provided by private foundations or other nonprofits, we concentrate on public funding. We are particularly interested in social-service providing nonprofits, which tend to receive a large percentage of their funding from government agencies.
3   See, for example, Solberg (1991), Kingma (1993), and Edie and Smith (1994).

government has accepted some responsibility in financing production but has delegated the responsibility of production to other organizations.[4]

With the exception of regulatory constraints to ensure non-profit fiduciary integrity, governments often take a hands-off approach in the actual production and distribution of the goods and services. Government officials, however, may be highly invested and interested in nonprofit output that complements or substitutes the production of public goods and services. For this reason and for accountability purposes connected with the use of public money, the financial decisions which could ultimately make or break the nonprofit are of interest to government (Salamon 1987).

Governments may subsidize nonprofits implicitly and explicitly (James 1983; Rose-Ackerman, 1986). First, private organizations may be better positioned to charge fees for services, reducing total production costs paid by the government. This may be especially true for the provision of quasi-public goods where certain private benefits can be captured by fees.[5] Second, nonprofits relying on volunteer labor or those offering wages below public sector wages may reduce production costs. Third, if it is optimal to offer services based on religion or language, which presents a problem to many governments that are restricted or unable to offer such differentiated services, this constraint can be circumvented by delegating production to nonprofits. Finally, nonprofits may be more trustworthy in the eyes of the public and to public officials who provide funds, than their for-profit counterparts (Hansmann 1980).

While the literature suggests that the public sector may influence the behavior of nonprofit managers, it does not examine the direct import of government involvement on nonprofit saving. Several authors have noted effects on financial stability from conversion from nonprofit to for-profit status or vice versa (Robinson 1997, Claxton et al. 1997), and from implicit tax subsidies, and explicit grants and subsidies, to nonprofits in Canada and elsewhere (Salamon and

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4   In Canada, for example, despite cutbacks of government funding to the nonprofit sector, government remains a major contributor to nonprofits. More than 50 per cent of the funding of all registered charitable organizations comes from government, and hospitals and universities receive nearly 70 per cent of their funding from government (Sharpe 1994).
5   Examples include the provision of education, child care, and long term health care.

Abramson 1992; Hall and Macpherson 1997).[6] Others have examined the relationship between government funds and private donations. Brooks (2000) surveys and interprets the empirical work examining the relationship between government social spending and private donations. He finds that, overall, government funding cannot be shown to crowd out private donations. In the area of social service provision, he finds that government funding does crowd out private giving (see also Payne 1991). Others have found no significant relationship between revenue sources (Khanna et al. 1995; Okten and Weisbrod 2000). Khanna and Sandler (2000) and Knight (2002) suggest that government grants may crowd-in, or leverage, private donations. Like the 'flypaper effect' (Rosen 1995, p. 543) of national grants attracting more money in local and state governments, their studies imply that money sticks in the sector where it originally hits. None of these, however, looks at the effect of nonprofit savings on revenue generation.

Several studies are of particular interest for this research. Tuckman and Chang (1992) derive a behavioral model of nonprofit equity and apply it to a national sample of charitable nonprofits in the United States. While this study examines the savings decisions by nonprofits, it fails to address the issue of nonprofits receiving public funds and the implications of public funds on savings. Bloche (1998) considers whether the public sector intervenes to support nonprofits that encounter financial problems. He notes that government intervention is more likely to occur when nonprofits provide goods and services that are partial substitutes for government services. Bloche, however, does not explicitly model the public sector funding aspect. Our contribution to the literature is a theoretical model of nonprofit savings, examining how they respond to the issue of public funding and the incentives given to nonprofit managers to expend or save.

In the following section we present our theoretical model of nonprofit savings. Assuming altruistic, or perhaps particularistic incentives,[7] we note the existence of an optimal level of nonprofit savings from the perspective of the nonprofit.[8] We model constraints

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6   There is evidence of government funding of nonprofits ('charities' in the Canadian context) in some form or another in most categories with the single exception of religion in Canada and the USA.

7   The objective function could be called particularistic, assuming that the nonprofit manager cares only about maximum welfare of the nonprofit's clients.

8   Note that the objective function of the nonprofit need not be coincident with the social objective function.

on surplus accumulation required by government and other grant makers and the necessity of protecting the organization from closing its doors. We then discuss how empirically to examine the savings decision, and note data needed to test the ideas generated by the theoretical model.

2   Theoretical savings behavior

In order to examine nonprofit savings behavior, we must first specify what motivates nonprofit managers. Although economics suggests that nonprofit agents maximize something, there is no clear consensus of what it is that nonprofits maximize, especially within a multi-period context (Young 1983). We address this problem by examining the actions of a nonprofit (or a group of agents making the decisions for the nonprofit's operations) that has the same goals as a typical client. We assume that nonprofit managers are altruistic, or particularistic,[9] and thus no principal-agency problems occur between the nonprofit and its clients.[10] Manager's utility is represented by client utility, thus we ask what is it that nonprofits should do if they faithfully represent the interests of their actual and potential clients? The contribution of this research is mainly positive. If the altruism assumption is (sufficiently) valid our model describes the behavior of the nonprofit organization. If the utility function of the nonprofit organization is subject to agency issues or is different from the utility function we postulate, then our contribution may be viewed as a possible normative guide for an altruistic organization.

We focus on a nonprofit with income from individual donations from several private sector donors and a single government donor.[11] The nonprofit's income is uncertain and depends on the state of the economy. Nonprofit management therefore allocates resources across

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9   Whether the manager is altruistic or particularistic will not affect the set up of our model. In either case, we assume no principal-agency problems occur between management and clients.

10   Since much of the literature on nonprofits emphasizes that the very emergence of nonprofits may be based on their ability to resolve agency problems, assumptions of an altruistic nonprofit may be a reasonable approximation to reality. The seminal article on this issue is Hansmann (1980).

11   With minor modifications, the results could apply to nonprofits receiving grants from foundations or other private grantmakers.

time under conditions of uncertainty. We focus on a single measure of consumption per client (C_t) to capture the uncertainty on levels of service provision.[12]

While managers can calculate current consumption, C_1, (period one private income less any period one saving divided by the number of period one recipients), future consumption is uncertain. Individuals who are needy in one period may not be needy in a future period. We thus assume that the nonprofit makes its saving decision by maximizing the utility of a typical current client plus the expected utility of a future client, and that client utility is a function of consumption of the nonprofit's services.

What factors must be considered in the nonprofit's decision of whether (and how much) to save? If the probability of government intervention is negatively affected by an increase in savings of the nonprofit, one might expect to see little or no saving.[13] As Austen-Smith and Jenkins note (1985, p. 124), it seems reasonable that grants fall away when the nonprofit makes a net surplus. Savings proxy the extent of resources available to the nonprofit, and the existence of savings may be interpreted by the government donor as a lack of need for additional resources to meet mission objectives.[14] Grants may also have a positive opportunity cost and donors are unlikely to provide funds in excess of what is necessary to maintain nonprofit operations.[15]

In terms of our model, the nonprofit balances the need for government grants with the need for some operating reserves in the form of saving, thus incorporating the constraints on current spending into its decision making process. Specifically, the amount of saving done by a nonprofit may be affected by the probability of government help, and the probability that government helps may be affected by

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12   For technical reasons we assume that the identity and number of clients is exogenously fixed.

13   The public sector may be prejudiced against surpluses accumulated by nonprofits is illustrated by a news item in the *Toronto Star*, June 10, 1994. This reports that the appropriate legislative committee took a negative view of an audit indicating that a nonprofit built up a sizeable surplus.

14   Savings do not always signal need. Depending on the organization in question, savings may signal quality or credibility of the organization. Universities, for example, may signal their quality by size of their endowments.

15   We must qualify this statement if there is capital investment. In the last section of the paper, we discuss data on nonprofit finances which contain information about whether the agency saves above and beyond what is needed for day-to-day operations.

the amount of saving. We show under certain conditions that the possibility of future government help can pressure nonprofits to spend all current income, which then puts pressure on government grantors to continue to finance nonprofits.

3   The theoretical model

Consider a nonprofit facing a two period time horizon. In period one, nonprofit managers determine what level of services to provide, knowing that they face uncertain conditions in the second period. We assume there are no savings at the beginning of period one. Nonprofit managers choose between saving, s, and not saving in the first period, with savings being carried into the second period (thus s needs no time subscript as it is accumulated in period one and spent in period two). Income from private sources, y_i, is known at the time of the saving decision, where i is high or low (y_H, y_L), depending on economic conditions $(y_H > y_L)$. The manager calculates client consumption in period one to be $C_1 = y_i - s$.

Period two uncertainty is captured by defining 'good' times occurring with probability p_H, and 'bad' times occurring with probability $p_L = 1 - p_H$. 'Bad' times may be further categorized by whether or not government grantors provide funding to the nonprofit. The probability of government help is ρ. Thus the probabilities for future conditions in period two are p_H, p_L $(1 - \rho)$, and $p_L\rho$, reflecting the probability of high private income, low private income with no government assistance, and low private income with government help.

If government grantors provide funding to the nonprofit, we assume they insure a minimum consumption level per client, z $(y_H < z < y_L)$. Government grantors view the intervention as an emergency measure reflecting client needs. We assume that if government grantors provide support, they do not permit saving any of this support for the future. Further, government grantors require the nonprofit to exhaust its private income, including savings, to meet client needs. The amount of government funding per client is g, where $g = z - s - y_L$.

We assume government intervention is non-punitive, $g \geq 0$.[16] We also assume that the probability of government intervention, ρ,

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16   This seems a reasonable assumption as the nonprofit may be expected to first exhaust its own resources. It is not, however, a necessary assumption and is made for convenience only. Relaxing it does not affect our results.

is a non-increasing function of s, and that $s \geq 0$.[17] Thus, $\rho'(s) \leq 0$, reflecting that government officials may be less willing to provide help to a nonprofit that has accumulated savings and appears to be less needy. Since saving may signal a surplus, and given the asymmetry of information, the government donor cannot distinguish between savings generated by a lack of need and savings generated for future bad times. We ignore savings that take the form of capital stock as these are not always easily observed.

In each period, the utility of an individual receiving services from the nonprofit is $U()$, where $U' > 0$ and $U'' < 0$. We assume that the nonprofit is a Von-Neumann Morgenstern utility maximizer whose utility is U. The assumption of risk aversion, $U'' < 0$, is the motivation for consumption smoothing on which our model is based. We ignore the value of time; a simplifying assumption that does not affect our results. The nonprofit then chooses s to maximize V:

$$V = U(y_1 - s) + p_H U(y_{H2} + s) + p_L(1 - \rho)U(y_{L2} + s) + p_L \rho U(z) \quad (1)$$

Assuming that the nonprofit cannot engage in negative saving in the first period so that $s \geq 0$,[18] the optimizing conditions are $\partial V/\partial s \leq 0$, $s \geq 0$ and $s\,\partial V/\partial s = 0$. Two possibilities arise: $s = 0$ or $s > 0$. If $s > 0$, we have an interior solution and the first order condition for a maximum is $\partial V/\partial s = 0$. If $s = 0$, we have a corner solution such that $\partial V/\partial s < 0$. The nonprofit does not save. Note that given the concavity of V, $\partial V/\partial s > 0$ at $s = 0$ implies that the charity does some saving. Whether or not the charity saves therefore depends on the sign of $\partial V/\partial s$. If this is non-positive, no saving is done by the nonprofit; if it is strictly positive, the nonprofit does save.

We now proceed to examine what induces savings by the nonprofit, the case where $s > 0$ and $\partial V/\partial s = 0$. Dropping the second period time subscripts on y (showing only y_H and y_L), the first order condition for a maximum is:

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17   Once again it should be noted that 's' represents liquid savings that can be easily converted to future consumption. The government donor is less likely to penalize the nonprofit if investment is made in capital stock befitting its mission.

18   In this two-period model the nonprofit is assumed to start out with no savings. This implies that its first period saving cannot be negative. In a multi-period model a nonprofit may save and dis-save. Extending the model in this way, however, does not alter our main findings.

$$\frac{\partial V}{\partial s} = -U'(y_1 - s^*) + p_H U'(y_H + s^*) + p_L(1 - \rho)U'(y_L + s^*)$$
$$- p_L \rho' U(y_L + s^*) + \rho' p_L U(z) = 0 \qquad (2)$$

We consider two scenarios: (i) $\rho' = 0$ and (ii) $\rho' < 0$ which characterize government intervention as independent or dependent of the savings done by the nonprofit.

(i) Characterizing the saving decision when $\rho' = 0$

We begin with the case where the probability of government intervention does not depend on how much savings the nonprofit does, or $\rho' = 0$. Replacing p_H by $1 - p_L$, and assuming $\partial V/\partial s \leq 0$, evaluated at $s = 0$, we rewrite equation (2), the 'no-saving' condition as:

$$U'(y_1) \geq (1 - p_L)U'(y_H) + p_L(1 - \rho)U'(y_L) \qquad (3)$$

We can decompose the expected marginal utility of consumption (right-hand side) as follows:

(a) $(1 - p_L)\ U'(y_H)$ is the component relating to the income from private sources being high. Since $y_H \geq y_1$, $U'(y_1) \geq U'(y_H)$. If p_L, is small so that $(1 - p_L)\ U'(y_H)$ is the dominant term in the equation (3), no savings takes place.

(b) $p_L\ (1 - \rho)\ U'(y_L)$ is the component related to the income from private sources being low with no help provided by the government. If the probability of this, p_L, $(1 - \rho)$, is sufficiently small, either because y_L is unlikely or government help is very likely, then the nonprofit will not save.

Intuitively (given decreasing marginal utility), when the marginal utility of current consumption is greater than the expected marginal utility of future consumption, the nonprofit will not save.

The probability of government help is crucial here as can be seen by rewriting (3) as:

$$\rho \geq \frac{[U'(y_H) - U'(C_1)] + p_L[U'(y_L) - U'(y_H)]}{p_L U'(y_L)} \qquad (4)$$

where $p_L \neq 0$. Suppose that a bad year occurs in period one, or $C_1 = y_L$. Equation (4) is then:

$$\rho \geq \frac{(1 - p_L)[U'(y_H) - U'(y_L)]}{p_L U'(y_L)} \tag{5}$$

The right-hand side of this equation is negative, and $\rho' \geq 0$, implying that in bad times, no saving takes place regardless of the likelihood of good times in the second period and the government's propensity to intervene.

Even if the nonprofit has a good year in period one ($C_1 = y_H$), the nonprofit might not save if the probability of government intervention is sufficiently large. From (4), the condition for saving to take place is:

$$1 - \rho \geq \frac{U'(y_H)}{U'(y_L)} \tag{6}$$

If the probability that the government will *not* help, $(1 - \rho)$ is larger than the ratio of the marginal utility of y_H (consumption in good times) to the marginal utility of y_L (consumption in bad times) the nonprofit will save. In utility terms, then, the reduction of current consumption by one dollar costs the marginal utility of consumption in good times $U'(y_H)$. This yields a benefit only if the government does not provide support, for if the government does intervene, the nonprofit's clients consume z in the second period regardless of the amount saved. From the nonprofit's perspective the saving is wasted if the government intervenes. At the margin, in good times we compare the loss in utility in the first period, $U'(y_H)$, with the expected gain in utility in the second period, $(1 - \rho)U'(y_L)$. Note, however, that if y_L is considered by the nonprofit to be below a minimal consumption level so that $U'(y_L)$ is very large, the nonprofit will tend to save unless government help is almost certain.

(ii) Characterizing the saving decision when $\rho' < 0$

Now suppose that government grant makers are sensitive to the amount of savings a nonprofit has accumulated, and specifically $\rho' < 0$. This introduces a term which takes into account the negative relationship between savings and the likelihood of government support, which tends to decrease the expected value of the utility of savings.

The relevant marginal decrease in the probability of government support is $\rho' p_L$. The net utility value of government support, $U(z) - U(y_L)$, is multiplied by $\rho' p_L$ to reflect the expected future utility of consumption in bad times with government support to a consumption level of z.

If the effect of saving on ρ is large at $s = 0$, the likelihood that the nonprofit will save is small: When $\rho' < 0$ is incorporated, again assuming $\partial V/\partial s \leq 0$ evaluated at $s = 0$, the 'no-saving' condition from equation (2) may be written as:

$$\rho \geq \frac{[U'(y_H) - U'(C_1)] + p_L[U'(y_L) - U'(y_H)]}{p_L U'(y_L)} + \frac{p_L \rho'[U(z) - U(y_L)]}{p_L U'(y_L)} \quad (7)$$

This is the same as equation (4) except that the second term on the right-hand side is negative, implying that the condition for no saving is less stringent than the case when $\rho' = 0$. If the first period is good, $C_1 = y_H$, the no-saving condition may be rewritten as:

$$\rho \geq \frac{U'(y_L) - U'(y_H)}{U'(y_L)} + \frac{\rho'(U(z) - U(y_L))}{U'(y_L)} \quad (8)$$

Even if the first term in (8) is small, no saving takes place if the second term is large. Saving, by reducing the probability of government intervention, increases the probability that the client of the nonprofit will consume y_L rather than z in period two. If the potential utility loss is sufficiently large because $U(z)$ is considerably greater than $U(y_L)$, and/or if its occurrence is sufficiently likely because the absolute value of ρ' is large, the utility of current (higher) consumption will outweigh the utility of consumption from saving.

The analysis shows that the possibility of government intervention complicates the saving decision. As can be seen from equation (4), a nonprofit manager would not save if private donations are low ($C_1 = y_L$). Even if private income is high ($C = y_H$), if the probability of government help is positive and/or the marginal probability is negative ($\rho > 0$ and/or if $\rho' < 0$, as in equation (8)), the nonprofit may not save.

4   Comparative statics

Assuming that some saving takes place, how do managers adjust savings when the probability of bad times, the probability of government intervention, and the minimum consumption level per client change? We begin by considering comparative statics under the assumption that $\rho' = 0$. We then consider how these results change if $\rho' < 0$.

4.1   Comparative statics when $\rho' = 0$

Recalling that when $\partial V/\partial s \leq 0$, $s^* = 0$, the first order condition for optimal saving, s^* is [19]

$$
\begin{aligned}
\frac{\partial V}{\partial s} = &- U'(y_1 - s^*) + (1 - p_L)U'(y_H + s^*) \\
&+ p_L(1 - \rho)U'(y_L + s^*) = 0
\end{aligned}
\tag{9}
$$

The resulting comparative statics are:

	Effect of p_L	Effect of ρ	Effect of z
on savings, *s*	non-negative	non-positive	0
on expected government intervention, *E(g)*	ambiguous	non-negative	non-negative

The effect of increasing p_L on s is unambiguously positive; thus an increase in the likelihood of bad economic times induces saving. Similarly, $\partial V/\partial s$ is decreasing in ρ, so an increase in the probability of government intervention reduces saving. An increase in z does not alter the amount of saving done by the nonprofit. We note that this result depends on ρ' being zero, which implies that the probability of government intervention is constant. A change in s affects the nonprofit's clients (and their utility) only if the government does not intervene, so if s does not affect ρ, it does not affect expected consumption in period two.

We now consider the effects of p_L, ρ and z on expected government support, $E(g)$, which give us some idea of the budgetary implications of the interaction between government and nonprofits. As noted above, $g = z - s - y_L$, so that the expected value of g is given by

$$
E(g) = p_L\rho(z - s - y_L)
\tag{10}
$$

An increased probability of bad economic times, p_L, has an ambiguous effect on the expected amount of government support $E(g)$ given to the nonprofit. An increased likelihood of government support, ρ, raises $E(g)$. In both cases, the effects on $E(g)$ of increased probability of intervention have two components. When ρ increases, we observe a direct effect due to the increased amount of expected government

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19   As is the case of corner solutions, s^* may not change for small changes in parameters.

payout. We also observe an indirect effect on $E(g)$, which arises from how saving changes in response to the changed probability.

To summarize the findings when $\rho' = 0$, an increase in p_L, or the probability of bad times, tends to increase saving and has an ambiguous effect on the expected government payout. An increase in the likelihood of government help reduces saving and raises the expected amount of government help. Finally, since z does not affect s, a change in z has only a direct effect on $E(g)$: The greater the amount guaranteed by the government, the greater its expected spending.

4.2 Comparative Statics when $\rho' < 0$

	Effect of p_L	Effect of z
on savings, s	non-negative	non-positive
on expected government intervention, $E(g)$	ambiguous	non-negative

In this case the first order condition is

$$\frac{\partial V}{\partial s} = -U'(y_1 - s) + (1 - p_L)U'(y_H + s) + p_L(1 - \rho)U'(y_L + s)$$
$$- p_L\rho'U(y_L + s) + p_L\rho'U(z) = 0 \tag{11}$$

Since ρ is endogenous, we cannot carry out a comparative statics analysis with respect to ρ. We use (11) to examine the effects of p_L and z on s and on $E(g)$.

As in the case above, an increased probability of bad times increases saving. It also has an ambiguous effect on expected government expenditure. The rationale for this ambiguity (as above) arises because when ρ rises, we observe a direct effect, increasing $E(g)$, and an indirect effect on $E(g)$, which is altered when saving changes in response to the changed probabilities.

In contrast to the case above, an increase in the minimum consumption level per client, z, reduces saving. If saving affects the probability of government help, an increase in z results in lower marginal benefits of saving, which reduces the amount of saving done by the nonprofit.

Also similar to the case above, an increase in z unambiguously increases expected government support. In this case, the direct effect of increased expected government payout and the indirect effect on the amount of the expected payout, altered when s changes in response to the changed probabilities, work in the same direction.

To summarize both the cases of $\rho' = 0$ and $\rho' < 0$, we found that an increased probability of bad times tends to induce saving, even if the likelihood of government help is affected by that saving. Second, potential government intervention to help a nonprofit in times of duress tends to reduce the amount of saving done by the nonprofit. This effect is strengthened if the government grantors view unspent donations as indicative of a lack of need. (The minimum consumption level per client has a negative effect on saving only when government grantors are sensitive to saving decisions.) Both these effects therefore may cause nonprofits to spend readily on current consumption, and increase the average burden on the public purse. Finally, whether the amount of expected funding from government rises or falls cannot be determined solely from a change in the probability of bad times. This level does tend to rise when the probability of government help is not affected by saving, but cannot be determined (the probability of help is endogenous) when the probability of government help is affected by saving levels. Finally, the expected amount of government funding tends to change positively as government grantors increase their minimum consumption level per client.

5   Empirical questions and suggestions for future research

The theoretical model illustrates the nonprofit manager's trade-off between using income to build up savings and serving more clients immediately. Governments treat savings negatively as they signal need. Anecdotal evidence suggests that nonprofits typically survive on short-term budgets, with managers estimating income frequently and expending as needed to meet the needs of as many clients as possible. This scenario matches our model reasonably well: the nonprofit maximizes the utility of its clients (present and future), and balances the needs of clients against having enough operating funds to keep the operation afloat.

For policy purposes, the model suggests that the likelihood of government help may induce 'excessive' current spending by nonprofits. This possibility may be viewed as a means of pressuring the government in the future, 'ratcheting up' the amount of nonprofit funding provided by government. We present here research issues and questions that may be used in future research to test our findings empirically.

First, we noted that an increased probability of bad times tends to induce saving, even if the likelihood of government help is affected

by that saving. Our model provides the counterintuitive result that nonprofit saving and the economy run opposite to one another. To test this idea, a researcher would examine multi-period data on nonprofit expenditures, savings, capital accumulation, and economic character-istics to discover how saving changes with economic conditions. We note below, however, that adequate data do not exist in the USA or Canada to help us test this or our other hypotheses, and that more detailed data collection, such as audited statements will be necessary to help pursue these issues.

We also found that increasing the probability that government grantors will help a nonprofit in times of duress tends to reduce the amount of saving, and that this effect is strengthened if government grantors view unspent donations as indicative of a lack of need. Specifically, our model reveals that the minimum consumption level per client has a negative effect on saving only when government grantors are sensitive to saving decisions. It would be interesting to see how savings is affected by policy measures. If policy or legislation suggests a minimum level of service in the current period that is higher than what the nonprofit can provide in the next period, we predict that savings will fall. We also predict that, under the same circumstances, government grants to the nonprofit will rise. Finally, researchers might explore whether a rise in nonprofit saving is fol-lowed by a lowering of the amount of government grants.

We postulated, from anecdotal evidence, that nonprofits take a myopic view of budgets. A basic question is then: What is the amount of saving that nonprofit managers (executive directors and board mem-bers) consider to be prudent in balancing client consumption and operating reserves? Similarly, how do they view grantmakers' actions in granting funds in light of their saving? How do grantmakers them-selves view savings? Do they have the same balance of operating reserves and client service provision in mind when they determine whether and how much to fund nonprofits? Most of these questions could be answered only by surveying boards and executive directors, and grantmakers both in nonprofit and government agencies.

In our model we also assumed one government grantor. Many nonprofits, though, receive funding from many sources that likely have different criteria and rationales for making grants. How do the actions of various grantors affect saving behavior? Do grantors inter-act with one another, affecting the total amount of grants received by a nonprofit and the likelihood of additional funds in future periods? And do grantors' views on savings differ among nonprofit foundations and agencies, government grantors at the national level, and those at

regional and local levels? Again, surveys and case studies may provide answers to these questions.

Perhaps quantitative analyses could be undertaken to shed light on the saving decision. We began a preliminary search of financial data that are or could be made available to assess the tradeoffs and the amount and timing of resources used. Tax returns, currently the only readily available source of data on registered nonprofits (and generally the only publicly available data), give a year-end snapshot of activities, reporting data at one point in time. These data do not allow researchers to measure income or expenditures on a per client basis, but do give aggregated figures. Using the accounting definition of savings (receipts less disbursements) from these data may allow analysis of a nonprofit's savings, government funding, asset size, and the relationships underlying its saving decisions. The data are unaudited, however, and a one-time view of the accounts of the agencies may reveal little about spending and income patterns over the year.

Handy and Webb (2003) analyzed tax return data from Canada to illuminate the decision to save versus serve more clients in social-service providing charities.[20] Transfer payment agencies in this sample (those nonprofits providing social services in place of or for government) reported lower (sometimes negative) saving than non-transfer payment agencies, thus providing some evidence of an expectation of government help. This leads to the research question, does the percentage of government funding received drive the non-profit manager's saving behavior? On a larger scale, how are saving decisions made in nonprofits not providing social services?

More than half the firms in Handy and Webb's sample had small, no, or negative savings.[21] In this study savings were positively correlated with size (assets) and negatively correlated with government funding as a percentage of receipts. This may suggest that smaller charities rely more on government funding in bad times, or that as agencies grow, they have multiple resources from which to spend on clients and to save to deal with future uncertainties. Although the model presented here does not capture these issues, researchers could continue to question whether smaller agencies are more dependent on government and thus make different saving decisions.

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20   See their chapter for more discussion of the uses and problems of tax return and other nonprofit data.

21   Negative saving may occur across several periods. See footnote 18.

Finally, we restricted our model and assumed away changes in underlying capital stock. In US and Canadian tax data the accounting measure of savings used on tax returns, receipts less disbursements, may not represent savings at all. Without more information, such as that available on audited financial reports, we do not know how non-profits allocate their funds between operational versus capital expenses. We cannot tell if funds are set aside for long-run expenditures or whether fixed assets are capitalized. If available, such data could show whether excess disbursements came from a capital set up for the purpose of raising capital funds to complete specific long-term projects.

As a starting point, this research provides a newer, more comprehensive theory of the saving behavior of nonprofits. We have proposed a theoretical model which should allow for the testing of many different factors affecting saving and the expenditures made by government to fund social service provision. We hope we have contributed to better understanding of the role that saving plays in the nonprofit arena, and that our efforts illustrate the consequences of the problem of asymmetrical information between the funder and the nonprofit.

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Modèle théorique des effets du financement public sur les décisions d'épargner des prestataires de services caritatifs et sans but lucratif

Pourquoi les organisations prestataires de services sans but lucratif et caritatives épargnent-elles? Quels sont les compromis entre utiliser les bénéfices pour consolider les réserves en liquidité et servir davantage de clients? L'épargne peut générer des revenus, protéger l'organisation contre une baisse des donations et accroître ses chances de survie. En revanche l'épargne peut influencer négativement la probabilité que les organisations sans but lucratif reçoivent des fonds publics et privés. Les auteurs modèlisent la relation entre revenus publics et privés, conditions économiques et épargne des organisations sans but lucratif. Il ressort qu'anticiper l'aide publique pendant des périodes difficiles a tendance à réduire le montant d'épargne dégagé par les organisations sans but

lucratif. Cet effet est accru si les pouvoirs publics interprètent la non dépense des donations comme un indicateur du manque de besoins. Ces deux effets incitent fortement les organisations sans but lucratif à dépenser sous forme de consommation courante plutôt qu'à épargner pour l'avenir et donc à alourdir la charge des pouvoirs publics.

Ein theoretisches Modell der Wirkungen öffentlicher Finanzierung auf die Entscheidungen karitativer und Nonprofit-Dienstleistungserbringer, Rücklagen zu bilden

Warum bilden karitative und im Dienstleistungsbereich tätige Nonprofit-Organisationen Rücklagen? Welches sind die trade-offs zwischen der Verwendung der Einkünfte zum Aufbau von Cash-Reserven und der Ausweitung des Kundenstammes? Rücklagenbildung kann einkünfte erzeugen, die Organisation vor einem Rückgang der Spenden schützen und die Überlebenschancen der Organisation erhöhen. Rücklagen mögen jedoch die Wahrscheinlichkeit beeinflussen, dass Nonprofit-Organisationen private und öffentliche Finanzierungsmittel erhalten. Wir bilden ein Modell für die Beziehung zwischen privaten und öffentlichen Einkünften, ökonomischen Bedingungen sowie Rücklagen von Nonprofit-Organisationen und stellen fest, dass die Antizipation staatlicher Unterstützung in schwierigen Zeiten tendenziell dazu führt, die Höhe der Rücklagen, die die Nonprofit-Organisation bildet, zu verringern. Dieser Effekt wird verstärkt, wenn die Vertreter des Staates nicht ausgegebene Spendenmittel als Anzeichen mangelnden Bedarfs ansehen. Beide Effekte bilden für Nonprofit-Organisationen einen starken Anreiz, eher Ausgaben für laufenden Verbrauch zu tätigen, als Rücklagen für die Zukunft zu bilden, und erhöhen somit die Belastung der Staatskasse.

Modelo teórico de los efectos de la financiación pública sobre las decisiones de ahorrar de las organizaciones que prestan servicios caritativos y sin fines lucrativos

¿Por qué ahorran las organizaciones que prestan servicios caritativos y sin fines lucrativos? ¿Dónde se encuentra el término medio entre utilizar los beneficios para consolidar las reservas o disponer de liquidez para servir mas clientes? El ahorro puede generar rentas, proteger a la organización ante una caída de los donativos e incrementar sus posibilidades de supervivencia. En contrapartida, el ahorro puede influir negativamente en la probabilidad de que las organizaciones sin fines lucrativos reciban fondos públicos y privados. Los autores modelizan

la relación entre rentas públicas y privadas, situación económica y ahorro de las organizaciones sin fines lucrativos. Se pone de manifiesto que anticipar la ayuda pública durante los períodos difíciles impulsa la tendencia a reducir el volumen de ahorro realizado por las organizaciones sin fines lucrativos. El efecto se incrementa si los poderes públicos interpretan el hecho de no gastar los donativos como una carencia de necesidades. Estos dos efectos incitan con fuerza a las organizaciones sin fines lucrativos a gastar bajo la forma de consumo corriente antes que a ahorrar para el futuro y agravar la carga de los poderes públicos.