DISCUSSION PAPER SERIES

No. 7978

ENTRY AND FIXED COSTS IN CHARITABLE SECTORS

Kimberley Ann Scharf

PUBLIC POLICY

Centre for Economic Policy Research

www.cepr.org

Available online at: **www.cepr.org/pubs/dps/DP7978.asp**

ISSN 0265-8003

ENTRY AND FIXED COSTS IN CHARITABLE SECTORS

Kimberley Ann Scharf, CEPR and University of Warwick

Discussion Paper No. 7978
September 2010

Centre for Economic Policy Research
53–56 Gt Sutton St, London EC1V 0DG, UK
Tel: (44 20) 7183 8801, Fax: (44 20) 7183 8820
Email: cepr@cepr.org, Website: www.cepr.org

CEPR Discussion Paper No. 7978

September 2010

ABSTRACT

Entry and fixed costs in charitable sectors*

Fixed costs that are not sunk do not translate into entry barriers against for-profit competitors. We show that in the case of non-commercial, not- for-profit providers, the presence of fixed costs may protect the position of an inefficient incumbent. In these situations, successfully contesting the position of incumbents may require new providers to adopt a for- profit organizational form – notwithstanding the moral hazard problem that this might entail when quality of provision is difficult to monitor – or, alternatively, to secure core funding from government or from a large private donor.

JEL Classification: L1, L3
Keywords: charities, core funding and not-for-profit organizations

Kimberley Ann Scharf
Department of Economics
University of Warwick
Coventry
CV4 7AL

Email: k.scharf@warwick.ac.uk

* I am grateful to Abigail Payne and Sarah Smith for comments and suggestions, and to PEDAL at McMaster University for access to data and facilities. Any errors are mine.

Submitted 11 August 2010

1 Introduction

We observe significant variation in the composition of the funding sources of different charities: for some, the bulk of funding is represented by government grants, whereas for others, government grants constitute a relatively minor component of funding in comparison with private grants.[1] A possible explanation for these differences is that they relate to the collective consumption preferences of the political majority, i.e. that charities providing the kinds of services that are favoured by the political majority receive more government support than those that provide services that the political majority does not favour – an interpretation that relates to Weisbrod's (1975) view that private giving is a reflection of the collective consumption preferences of political minorities.

This paper offers a possible alternative interpretation of the observed variation in the composition of charities' funding, and conjectures that it may originate from differences in their cost structures and the way that these differences relate to competition and entry in charitable sectors.

Evidence on Canadian charities' revenues and costs across different sectors of charitable activities (presented in Section 5) shows that fixed costs are positively correlated with the level of government funding received by charities. It could be that large fixed costs make charities vulnerable to fluctuations in the level of private funding, which might in turn induce them to actively seek government funding. However, this does not entail that government should oblige. For-profit firms also

[1] In the case of Canadian charities, for example, the mean ratio of government funding to total funding is .39, with a standard deviation of .42 (computed from tax return information for Canadian charities from the Canada Revenue Agency over the period 1997-2007, for a total of 392,314 observations).

face fixed costs and uncertain cash flows, just as not-for-profit firms do, but this is not a sufficient rationale for public support even when there is a public interest in promoting competition and entry of the most efficient firms – as first pointed out by Baumol and Willig (1981), fixed, non-sunk costs need not impede entry and efficient selection of producers. The same principle may apply to not-for-profit firms: provided donors are fully informed about charities' performance, unfettered competition between charities will allow those charities that deliver the highest value for donors to attract the most funding and to be best positioned to meet their fixed costs and deal with a fluctuating cash flow; those charities that cannot handle their fixed costs will then be (efficiently) selected out. Thus, although government support of charities may be warranted for a number of different reasons, it is not obvious that it should be warranted specifically on the basis of core funding needs.

The following sections set out a pro-competitive based rationale for why government funding of fixed costs may be called for in the case of non-commercial charities. We show that, unlike in the case of for-profit firms, the presence of fixed costs might impede competition amongst non-commercial charities and give rise to inefficient selection. The reason for this is that any surplus or shortfall experienced by a not-for-profit provider is reflected in the level of its provision rather than in its residual profit claims. This makes a switch by an individual donor towards a start-up charity unattractive even if this start-up is potentially more efficient, because such a switch would result in lower rather than higher provision unless the switch is coordinated with other donors. As a result, when private contributions are directed towards not-for-profit providers that face fixed costs, non-cooperative contributions equilibria – as characterized by Bergstrom, Blume and Varian (1986) – may support an inefficient status quo. This contrasts with the case of for-profit sectors, where price competition in the presence of a residual claimant makes uncoordinated deviations to lower cost providers worthwhile for individual consumers

even if there are fixed costs.

Although this conclusion follows quite naturally from the structure of the interaction between donors who face competing charities, it has not been identified before in the literature. Indeed, to the best of our knowledge, ours is the first paper to examine the implications of private contribution equilibria for competition amongst non-commercial charities.

We also show that the potential failure of competition in the case of charities can be overcome by potential entrants adopting a for-profit organizational form, or, when the moral hazard problem associated with a for-profit form is too severe, by grants from government or from large donors directed to cover fixed cost – "core funding" or "seed grants". When government grants are motivated by this rationale, differences in the share of government funding across charities will therefore correlate with differences in the shares of fixed costs in their total costs.

The above conjectures and predictions are consistent with the prominence given by charities to core funding "strategies". Charities often lament that donors are typically unwilling to fund core costs – making it especially difficult for start-up charities to get off the ground – and consistently lobby government to step in with grants to cover their fixed operating costs.[2] These predictions are also consistent with the observation that a significant fraction of government grants are seed grants that are directed not just towards new kinds of charitable activities not yet carried out by existing charities, but also towards established charitable activities – suggesting that they are meant to promote efficient selection through entry rather than simply to

[2]The difficulties that charity face in persuading donors (especially small ones) to make donations that are not earmarked towards project costs and can be used to fund core costs leads charities to formulate specific core funding strategies. See, for example, Scott (2003) and Institute for Philanthropy (2009).

support provision of new services.

Our paper contributes to the debate on conduct and performance in the not-for-profit sector vis-à-vis the for-profit sector. This has focused mainly on the implications of organizational form for internal performance along various dimensions – information and agency costs (Alchian and Demsetz, 1972; Hansmann, 1980; Easley and O'Hara, 1983; Glaeser and Schleifer, 2001), differential regulatory and tax regimes (Lakdawalla and Philipson, 2006), access to pro-socially motivated workforce (Ghatak and Mueller, 2009). The implications of organizational form for inter-charity competition and industry structure have received less attention. A recent exception is Philipson and Posner (2009), who study – as we do here – competition between providers that pursue not-for-profit objectives. Their focus, however, is different from ours, as they consider markets that are not contestable, i.e. where there are barriers to entry, concluding that, as in the case of for-profit firms, antitrust regulation may be called for. Their arguments hinge on the incentives that not-for-profit firms have to defend their incumbency position even when it is not socially efficient to do so. The source of inefficiency we identify here stems instead from the relationship between private donors' decisions and entry decisions in the presence of fixed costs, which results in high-cost incumbents being protected from lower-cost challengers even when there are no other barriers to entry. While antitrust measures are not well suited to tackle this problem, public support of core funding needs – either directly, through government grants, or indirectly, through policies that encourage private start-up grants and/or the setting up of charity endowments – may be able to alleviate it.

Two other recent studies that are related to ours are Pestieau and Sato (2006) and Ghatak and Mueller (2009). The former points out that scale economies (or equivalently fixed costs) in provision must be posited in order to rationalize the existence of charities that channel contributions from multiple donors having heteroge-

neous preferences for alternative varieties of collective goods. Our characterization of the relationship between fixed costs and industry structure is quite different from theirs, but can be viewed as complementary to it (our argument could be extended to an environment where the varieties supplied by different charities are imperfect substitutes). Ghatak and Mueller (2009) show how a for-profit manager, acting as residual claimant, may be comparatively better positioned to engage pro-socially motivated workers in incentive contracts. This somewhat parallels our conclusion that, in the presence of fixed costs, the residual-claimant position of for-profit start-ups can make it comparatively easier for them to divert contributions away from incumbents.

The rest of the paper is structured as follows. Sections 2 and 3 compare and contrast competition outcomes for for-profit firms and for charities in the presence of fixed costs. Section 4 looks at the relationship between organizational structure and efficient entry. Section 5 discusses some evidence on the relationship between fixed costs and government funding for the Canadian case. Section 6 concludes.

2 Competition between for-profit firms in contestable, private goods markets

To present our argument concerning the role of fixed costs for competition in the not-for-profit sector, it is useful to consider first the case of for-profit firms. We shall focus on the simplest possible scenario, namely that of competition between two providers, 1 and 2, competing to supply a homogeneous private good.

Each for-profit firm faces a fixed cost, f, and a constant marginal cost, $c_j, j = 1, 2$. The fixed cost component is not sunk, and there are no entry or exit costs or search frictions on the part of consumers. In the terminology introduced by Baumol and

Willig (1981), the market is therefore *contestable*, in the sense that, even if a single firm operates in equilibrium, the prevailing firm will be the one that can meet demand at the lowest cost, and its pricing behaviour will be disciplined by the threat of entry from potential competitors.

Suppose firms must serve a market with n consumers, each generating a demand equal to unity in value terms – which in turn could be rationalized in terms of Cobb-Douglas preferences with fixed individual income m and a demand share for the private good in question equal to $a = 1/m$. Also, suppose that

$$c_1 > c_2, \tag{1}$$

which means that firm 2 can meet total demand more efficiently than firm 1. Finally, assume

$$f < n, \tag{2}$$

implying that f is small enough to make servicing the market worthwhile for either firm.

If firm 1 is the only active firm, meets the given demand, and charges a price for which it breaks even, the quantity, x_1, it supplies to each consumer will be identified by the following zero-profit and price-demand conditions:

$$\begin{cases} n(p_1 - c_1)x_1 - f = 0, \\ p_1 x_1 = 1, \end{cases} \tag{3}$$

which identify a total level of provision and price level respectively equal to

$$nx_1 = \frac{n-f}{c_1}, \qquad p_1 = \frac{nc_1}{n-f}. \tag{4}$$

And, as $c_1 > c_2$,

$$n(p_1 - c_2)x_1 - f > 0, \tag{5}$$

meaning that firm 2 will be able to enter the market and supply the same quantity at a lower price – or a higher quantity at the same price – and make a positive profit.

Proposition 1 *When two for-profit private good suppliers face identical fixed costs that are not sunk, and entry and exit are costless, all production will be carried out by the lower-cost producer.*

PROOF: Consider the following sequence of moves: (i) firms 1 and 2 simultaneously select prices p_1 and p_2; (ii) consumers select a supplier. In the second stage consumers will select the supplier that charges the lower price, and so profits for firm j will be equal to $n(p_j - c_j)(1/p_j) - f = n(1 - c_j/p_j) - f$ if $p_j < p_{-j}$, to $(n/2)(p_j - c_j)(1/p_j) - f = (n/2)(1 - c_j/p_j) - f$ if $p_j = p_{-j}$, and to zero if $p_j > p_{-j}$ (the fixed cost f is only incurred if sales are positive, as it is neither sunk nor an entry cost). The best response for firm j will then be to strictly undercut its rival as long as this results in a non-negative profit. A non-cooperative equilibrium will then have firm 1 selecting $p_1 = nc_1/(n - f)$ and firm 2 selecting a price p_2 that is only marginally less than p_1; this will result in zero profits for firm 1, and a level of profits for firm 2 that is positive and only marginally less than $n\big(nc_1/(n - f) - c_2\big)(n - f)/(nc_1)$; in this outcome, neither firm 1 nor firm 2 will be able to obtain a higher profit by unilaterally increasing or decreasing the price it charges. □

When there are no entry or exit barriers but there are fixed costs, the outcome is a natural monopoly that prices "competitively" because of the competitive pressure exerted by potential entrants. Moreover, the prevailing firm will be the one that can meet demand at the lowest average cost. The substance of this conclusion generalizes to the case of (Chamberlinian) competition between firms supplying goods that are imperfect substitutes (Dixit and Stiglitz, 1977). In that case, in the absence of entry barriers, competition will result in the efficient selection of a subset of providers, rather than a single provider, and marginal entrants will price at or close to average cost.

3 Competition between non-commercial charities

Consider now an analogous scenario where competitors 1 and 2 are non-commercial, not-for-profit suppliers providing a homogeneous collective good, and where there are n donors, each contributing one dollar. Suppose that charity 1 is the recipient of all donations – and hence the only charity that engages in production. The marginal donor will then perceive that her donation produces a marginal effect on provision equal to $1/c_1$. If this marginal donor were to switch her donations from charity 1 to charity 2, then the marginal effect on provision would be $(1-f)/c_2$, which, if f is sufficiently large ($f > 1 - c_2/c_1$) will be less than $1/c_1$ – and possibly even negative. Thus, when fixed costs are large, the monopoly position of charity 1 cannot be contested by charity 2 even if charity 2 can provide services at a lower average cost, unless charity 2 can bring about a coordinated switch by all donors. If it can do so, then a new equilibrium can be established where the marginal donor's donation generates a marginal effect on provision equal to $1/c_2$. This latter equilibrium is more efficient than the first one as it results in provision equal to $(n-f)/c_2$, which is greater than $(n-f)/c_1$.

The difference between the non-commercial, not-for-profit case and the commercial, for-profit case is that coordination between donors towards efficient charities is more difficult to achieve than coordination of consumers towards efficient firms, because in the case of for-profit firms consumers can be "herded" effectively through price competition – firm 2 can undercut firm 1 and induce all consumers to switch. Firm 2 can do this credibly as consumers need not concern themselves about whether the firm will succeed in meeting its objectives; i.e. if firm 2 were not to succeed, it would make a loss but the price a consumer has paid for its services would not be revisited. This is not the case for non-commercial charities: charity 2 is unable to make a corresponding binding offer to all donors that it will provide

more for each dollar received than charity 1 does. This is because charity 2 is a not-for-profit entity with no residual claimants, and thus devotes all of its resources to provision. Accordingly, a failure to successfully contest the position of charity 1 will be reflected in its level of provision rather than its profits. Thus, donors would only switch to charity 2 if they believed that other donors would also direct their donations towards that charity – and, as a consequence, no donor will switch.

Proposition 2 *When two non-commercial charities providing collective goods face identical fixed costs that are not sunk and entry and exit are costless, all provision will be carried out by a single charity. If fixed costs are sufficiently small ($f < 1 - c_2/c_1$), then this single charity will be the low-cost charity; otherwise ($f \geq 1 - c_2/c_1$) it will be either the high-cost or the low-cost charity.*

PROOF: If all donors give to charity 1, total provision will be $(n - f)/c_1$; if they all give to charity 2, it will be $(n - f)/c_2$; and if $n_1 < n$ individuals give to charity 1 and $n_2 < n$ give to charity 2, total provision will be $\max\{(n_1 - f)/c_1, 0\} + \max\{(n_2 - f)/c_2, 0\}$.[3] Consider then a situation where all donors are giving to charity 1. If a donor were to switch to charity 2, the effect on total provision would be equal to $-1/c_1 + (1 - f)/c_2$, which is negative. Thus, this is an equilibrium as no donor will unilaterally switch. Analogously (noting that $f > 1 - c_2/c_1$ implies $f > 1 - c_1/c_2$), we can conclude that a situation where all donors give to charity 2 is also an equilibrium. Configurations where both charities receive donations cannot be equilibria because in these cases any donor giving to charity 1 could, by unilater-

[3]We therefore assume that provision cannot become negative – or equivalently, that if the difference between donations received and f is negative, this difference can be funded in some way (privately or by the government). An alternative assumption that leads to the same conclusion is that whenever a charity receives donations that fall short of f, it does not directly engage in provision and instead diverts the donations it receives towards another charity.

ally switching to charity 2, bring about an increase in provision equal to $-1/c_1 + 1/c_2 > 0$. □

What this implies is that competition between non-commercial charities may result in inefficient selection even when technologies are such that markets would be contestable and efficient in an analogous for-profit scenario.

It should be stressed that what protects the position of an inefficient incumbent is the adoption of a not-for-profit organizational form *in combination* with the non-commercial nature of charities' activities. In the case of commercial not-for-profit entities that sell private goods and services (e.g. not-for profit hospitals charging customers for their services), the presence of fixed, non-sunk costs could not give rise to entry barriers because buyers of the service would only care about the services they themselves receive.

Our conclusion would also carry over to a scenario where there are fixed costs and where the services provided by different charities are viewed by donors as being different goods. An equilibrium outcome would then feature multiple charities; but as in the homogeneous good case – and unlike in an analogous scenario with heterogeneous goods and for-profit firms – the resulting selection of charities would not necessarily correspond to a socially efficient selection.

Although, in the presence of large fixed costs, there is little scope for the government to restore efficient selection through a regulatory approach, it can promote efficient entry by funding the fixed cost component of charities' costs. If fixed costs are fully funded by government, donors will move freely to the charities with the lowest marginal costs, and the ones that have higher marginal cost will be driven out (or will not enter in the first place). This is in line with the practice of government grants aimed at establishing some "core" or "seed" funding.

Proposition 3 *A government grant $g > f - 1 + c_2/c_1$, given conditionally to the charity receiving at least one dollar's worth of donations, can ensure efficient selection across charities.*

PROOF: Suppose that all donors give to charity 1. Then, in the presence of the grant, if a donor switches to charity 2, the effect on provision will be $-1/c_1 + (1 - f + g)/c_2 > -1/c_1 + \left(1 - f + (f - 1 + c_2/c_1)\right)/c_2 = 0$. □

4 Fixed costs, competition, and the case for not-for-profit organizations

The potential barriers to efficient entry by lower-cost charities under cost structures that would make private markets fully contestable arise specifically because charities pursue not-for-profit motives. Nevertheless, there may be compelling reasons for charities to be organized as not-for-profits: the kind of provision that is carried out through charities often involves delivery of services to third parties, which limits donors' ability to observe the quantity and quality of provision, as well as activities whose effect may be difficult to quantify. Commissioning provision of these services and activities to a for-profit supplier may thus generate contracting problems with respect to the quantity and/or quality of provision (Hansmann, 1980), problems that are absent when donors and providers share common objectives.[4]

The moral hazard problem that may arise when the provider is a for-profit entity can be formalized as follows. Suppose that there is output risk – with probability $1 - \pi(m)$ output is zero, where $\pi'(m) > 0$, $\pi''(m) < 0$, and m is the additional cost

[4] A related argument is developed by Glaeser and Schleifer (2001).

of effort, per unit of output, in excess of the base marginal cost c. Also, suppose that the actual output delivered by the charity is not fully verifiable, i.e., what is observable and verifiable is a public signal that coincides with the actual output outcome with probability γ ($1/2 < \gamma \leq 1$) and points to the opposite outcome with probability $1-\gamma$. The payment, p, made by each contributor to the supplier can then only be conditioned on this signal, and is therefore made with probability $\gamma\pi(m) + (1-\gamma)\big(1-\pi(m)\big) = 1 - \pi(m) + \gamma\big(2\pi(m)-1\big) \equiv \omega\big(\pi(m)\big)$. The for-profit supplier and the contributors are both assumed to be risk-neutral.

Suppose next that an alternative supplier can provide the good at an expected price per unit of expected provision equal to $\bar{e}$. Then, the expected price, e, charged by the for-profit supplier in question, per unit of expected provision, cannot exceed $\bar{e}$:

$$e = \frac{\omega(\pi(m))p}{\pi(m)} \leq \bar{e}. \tag{6}$$

In a profit-maximizing equilibrium, the above inequality will be strictly binding – offering a strictly lower expected price would reduce surplus for the provider.

Then, given n contributors contributing a total amount n and a price p (selected before effort is selected), the provider's profit-maximizing choice of effort is that which maximizes

$$\frac{n}{\bar{e}}\,\frac{1}{\pi(m)}\Big(\omega\big(\pi(m)\big)p - m - c\Big) - f, \tag{7}$$

satisfying

$$\pi'(m) = \frac{\pi(m)}{m + c - \Big(\omega\big(\pi(m)\big) - \pi(m)\omega'\big(\pi(m)\big)\Big)p} = \frac{\pi(m)}{m + c - (1-\gamma)p} > \frac{\pi(m)}{m+c}. \tag{8}$$

In contrast, a not-for-profit provider, sharing a common objective with contributors, would choose m so as to maximize

$$(n-f)\frac{\pi(m)}{m+c}\,. \tag{9}$$

This gives

$$\pi'(m) = \frac{\pi(m)}{m+c} \ , \tag{10}$$

which identifies the efficient level of effort, m^*.

As long as $\gamma < 1$, we have $m + c - (1-\gamma)p < m + c$, and so, by monotonicity and concavity of $\pi(m)$, we can conclude that $m < m^*$, i.e. the provider will select a suboptimal level of effort, and and $dm/d\gamma = -\pi'(m)/\big((m+c-(1-\gamma))\pi''(m)\big) > 0$, i.e. effort increases in the signal becomes more precise. The effect of a marginal increase in γ on costs per unit of expected provision, $(m+c)/\pi(m) \equiv A$, is

$$\frac{dA}{d\gamma} = \frac{dm}{d\gamma}\,\frac{\pi(m) - (m+c)\pi'(m)}{\pi(m)^2}, \tag{11}$$

which, by (8), is negative, i.e. a more precise signal will result in lower costs.

For $\gamma = 1$ the last term in the denominator of (8) vanishes, i.e., a for-profit provider selects the efficient level of effort. Thus, absent a moral-hazard problem, a for-profit provider can provide the service efficiently. Moreover, as the for-profit firm is a residual claimant for profits and losses, contributors dealing with a for-profit firm can meaningfully write contracts where payment of a price is contingent on an informative signal, and where fixed costs are only relevant to the provider's bottom-line. This means that, as in the case of markets for private goods, an incumbent's position is fully contestable.

For $\gamma < 1$, however, a moral-hazard problem is present, and a for-profit provider will not provide the service efficiently. On the plus side, competition between for-profit providers will ensure that efficient entry of lower cost providers is not prevented by the presence of fixed costs; and, as long as γ is not too large, a for-profit challenger may be able to successfully contest the position of a higher-cost supplier in situations where a not-for-profit challenger with the same low cost structure would be unable to do so. In these situations, entry by a for-profit supplier could improve efficiency in provision.

Proposition 4 *Consider a potential entrant and a not-for-profit incumbent providing collective goods and facing identical fixed costs that are not sunk and zero entry and exit costs; and suppose that there is output risk, with the likelihood of a favourable outcome depending on unobservable effort, and with the outcome being imperfectly correlated with an informative signal. Then, if $f > 1 - c_2/c_1$, the potential entrant is unable to contest the incumbent's position as a not-for-profit entity, but, as long as the signal is sufficiently informative, it can do so as for-profit entity. In such cases, entry will result in a reduction in provision costs.*

PROOF: Let 1 denote the incumbent, 2 the potential entrant, and let the expected cost per unit of expected provision achieved by the incumbent be e_1. The same arguments presented in the proof of Proposition 1 can be applied to the case with output risk and unobservable effort to arrive at the conclusion that, when $f > 1 - c_2/c_1$, the lower-cost, not-for-profit charity is unable to challenge the higher-cost incumbent. Suppose now that the low-cost provider is a for-profit firm. Then, it will only enter if $A_2 \leq e_1$, i.e. if its expected average cost of provision does not exceed e_1. For $\gamma = 1$, it can always do that – because in this case we have $m_1 > m_2$ and $c_2 < c_1$, which implies an expected cost of provision strictly less than e_1; given that $dA_2/d\gamma > 0$, by continuity, there will be a range of values of $\gamma < 1$, in the neighbourhood of $\gamma = 1$, for which the lower-cost provider can offer an expected price per unit of expected provision that is less than or equal to e_1 and thus unseat the incumbent. □

Note that a low-cost, for-profit entrant will always offer a price such that the expected cost of provision to donors is the same as that offered by the higher-cost incumbent – i.e. any cost savings will accrue to the entrant rather than to donors. Nevertheless, this will result in an overall efficiency improvement – although it will still fall short of full efficiency (as $m_1 < m_1^*$).

By providing a direct grant to a lower-cost, non-commercial, not-for-profit chal-

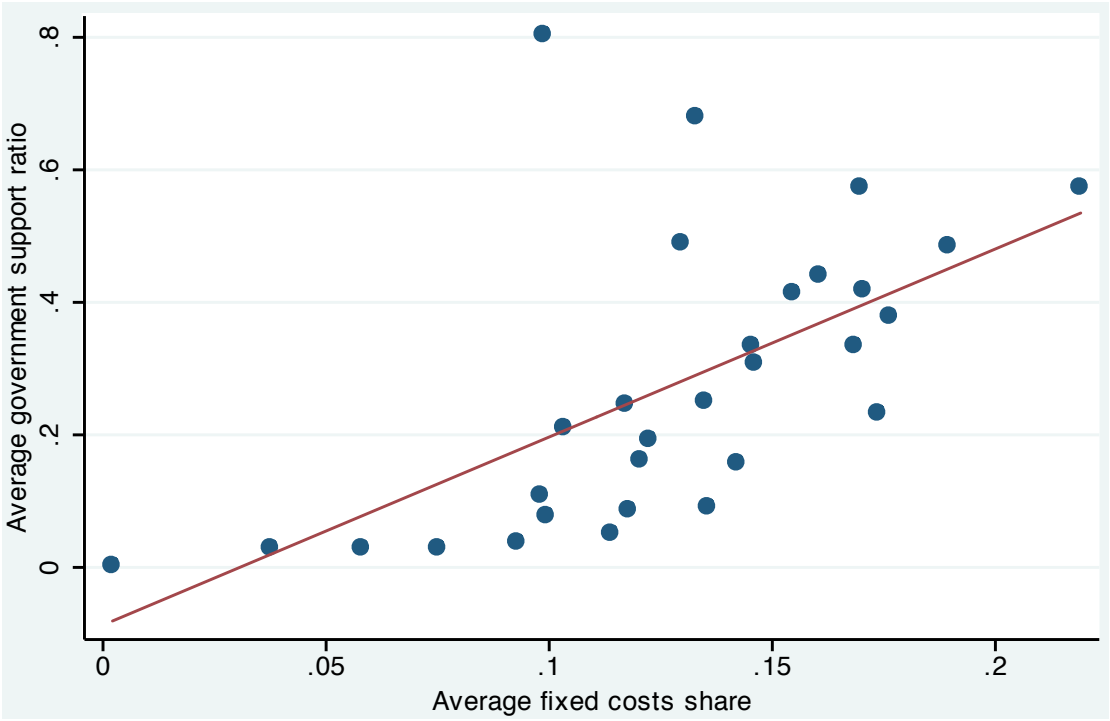
lenger, the government could in principle bring about a fully efficient outcome.[5] However, if public funds attract a premium (i.e., the marginal opportunity cost of public funds exceeds unity), then this would not be the preferred avenue in all cases. In a situation where γ is less than unity, but not too far from unity, the government may opt to allow a for-profit provider to challenge an inefficient incumbent rather than subsidize a not-for-profit challenger.

5 Public funding and charities' fixed costs in Canada

A prediction of the above analysis is that, if government grants are motivated by the desire to promote efficient competition between charities, then, other things equal, we should observe a higher ratio of government to private funding in those charitable sectors that have higher fixed costs.[6] Patterns of government funding across different charitable sectors seem to be consistent with this prediction. Focusing on evidence pertaining to Canadian charities, Figure 1 plots the average ratio of fixed costs to total costs against the average ratio of government to total funding for 30 different charitable sectors as defined by the Canada Revenue Agency, averaged

[5] A grant would never be offered by government to a for-profit entity because it is not a necessary condition for a lower-cost, for-profit provider to be able to enter; the only effect of a grant – whether or not entry occurs – would be to improve the provider's bottom-line.

[6] Hansmann (1981) shows that government subsidies may be required for not-for-profits that face high fixed costs and provide excludable goods (the specific case examined is that of the performing arts) but for a reason very different from the one discussed here. Our argument also applies to the case of non-excludable public goods.



Notes: (i) from a sample of 54,763 Canadian, non-religious charities over the period 1997-2007; (ii) the solid line depicts a linear regression fit of the data points.

Figure 1: Cost structure and government support in Canadian charitable sectors

over the period 1997-2007.[7,8] We see a clear (and statistically significant) positive correlation.

This picture admittedly only shows correlation. Identification of the effects we have formalized above would require a fully specified model of entry and inter-charity competition – which is beyond the scope of the present paper – as well as a richer data set than that which is currently available. It is well understood that in models of competition with heterogeneous firms, the relationship between competition and industry structure hinges on the model's specific assumptions (Sutton, 1991). Thus, a fully developed empirical analysis of the relationship between fixed costs and entry requires adopting a structural estimation approach.

Our argument points to a relationship flowing from the structure of operating costs to government support – whether this is a result of active government policies or a government response to lobbying by charities – which can be rationalized on the basis of pro-competitive objectives. A contrasting interpretation of this positive correlation between fixed costs and government support is that charities may adjust their cost structure in response to increased funding by government, i.e. a reverse

[7]These were computed using information from annual returns for 54,763 distinct charities. The ratio of fixed costs to total costs is obtained as the ratio of "management and general administration expenses" to "total expenditures"; the ratio of government to total funding is obtained as the ratio of "total revenue from government" to the sum of "total revenue from government", "revenue from memberships", "revenue from fund-raising", and "total gifts". We focus on charities that report fixed costs and government support ratios lying strictly within the interval $(0, 1)$. Our sample also excludes non-religious charities; although these can obtain government support to fund activities other than those relating to religious worship, most of their budget is represented by private donations (almost 99% on average).

[8]The vast majority of all Canadian not-for-profit charities are non-commercial in nature – in our sample, revenues from sales of goods and services average to less than three percent of total revenues.

direction of causation. However, results of panel-based Granger causality tests performed on the above sample of charities, as detailed below, run counter to this latter interpretation.

Using the full panel of charities over the 1997-2007 period, we compared the following two dynamic panel specifications: (a) $y_{i,t} = \alpha_1 y_{i,t-1} + \beta_0 x_{i,t} + \eta_i + u_{i,t}$ (contemporaneous independent variable); and (b) $y_{i,t} = \alpha_1 y_{i,t-1} + \beta_0 x_{i,t} + \beta_1 x_{i,t-1} + \eta_i + u_{i,t}$ (contemporaneous and lagged independent variable), with charities' fixed costs at time t as the dependent variable ($y_{i,t}$) and government support ratios as the independent variable ($x_{i,t}$); and where the $u_{i,t}$'s are IID error terms and the η_i's are charity fixed effects that are assumed to be uncorrelated with the error terms. If adding the lagged independent variable significantly improves the forecast, then we can say that x causes y in the Granger sense (see Holtz-Eakin *et al.* (1988) for a discussion of Granger causality methods with panel data). To test for this, we estimated both specifications using the Arellano-Bond GMM estimator (Arellano and Bond, 1991), and then performed a Wald test for the forecast improvement obtained from moving from (a) to (b) (i.e. adding the lagged variable). In both specifications, the contemporaneous effect of the independent variable is found to be positive – and significant at the 9% level in (a) and at the 5% level in (b). The Wald test, however, gives a χ^2 statistic of 1.32 with a P-value of .25 – implying that the government support ratio does not appear to "Granger cause" the fixed cost ratio. Doing the same for the reverse direction of causation (with y representing the government support ratio and x the fixed cost ratio) also gives a positive estimate for the contemporaneous effect of the fixed cost ratio on the government support ratio – in this case at the 1% and 2% level respectively for (a) and (b) – and a Wald χ^2 statistic of 2.84 with a P-value of .09.

6 Summary and conclusion

Unlike in the case of for-profit firms, the presence of fixed costs may impede competition amongst non-commercial charities and give rise to inefficient selection. This is because, in the absence of a residual claimant pursuing a profit motive, uncoordinated donor choices can protect the position of an inefficient incumbent. Government funding of fixed costs can enable entry by more efficient providers and restore efficiency. Absent government support, a for-profit provider may be better positioned to challenge an inefficient incumbent than a comparatively more efficient not-for-profit provider.

Our theoretical analysis has intentionally abstracted from a number of real-world complications that would need to be incorporated in any applied model of competition and entry. In particular, services provided by competing charities are likely to be viewed by donors and users of the services as being imperfect substitutes – consistently with the observation that multiple charities co-exist within a sector, and in parallel with the structure of applied models of competition and entry in private goods markets. Such a model would also need to articulate a conduct paradigm underlying competition amongst charities, i.e. specify what might drive more inefficient charities to retain their incumbent position vis-à-vis more efficient competitors, even when they are not motivated by profit seeking. Finally, a fully-articulated model of inter-charity competition would need to account for informational asymmetries between donors and charities, as these can play a much more important role in the not-for-profit sector than they do in for-profit sectors.[9]

[9]In line with our discussion in Section 4, and also as noted earlier, a number of writers have identified informational asymmetries as a key determinant for the adoption of a not-for-profit organizational form. What this also implies is that incumbents, whose past performance donors are

References

Alchian, A., and Demsetz, H., 1972. "Production, information costs, and economic organization." *American Economic Review* 62, 777-95.

Arellano, M., and Bond. S., 1991. "Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations." *Review of Economic Studies* 58, 277-97.

Baumol, W., and Willig, R., 1981. "Fixed costs, sunk costs, entry barriers and sustainability of monopoly." *Quarterly Journal of Economics* 96, 405-431.

Baumol, W., Panzar, J., and Willig, R., 1983. "Contestable markets: an uprising in the theory of industry structure: reply." *The American Economic Review*, 491-496.

Bergstrom, T., Blume, L., and Varian, H., 1986. "On the private provision of public goods." *Journal of Public Economics* 29, 25-49.

Dixit, A., and Stiglitz, J., 1977. "Monopolistic competition and optimal product diversity." *American Economic Review* 67, 297-308.

Easley, D., O'Hara, M., 1983. "The economic role of the nonprofit firm." *The Bell Journal of Economics* 14, 531-38.

Ghatak, M., and Mueller, H., 2009. "Thanks for nothing?" Mimeo, London School of Economics.

Glaeser, E., and Schleifer, A., 2001. "Not-for-profit entrepreneurs," *Journal of Public Economics* 81, 99-115.

Hansmann, H., 1980. "The role of the non-profit enterprise." *Yale Law Journal* 89, 835-901.

---

able to observe, will have a natural informational advantage over potential entrants, which will be unknown entities to donors.

Hansmann, H., 1981. "Nonprofit Enterprise in the Performing Arts." *Bell Journal of Economics* 12, 341-361.

Holtz-Eakin, D., Newey, W., and Rosen, H., 1988. "Estimating vector autoregressions with panel data," *Econometrica* 56, 1371-95.

Institute for Philanthropy, 2009. *Supportive to the Core: Why unrestricted funding matters*. Institute for Philanthropy, London and New York.

Lakdawalla, D., and Philipson, T., 2006. "The nonprofit sector and industry performance." *Journal of Public Economics* 90, 1681-98.

Pestieau, P., and Sato, M., 2006. "Limiting the number of charities," CORE discussion paper No. 2006074.

Philipson, T., and Posner, R., 2009. "Antitrust in the not-for-profit sector," *Journal of Law and Economics* 52, 1-18.

Rose-Ackerman, S., 1996. "Altruism, non-profits, and economic theory." *Journal of Economic Literature* 34, 701-29.

Scott, K., 2003. *Funding Matters: The Impact of Canada's New Funding Regime on Nonprofit and Voluntary Organizations*. Ottawa: Canadian Council on Social Development.

Spence, M., 1983. "Contestable markets and the theory of industry structure: a review article." *Journal of Economic Literature*, 981-990.

Sutton, J., 1991. *Sunk costs and market structure.* MIT Press.

Weisbrod, B., 1975. "Toward a theory of the voluntary nonprofit sector in a three-sector economy." In Phelps, E. (ed.) *Altruism, Morality, and Economic Theory*, 171-195. New York: Russell Sage Foundation.

Weitzman, M., 1983. "Contestable markets: an uprising in the theory of industry structure: comment." *American Economic Review*, 486-487.