Effects of Nonprofit Competition on Charitable Donations

Bijetri Bose
Department of Economics
University of Washington, Seattle

Abstract

This paper estimates the effect of competition among nonprofits on the charitable donations received by them. It also examines some of the channels through which the nonprofit competition can affect donors. One possible way for nonprofits to deal with their rivals is through adjustments in fundraising expenses, that in turn impacts the donors. Nonprofits also change their other organizational strategies such as choice of projects, modification of the mission statements or management expenses in the face of growing struggle for the charitable dollar. This constitutes another channel through which competition impacts the donors. Using a simple instrumental variable regression on US nonprofit tax return data, this paper finds that an increase in nonprofit competition causes a decline in the average donations received by an organization. A greater part of the decrease in donations is driven by increased fundraising expenses. The findings also indicate that the competition has a positive effect on the aggregate donations by all donors in a market. This empirical exercise is necessary to understand the consequences of the rapid growth of the nonprofit sector on the managers of the organizations in terms of the revenue obtained from charitable donations. The results can also be applied to the evaluation of policies regulating the number of nonprofits in a market.

1   Introduction

The nonprofit sector in USA has been growing steadily in size for more than a decade. Between 2000 and 2010, the number of all registered nonprofits has increased by 24 percent. In 2010, nearly 1.6 million nonprofits, not including religion congregations and smaller organizations, were registered with the Internal Revenue Service (IRS). The rapid growth of nonprofits is considered beneficial due to the greater provision of good and services by the charitable organizations, supplementing the efforts of the government. However, the increasing number of nonprofits also increases the competition for limited resources among them. This paper studies the effect of competition among nonprofits on a particular resource —the charitable donations from individual donors and foundations.

Many nonprofits are reliant on private contributions as a major source of revenue. In 2010, private charitable donations to public charities and religious organizations totaled \$286.91 billion, accounting for about 24 percent of the total revenue of reporting public charities, after excluding organizations that derive their funding mainly through fees for goods and services from private sources.[1] The focus of this paper is on donative nonprofits which predominantly depend on donative support from private sources to provide pure public goods, distributional public goods or private goods with some external benefits. Charitable donations, dependent on the economic realities, has not grown at the same pace as the number of charitable organizations during the past decade, making competition for the charitable dollar a pressing issue for the nonprofit sector.

A growing literature investigates why a representative donor gives to nonprofit organizations and how these organizations behave, without paying attention to the interaction of the agents in the market structure.[2] The few papers that do attempt to empirically estimate the effects of nonprofit competition concentrate on changes in specific nonprofit strategies. In reality, donors are subject to an entire gamut of strategies that a nonprofit can adjust to gain comparative advantage over its rivals. The primary contribution of this paper is to estimate the effect of nonprofit competition on donors in terms of charitable donations. Furthermore, the total effect of competition is decomposed into a direct effect and an indirect effect, in order to analyze two different channels through which nonprofit competition can

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[1]Registered organizations exclude nonprofits with less than \$5,000 in annual revenue or religious congregations, although many congregations choose to register. This encompasses a variety of organizations including health, education, arts, advocacy organizations, labor unions, and business and professional associations. Reporting organizations are nonprofits with gross receipts of \$25,000 or more that are required to file a Form 990 or Form 990-EZ with the IRS (before 2010). Public charities are 501(c)(3) arts, education, health care, human services, and other types of organizations to which donors can make tax-deductible donations. These are what we refer to as nonprofits in layman terms.

[2]See Andreoni (2006), Vesterlund (2006).

affect charitable donations.

One of the impacts of nonprofit competition is on their fundraising expenses. Fundraising expenses are those expenses that nonprofits spend to raise money and can include any cost incurred in soliciting donations, memberships and grants. Existing papers have examined how competition for funds affects fundraising by nonprofits, though, with contradictory evidence (Feigenbaum, 1987; Thornton, 2006; Castaneda *et al.*, 2008). Since fundraising efforts by the nonprofits influence the amount of donations received by them, there is an indirect effect of competition on charitable donations (Weisbrod Dominguez, 1986; Posnett Sandler, 1989; Okten Weisbrod, 1998; Khanna, Posnett Sandler, 1995; Khanna Sandler, 2000).

In addition to fundraising, there are many other strategies that nonprofit organizations can adopt in the face of rising competition for donations, such as changes in mission statements or expenses on staff perquisites and administrative costs, emphasis on innovation and choice of product and service mix. When a donor learns about the changes in these various aspects of nonprofit behavior due to competition, they adjust their charitable contributions to reflect their preferences. This is referred to as the direct effect of competition on giving by donors.[3] The distinction between the direct and indirect channels through which nonprofit competition operates arises from the increasing attention on fundraising by nonprofit managers and scholars. More importantly, fundraising expenses of nonprofits has positive and negative effects on donors, creating ambiguity about its net effect.

The hypotheses underlying the paper is based on a model of monopolistic competition among horizontally differentiated nonprofits to incorporate a wide range of nonprofit behavior that competition influences. Since a decline (increase) in the total contributions by all donors in a market does not necessarily imply lower (higher) donation receipt for individual nonprofits, the estimation exercise is carried out at the average nonprofit level as well as the aggregate level of donations. The annual tax return data of US public charities from 1998-2003 is used to empirically examine the effect of the competition on charitable donations. The instrumental variables method is used to estimate the effects of market competition by overcoming identification issues. This paper is the first study to instrument the index of nonprofit competition to reduce bias caused by endogeneity of market competition.

The key findings of this paper is that average donations received by a nonprofit in a market decreases, both directly and indirectly, due to greater nonprofit competition. The reduction in average receipt of charitable donations by a nonprofit is driven by the indirect

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[3]Direct effect is so called because its estimate might include some of the reaction of donors to competition, irrespective of nonprofit strategies. The term is used to distinguish between the effect of nonprofit competition on donations with and without fundraising intervention.

effect of competition operating through augmented fundraising expense of the organization. Fundraising is the predominant strategy used by nonprofits when confronted with many rivals, accounting for more than half of the change in charitable donations. At the market level the direct and indirect effects are positive, with the total effect of competition on the aggregate charitable donations being favorable. This suggests that while competition encourages some to contribute more, most donors might simply be switching their contributions from one nonprofit to another in response to the changes in their organizational strategies.

The motivation behind this paper is to understand the implications of increasing nonprofit competition for policy makers and managers. First, the results of this paper is helpful in determining whether there is need to control the growth of nonprofits. They are also applied to evaluate policies that lead to regulation of competition among nonprofits. An example is the increased monitoring of nonprofits by the Internal Revenue Service (IRS) following the new tax return filing requirements of the Pension Protection Act of 2006. Second, the investigation of the direct and the indirect effects of competition can also assist nonprofit managers in deciding their action plan when pitted against each other. One possible action is mergers among nonprofits. The effect of mergers on charitable donations is examined based on the findings of this paper, a necessary analysis in the absence of merger guidelines for nonprofits.

The structure for the remainder of the paper is as follows. The next section provides a background discussion of nonprofit competition. Section 3 describes the data and the estimation methodology. Section 4 presents the empirical results. Section 5 discusses the findings with special attention to nonprofit policy and managerial implications. Section 6 concludes.

2   The Nonprofit Firm & the Market

Economic theories analyze competition among nonprofits for charitable donations from an industrial organization perspective. The nonprofit market is characterized by monopolistic competition, where many organizations supply similar but differentiated goods and services. There is an inherent propensity for donative nonprofit organizations to specialize (Bilodeau Slivinski, 1998). For example, educational institutions differ in the type of the education they provide and their target population. Following Rose-Ackerman, who was the first to discuss the market structure of nonprofits in her model of fundraising, nonprofits are considered to be differentiated along one dimension —ideology.

Donors give to nonprofits because of the benefits from the output, the warm-glow they receive, out of self-interest or altruistic concerns about the society (Andreoni, 2006). Regard-

less of the reasons for giving, utility of donors is an increasing function of their amount of charitable contribution. The donors choice of nonprofit becomes relevant when the horizontally differentiated nature of nonprofit markets is incorporated into the utility maximization model. While giving, donors decide how much to donate as well as which nonprofit to support. With the existence of several nonprofits producing similar goods and services, donors preferences over the organizations ideologies, shares of their revenue devoted to output, perquisite expenses, use of innovative technologies and other behavioral aspects of the nonprofit organizations start to matter. The amount of donation a donor makes to a specific nonprofit reflects their preferences on all or some of these aspects. Given this structure of the model, if increasing competition causes the nonprofits to adjust one or more of these facets of their behavior, then there will be changes in the giving by donors too. Donors can adjust the amount of their charitable donations or change the nonprofit organizations supported by the donors.

Many papers theoretically predict how change in the number of competing nonprofits in a market will affect the different aspects of nonprofit behavior. One such strategic decision affected by the nonprofit competition for scarce donor resources is fundraising. Fundraising, a vibrant, innovative and highly professional industry (Andreoni, 1998), is important because it influences charitable donations received by nonprofits. Therefore, any effect of nonprofit competition on fundraising will be reflected on the donations of the donors. This is referred to as the *indirect effect* of nonprofit competition on charitable donations. The direction of the indirect effect of competition is governed by two factors.

First, is the relationship between nonprofit competition and fundraising expenses. Rose-Ackerman (1982) discusses how competition for donations can lead to excessive fundraising by nonprofits even when donors care about fundraising expenses. Castaneda *et al.*(2008) theoretically prove that an exogenous increase in nonprofit competition increases fundraising expenditures. While Rose-Ackerman recognizes that donors have some preferred ideology and tend to donate to nonprofits that match their preferences, neither paper gives value to the fact that entry of nonprofits in a market increases the welfare of donors by reducing the average distance between the closest nonprofit and donors' preferred ideology. Aldashev and Verdier (2010) address the shortcoming in a model that demonstrates how the effect of nonprofit competition on fundraising depends on the type of donors in the market. If the number of donors in a market is fixed, the only way a nonprofit can increase its donations is by convincing the individuals of its relative importance, thereby escalating the fundraising expenses of the organization. On the other hand, with a variable size of the donor market, fundraising can awaken potential donors to give. In this scenario, if there are too many rivals, the expected return from each dollar spent in fundraising declines. A rational nonprofit ends

up not spending much on soliciting donors. Thus, the effect of nonprofit competition on fundriaisng expenses is positive or negative depending on the nature of the donor market.

There is some empirical evidence that complement the above theories on the relationship between nonprofit competition for donations and fundraising. The first study by Feigenbaum (1987) examines competition among medical research charities for donations and finds that organizations spend more on fundraising expenses under intense competition. Thornton (2006) builds on the work of Feigenbaum (1987) by studying a broader set of nonprofits. Unlike the previous study, he finds a negative relationship between fundraising expenses and nonprofit competition. Castaneda *et al.* (2008) support their theoretical predictions by showing that greater nonprofit competition increases the fraction of donations allocated to fundraising. Therefore, there is a significant effect of competition among nonprofits on their fundraising expenses but a lack of consensus in the literature about the direction of the effect.

Second, is the effect fundraising by nonprofits has on donors. It positively affects donations by influencing donor preferences, reducing the search cost of donors and signaling the quality of nonprofits (Bilodeau Steinberg, 2006). On the contrary, solicitation diverts funds away from the final product, generating a negative price effect on giving by donors. The overall impact of fundraising on charitable donations depends on the magnitudes of the two opposing forces. There are many papers that have estimated the donation production function, which states the relationship between fundraising expenses of a nonprofit and charitable donations received by it, depending on other characteristics of the organization and donors. These studies confirm the significant effect of fundraising on donations (Weisbrod Dominguez, 1986; Posnett Sandler, 1989; Okten Weisbrod, 1998; Khanna, Posnett Sandler, 1995; Khanna Sandler, 2000) but the empirical findings of this strand of literature have been divergent. It, therefore, is necessary to consider how the two factors that affect the indirect effect of competition interact to predict if it is positive or negative.

Fundraising is not the only choice variable available to nonprofits to battle competition. As mentioned above, there are additional strategies that nonprofits resort to when faced with increasing competition such as choice of the next project, adoption of newer technology, modification of mission statements. Insofar as one or more of these variables of nonprofits are affected by changes in the degree of competition in the donation market, the charitable contributions will change accordingly if donors care about these variables. There are two papers (Economides and Rose-Ackerman, 1993; Pestieau and Sato, 2006) that theoretically prove the effect of nonprofit competition on the locational and quality of output choices of nonprofits. Instead of focusing on each of these strategies individually, it will be more informative to examine the effect of competition on donors because of the possible simultaneous

changes in these factors.

The effect of nonprofit competition on charitable donations working separate from fundraising intervention is the *direct effect*. Direct effect of competition, as defined in this paper, encompasses changes in multiple behavioral aspects of nonprofits that affects donors. The increase in competition for donations acts to check massive rent extraction and to keep nonprofits oriented towards customers (Glaeser, 2003). With intense rivalry for limited donations, nonprofits will implement various tactics that appeal to donors, unlike a monopolistic nonprofit with the inclination to slack off. Competition in a market will induce organizations to enhance efficiency by reducing managerial or perquisite expenses, wiser selection of projects, improve quality of production and encourage innovation, leading to greater contributions by donors. This is in line with the findings of Feigenbaum (1987) and Castaneda *et al.* (2008) that increasing competition increases the share of donations devoted to output and decreases in perquisite consumption, assuming all other aspects of the organizations behavior as exogenous. The issue that remains unresolved is how all these variations in the different nonprofit strategies, stemming from competition, together impact charitable donations.

It is important to note that the existence of the direct effect of competition is based on an assumption about the exchange of information between donors and nonprofits. It is often mistakenly believed that fundraising is the sole means through which information passes from nonprofits to donors. However, there is recent heightened interest in the other sources through which it is possible for donors to obtain information about nonprofits. Mandatory public disclosure of annual returns of nonprofits, third-party charity ratings (Chhaochharia Ghosh, 2008; Grant, 2010; Yoruk, 2014) and flow of information through social networks (Shang Croson, 2009) enable donors to learn about different nonprofits, evaluate them and decide on whom to donate to and how much to contribute. Recent research shows that donors increasingly rely on public financial information as a tool to guide donation decisions by distinguishing relative efficiency among competing firms (Lammers, 2003). Donors are no longer completely reliant on nonprofits to awaken them into giving. Access to the details of a nonprofit on the internet, a news report about the importance of Charity Navigator to asses nonprofits or a simple tweet about a new nonprofit in the block are examples in which donors can learn about nonprofits. The presence of external sources of information allows constant scrutiny by donors of all nonprofit characteristics. This enables donors to directly respond to adjustments in nonprofit behavior due to competition, even in the absence of fundraising.

Based on these considerations, the two hypotheses of this paper is that the direct effect of nonprofit competition on charitable donations is positive whereas the indirect effect is

positive or negative depending on the nature of the donor market and net effect of fundraising on donations. The third hypothesis is that there is a difference in the average donations at the nonprofit level and the aggregate donations at the market level. The mechanisms underlying the direct and indirect effects of competition talk about donors response in terms of the amount of their donations. At the same time, donors can also respond to adjustments in nonprofit behavior due to varying degrees of competition by simply choosing to support a different organization. In this event, the average donations received by nonprofits need not change in the same direction as the aggregate donations. The average donations per-nonprofit will increase, decrease or remain unaltered, depending on the extent of change in total donations compared to number of nonprofits claiming a share of the total contribution. For instance, if donors respond to growing nonprofit competition by increasing their donations marginally or if they merely switch their funds to better performing nonprofits, the average donations will decrease despite an increase in the total donations collected at the market level. If such is the case, estimates of aggreate donations will not prove useful in informing individual nonprofits about how their revenues will be affected by competition. To avoid misleading inferences, I estimate the direct and indirect effects of competition at the aggregate as well as the nonprofit level of donations.

3   An Empirical Model of Nonprofit Competition

This section discusses the compilation of the nonprofit data along with the choice of variables and their statistical properties. It then outlines the empirical strategy for estimating the direct and indirect effects of nonprofit competition on charitable donations.

3.1   Nonprofit Data

The data is obtained from the annual tax returns of US public charities from the period 1998 to 2003. Public charities, those nonprofits with charitable, religious, educational, scientific, literary, environmental and other purposes are exempt from paying taxes under Section 501(c)(3) of the Internal Revenue Code. A subset of public charities with revenue greater than $25,000 and non-faith-based organizations must annually file some version of the Form 990 with the IRS. The forms have details on the nonprofits mission, programs, and finances. The National Center for Charitable Statistics (NCCS) at the Urban Institute collects the information from the forms and makes it available for researchers as convenient datasets. The data for this paper comes from the NCCS-GuideStar National Nonprofit Research Database which contains observations on all nonprofits required to file the Form 990 and Form 990-EZ

in the sample period. I augment the data with geographic level variables from the Bureau of Labor Statistics and Bureau of Economic Analysis.

The nonprofit dataset is valuable for organization level analysis but is also erroneous in nature. The sample used for the empirical analysis is, therefore, systematically cleaned following the methodology outlined in previous papers (Andreoni & Payne, 2003; Thornton & Belski, 2010; Heutel, 2013). Nonprofits with clear evidence of reporting errors are eliminated, reducing the sample by about 20 percent of the original size.[4] Inability to calculate the valid age of the nonprofits because of missing or faulty ruling year data leads to the nonprofits being dropped from the study. The sample is restricted to nonprofits within a recognizable geographic extent and discrepancies in the geographical identifiers of the remaining nonprofits is corrected. Finally, I retain nonprofits with at least one year of positive donations and fundraising expenses in the sample. There are a few nonprofits that are established with sufficient financial backing or are entirely reliant on grants from the government or one individual, making it unnecessary for them to compete for charitable donations. Including nonprofits with no receipt of donations and outlays on fundraising over the entire panel in the sample will not inform the hypothesis and can lead to biased conclusions.

3.2   Variables

An empirical analysis of competition must begin with the definition of a market. Since nonprofits originate when there is market failure, traditional price based definitions of market are rendered useless. While some studies in the nonprofit literature have used a product-based definition, others have specified nonprofit markets for charitable donations in terms of geographical areas.[5] Casual observation of nonprofits suggests that a combination of the two approaches is better suited in characterizing the market for charitable donations. A market in this paper includes all nonprofits supplying similar goods and services that are actual or potential competitors within a well-defined area.

I first define the relevant product market by identifying nonprofits that donors regard as substitutes. Since charitable contributions mirror the demand for the good or service provided by the nonprofit, those producing similar outputs are considered substitutable. The National Taxonomy of Exempt Entities (NTEE) developed by the NCCS is used in this paper to define the product market. The NTEE is a classification system that divides the universe of nonprofits into 26 major groups under 10 broad categories based on the kind of

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[4]These included: having donation or other sources of revenue exceed total revenue, or having fundraising or other expenditures exceed total expenditures, reporting a negative value for private donations, government grants, fundraising expenses, management expenses or program service revenue.

[5]Twombly (2003); Harrison Laincz (2008); Nunnenkamp Ohler (2012).

output provided. Based on the NTEE core codes, I club nonprofits providing substitutable services into distinct sectors. For example, nonprofits working to protect individuals against spousal abuse (I71), child abuse (I72) and sexual abuse (I73) are clustered under one sector —abuse prevention.

Once the nonprofits are classified under various sectors, the geographic regions within which they are considered substitutes by the donors are identified. I choose the Metropolitan Statistical Area (MSA) as the appropriate geographic unit for analysis. MSAs are defined to include local economic regions with populations of at least 100,000 and contain more than one county.[6] Continuing with the example of the abuse prevention, all nonprofits in this sector located within an MSA will constitute a market. This geographic dimension of the market can be inappropriate in two cases. First, the MSA boundaries are overly narrow for large organizations like the UNICEF and the Red Cross that have national and international presence. Second, easy transfer of funds anywhere in the world over the internet is now a fact. These two factors can potentially result in misleading estimates of the effect of market competition on donations. To lessen such bias, previous papers (Thornton, 2006; Castaneda *et al.*, 2008) suggest restricting the nonprofit sectors to those that satisfy the following criteria:

1. The nonprofits that are local in terms of consumption of output provided and source of donations.

2. The nonprofits that are reasonably homogeneous across MSAs.

3. The nonprofits that provide outputs that are substantially distinct from for-profit firms.

4. The nonprofits that receive a nontrivial fraction of their revenues from private donations.

The selected 16 sectors are listed in Table 1. The average number of nonprofits across the sectors displays considerable variation, justifying the importance of the product-based competition. A total of 280 MSA based geographical markets are possible for each sector of nonprofits. Each sector and MSA pairing represents a distinct market. The final sample includes 29,836 distinct nonprofits spread over 3460 markets in the six years.

[**Insert Table 1 near here**]

Market competitiveness of nonprofits is measured by the Herfindahl-Hirschman index (HHI), a traditional indicator common in the field of industrial organization. The HHI is calculated by summing the squared market shares of each nonprofit in a market. Total revenues of nonprofits is used to calculate market shares. Competition among nonprofits is

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[6]The 1999 MSA delineation is used in this paper. The metropolitan areas was re-defined by the Office of Management and Budget in 1999, in the middle of the sample.

lessened when there is a reduction in the number of nonprofits due to exit of some organizations from the market or an increase in the market share of fewer nonprofits. These cause an increase in the HHI, implying a negative relationship between competition and HHI.

The summary statistics of HHI for the different sectors is presented in Table 2. According to the U.S. Department of Justices merger guidelines, the nonprofit markets are moderately to highly concentrated over the sample time periods.[7] Specifically, nonprofits in sectors providing crisis prevention, and family counselling, compete within markets that are substantially more concentrated relative to public housing and home health care centers. Peforming arts organizations face intense competition being the most competitive sector in the sample. There are alternative indicators of market competitiveness, e.g.number of nonprofits in a market. Relying on the number of nonprofits in a market as a measure of competition is an intuitive approach but it does not consider the relative sizes of organizations, which can play an important role in competition. Both the aspects are better captured in the HHI. If nonprofits in a market are homogeneous, the use of the number of firms or the HHI makes little difference. Given the horizontal differentiation of competing nonprofit as well as the large variation in their sizes, I prefer the HHI as the measure of market competition.

[Insert Table 2 near here]

There is an inverse correlation between the number of nonprofits in and the HHI in a market. Figure 2 provides a visual illustration. The figure plots the average number of nonprofits and average HHI over the sample period. Both graphs also show an increasing trend in competition among the nonprofits, despite the variability across the 16 sectors. The absolute growth rate in the average number of nonprofits from 1998 to 2003 is around 30 percent whereas the absolute growth rate in the average HHI over the same time period is 9 percent.

[Insert Figure 1 near here]

Charitable donations is measured by the public support received by a nonprofit in a year. It is the amount of contributions that a nonprofit gets from individual donors, foundations and from affiliated organizations or federated fundraising campaigns. I include donations from foundations and indirect public support through other organizations because such giving is typically motivated by the same reasons as individual donors and should be affected by nonprofit competition in a similar manner. It is important to note that this variable is

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[7]Unconcentrated markets: HHI below 1500; moderately concentrated markets: HHI between 1500 and 2500; highly concentrated markets: HHI above 2500.

computed at the nonprofit level with aggregation over donors which prevents us from drawing inferences about donors.

The other important variable in this paper is fundraising expenditure of nonprofits. It includes the costs of soliciting contributions from the public and can include campaign printing, publicity, mailing, staffing and other costs. This expense captures the advertising effect in attracting donations. However, there is also a negative effect of fundraising, the price of giving, which is defined as the after-tax cost of contributing a marginal dollar of output. Following a previous paper (Weisbrod & Dominguez, 1986), I define price of giving as:

$$price = \frac{1}{1 - \frac{fr}{don}}. \tag{1}$$

where *fr* is the fundraising expenses of a nonprofit and *don* is charitable donations received by it.

Table 3 reports the summary statistics for the key variables. The first panel reports the statistics for the variables at the nonprofit level followed by the MSA and state level variables. For the nonprofits in my sample, charitable donations is the second largest source of revenue after proceeds from sale of goods and services for which they receive tax-exemption. Grants from federal, state or local governments are also important. However, for all nonprofit level variables the standard deviations relative to the mean are large due to the presence of extreme observations. This justifies my choice of HHI as the measure of competition.

[Insert Table 3 near here]

3.3   Empirical Strategy

Using the above described data, I estimate the relationship between nonprofit competition and charitable donations at the nonprofit and market levels. Across-market variation in degree of competition is used to estimate the regression coefficients.[8]

3.3.1   Nonprofit Level

Examining the effect of competition among nonprofits on the amount of charitable donations received by them, both directly and indirectly, requires estimating the two following

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[8]Despite the panel structure of the data, fixed effects estimation is not adopted in this paper because HHI, the primary independent variable, does not display much variation within the short span of six years in the panel.

equations:

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\begin{aligned}
lndon_{imt} &= \beta_0 + \beta_1 lnHHI_{mt} + \beta_2 lnfr_{imt} + \beta_3 lnp_{imt} + \beta_4 lngg_{imt} + \beta_5 X_{1imt} \\
&\quad + \beta_6 X_{2mt} + \beta_7 T_t + \beta_8 Sector_t + \epsilon_{imt} \tag{2} \\
lnfr_{imt} &= \gamma_0 + \gamma_1 lnHHI_{mt} + \gamma_2 lngg_{imt} + \gamma_3 lnliabilities_{imt} + \gamma_4 X_{1imt} \\
&\quad + \gamma_5 X_{2mt} + \gamma_6 T_t + \gamma_7 Sector_t + \varepsilon_{imt} \tag{3}
\end{aligned}
$$

In the first equation, private donations to nonprofit i in market m at time t (don_{imt}) is regressed on an index of market competition (HHI_{mt}), fundraising expenditure of nonprofit i (fr_{imt}), price of giving to nonprofit i (p_{imt}) and government grants obtained by nonprofit i (gg_{imt}). This is the typical donation function that determines the factors influencing charitable donations to nonprofit organizations. Eq. (1) additionally takes into account the interaction of nonprofits in a market through competition. The second equation is a fundraising equation that specifies how fundraising expenses respond to changes in competition faced by nonprofits, controlling for government grants and other determinants of fundraising expenses ($liabilities_{mt}$).

X_1 and X_2 are vectors of exogenous nonprofit and geographic level controls that influence charitable donations and fundraising expenses. The following variables are used as controls in both specifications: all sources of nonprofit income, value of all assets, age of the nonprofits, MSA level per capita income, population and unemployment rate along with the share of the population over the age of 65 in the state, a dummy variable equal to one if the governor is affiliated with the Democratic party and the share of US Congressional and Senate representatives for the state affiliated with the Democratic party. The equations also include year fixed effects, T_t to account for temporary difference across time. Another set of fixed effects, $Sector_t$ are also present to take care of time invariant differences across the sectors. In particular, these dummy variables capture the dissimilarities in the nature of the goods and services provided by the nonprofits such as degrees of consumption rivalry. A region could do with one crisis prevention hotline that is non-rival but would need several shelters for the homeless.

The parameters of interest are those that can be used to compute the direct and indirect effects of nonprofit competition on charitable donations. The coefficient β_1 in Eq. (2) is the direct effect of competition on the average donations received by nonprofits in the market. It is the estimated rate of change in the average charitable donations with respect to a unit change in the market HHI. The indirect effect of nonprofit competition on charitable contributions involves estimation of two components —the effect of competition on fundraising and the effect of fundraising on donations. The coefficient of γ_1 in Eq. (3) captures the

first component. The second component, referred to as the total fundraising elasticity of donations (β_f), encompasses the positive and negative effects of fundraising on donations. It is obtained by differentiating Eq. (2) with respect to $lnfr_{imt}$:

$$\beta_f = \beta_2 \ + \ \beta_3 \frac{fr}{don - fr} \tag{4}$$

β_f is computed from the regression coefficients and the data on fundraising expenses and charitable donations of individual organizations. Combining the two components, $\beta_f\gamma_1$ provides the estimate of the indirect effect of competition on charitable donations operating through fundraising efforts of the nonprofits.

There are two approaches that can be used to estimate the simultaneous equation model specified by Eqs. (2) and (3). The single equation estimation involves estimating the two equations separately whereas in the system estimation the two equations are estimated jointly. Although the system estimation has the advantage of using more information to provide more precise parameter estimates, the more robust single equation approach is adopted in this paper. Wooldridge (2002), cautions that unless all equations in the system are properly specified, the system estimates will not be consistent.

Consistent estimates of the effects of nonprofit competition on charitable donations requires addressing identification challenges arising from endogeneity of the independent variables. For nonprofits there are potentially three factors which can cause endogeneity omitted variable bias, measurement error and simultaneity. First, omitted variables bias occurs from the failure to include variables that affect donations and fundraising expenses in Eqs. (2) and (3). For instance, ability of personnel or their dedication to the mission that are correlated with both the income and expenses of nonprofits. There are also market specific unobserved characteristics that can be affect donations and competition levels in the market at the same time.

Second, measurement errors in the variables is a cause of concern in this dataset because the information in the Forms 990s is self-reported and subject to lax monitoring by the IRS. Expenses are often inconsistently reported by nonprofits who fear being judged inefficient by potential donors. Random measurement errors in the dependent variable do not affect the estimated coefficients, but they enlarge the standard errors making detection of any significant effect more difficult. Even when the errors are not random, the slope coefficients in the regression are unbiased. On the other hand, I rely on econometric techniques to address non-randon measurement errors in the independent variables. Yet, there remains the possibility of the estimated coefficient being biased due to under-reporting of expenditures by some nonprofit organizations.

Third, the absence of a unidirectional relation between the independent and dependent variables is likely to bias the OLS estimates. Market competition, fundraising and government grants can be simultaneously determined.[9] Consider, for instance, the nonprofit sector in Louisiana in the aftermath of Hurricanes Katrina and Rita (Auer, 2006). The disaster caused several organizations to close down temporarily or permanently. While some nonprofits received increased levels of giving to nonprofits from individuals, foundations, parent organizations, local, state and federal governments, many were uncertain about their incomes. If an exogenous event can cause charitable donations, competition index, fundraising and government grants to be correlated, then there is a problem of simultaneity.

A solution to the endogeneity problem is to use instrumental variables estimation to reduce the potential biases. Fundraising, government grants and HHI are instrumented by the respective variables: (i) total nonprofit liabilities, (ii) government transfers at the market level, and (iii) average competition index across all other markets in the state that provide similar goods and services.

Fundraising expenses of nonprofits is instrumented by their total liabilities, a proxy for the financial security of the organization (Andreoni & Payne, 2011; Heutel, 2013). If a nonprofit has high liabilities in a year then it will adjust its fundraising expenditures. Furthermore, the level of private donations that a nonprofit receives in a given year will not to be affected by the total liabilities because it is unlikely for donors to have information on the contemporaneous financial conditions of a nonprofit. Regional level measures of government transfers to individuals and nonprofits for which no current services are performed is used as an instrument for government grants. These consists largely of retirement and disability insurance benefits, medical payments, unemployment insurance benefits, supplemental security income payments, food stamp payments, and other assistance payments. This instrument satisfies the exogeneity assumption as it represents the aggregate government giving in a county in a particular year and does not reflect the actions of the donors.

Finding good instruments for market competition, which are relevant but uncorrelated with the error term, is challenging. The obvious determinants of nonprofit market competition are demographic and socio-economic factors indicating the demand for the services of the nonprofit within the geographical area. Yet none of these can be instruments because they are directly correlated with contributions by donors. Donors, however, are not to be influenced by nonprofits in other areas since those do not supply them with any output.[10] They are not likely to take into consideration the conditions in other markets while deciding

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[9]A growing literature (Andreoni & Payne, 2003, 20011) shows that fundraising is endogenously determined, though the direction of bias is uncertain.

[10]My choice of sectors is restricted to those that are local in terms of consumption of services.

on their contributions to a particular nonprofit, ensuring the exogeneity of this instrument. The competition of similar nonprofits in other markets in adjoining areas should be a good indicator of the market structure. Thus, the average level of the HHI across all other markets producing similar output within the state is used as an instrument.

With the instruments above, two-stage least squares (2SLS) regression is applied on the two equations. This empirical strategy will provide credible estimates if the instruments are strong predictors of the endogenous variables. The validity of the three instruments is justified through Table 4 which reports the results of the first stage regression of the endogenous variables in Eqs. (2) and (3). The coefficients of all the instruments are statistically significant and the F statistics on the joint significance of the instruments are large. This is a just identified system in which the bias due to weak instruments is approximately zero. The estimated coefficients of fundraising, government grants and HHI are then used to compute the predicted variables, which in turn are used to estimate the second stage structural equations at the nonprofit level.

[**Insert Table 4 near here**]

3.3.2 Market Level

To test the hypothesis that nonprofit competition affects charitable donations and fundraising, in aggregate, estimations of the donation and fundraising equations are carried out at the market level. Each market is now an observation, instead of individual nonprofits. Sum of donations by all donors in a market ($aggdon_mt$) and aggregate fundraising expenses by competing nonprofits ($aggfr_mt$) are replaced as the dependent variables in Eqs. (2) and (3) respectively. I eliminate nonprofit level controls from the equations since they do not have any external effects on the society. The empirical model, specified for market m in time t, is:

$$lnaggdon_{mt} = \beta_0 + \beta_1 lnHHI_{mt} + \beta_2 lnaggfr_{mt} + \beta_3 X_{2mt} + \beta_4 T_t + \beta_5 Sector_t + \epsilon_{imt} \tag{5}$$

$$lnaggfr_{imt} = \gamma_0 + \gamma_1 lnHHI_{mt} + \gamma_2 X_{2mt} + \gamma_3 T_t + \gamma_4 Sector_t + \varepsilon_{imt} \tag{6}$$

OLS regressions are used to estimate Eqs. (5) and (6). The direct effect of nonprofit competition on aggregate charitable donations is given by β_1 whereas the indirect effect is $\beta_2\gamma_1$.

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4 Impact of Nonprofit Competition: Estimates

The first two subsections present the results of the regressions of the equations at the nonprofit and the market levels. I then use the estimates to compute the direct, indirect and total effects of nonprofit competition on charitable donations.

4.1 Nonprofit Level Estimates

Table 5 starts off with the estimation results of Eq. (2), followed by those of Eq. (3). Column (1) reports the OLS estimates of the donation function in Eq. (2). The OLS coefficient of HHI is 0.00296 percentage points but is not statistically significant. In column (2) HHI, fundraising expenses and government grants are instrumented for and the model is estimated by 2SLS. As discussed above, this address the issues of endogeneity. The HHI coefficient is now statistically significant and 0.108 percentage points. Comparison of the HHI coefficient in column (1) and column (2) suggest a downward bias in the least square model. A 10 percentage point increase in the HHI in a market is associated with a 1 percentage point increase in charitable donations received by a nonprofit on average. Put differently, increase in competition directly decreases the average donations received by the nonprofits. This does not conform with the hypothesis in Section 3.

The coefficient on the other covariates in column (2) of Table 5 are consistent with previous work. Fundraising has a significant positive relation with donations and the fundraising elasticity varies between zero and one. The price of giving coefficient is negative. There is also evidence of government grants crowding out of donations, in accordance with results of Kingma, 1989; Simmons & Emanuele, 2004; Gruber & Hungerman, 2007; Andreoni & Payne, 2011. Revenue generating sales by nonprofits also crowds out voluntary giving, probably because donors associate it with a decline in the marginal utility of main output. Age, a proxy for reputation of a nonprofit has a statistically significant positive effect of charitable donations.

In columns (3) and (4) the fundraising equation in Eq. (3) is estimated using OLS and 2SLS respectively. The downward endogeneity bias, observed above, is again evident since the OLS estimate of HHI is smaller than its 2SLS counterpart. A 10 percentage point increase in HHI reduces fundraising expenses of nonprofits by 2 percentage points on average. Competition, therefore, leads to greater average fundraising expenses by nonprofits. The positive relation between nonprofit competition and fundraising agrees with the findings of Feigenbaum (1987) and Castenda *et al.* (2008). The departure from the findings of Thornton (2006) can be attributed to a shorter time panel over which the donor market is fixed. According to the hypothesis stated in Section 2, the negative and statistically significant coefficient of

per-nonprofit fundraising expenditure suggests that the size of donation market is fixed and fundraising is aimed at stealing away donors from rivals.

Again in accordance with Andreoni & Payne (2011), more government grants flowing into nonprofits reduces their fundraising efforts. There is evidence of older and bigger nonprofit to be fundraising more.

[Insert Table 5 near here]

4.2 Market Level Estimates

Table 6 reports the aggregate level estimates of OLS regressions of Eqs. (5) and (6). In columns (1) and (2), the negative and statistically significant coefficients of HHI indicates that a 10 percentage point increase in HHI causes a 7 percentage point and 23 percentage point decrease in the aggregate donations and aggregate fundraising expenses, respectively. The high magnitude of the HHI coefficient in Column 4 hints at the existence of excessive fundraising in the market. Nonprofits do not engage in cooperation in terms of their fundraising strategies, as is also illustrated with the nonprofit level estimates. One must be careful with this interpretation because marginal fundraising expenditures are not observed, making it difficult to correctly determine whether there is too much being spent on fundraising.

[Insert Table 6 near here]

4.3 Total Effect

The total effect of HHI on charitable donations is computed from the above estimation results and is summarized in Table 7. Column (1) presents the effects at the nonprofit level. The direct effect of HHI on charitable donations received by a nonprofit is the coefficient of HHI in Eq. (2), presented in column (2) in Table 5, namely 0.108. The indirect effect of competition on charitable donations is the HHI coefficient column (4) of Table 5 times the total fundraising elasticity. The mean total fundraising elasticity, calculated by the formula in Eq. (4) for each individual organization is -2.12. This implies that the negative price effect of fundraising dominated the positive effect of attracting donors. Since larger fundraising expenses reduces the inflow of donations, the decline in fundraising caused by increased HHI has a positive impact on donations received per-nonprofit. The average indirect effect of nonprofit competition on charitable donations per-nonprofit is 0.45.

Summing the direct and indirect effects, we see that the total effect of a 10 percentage point increase in HHI is approximately 6 percentage point increase in per-nonprofit charitable

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donations. In other words, greater competition among nonprofits in a market leads to a decline in the amount of charitable donations received on average by a typical nonprofit organization. Over 80 percent of the decrease in donations can be attributed to adjusted fundraising strategies of nonprofits.

Column (2) of Table 7 presents the effects of nonprofit competition on the aggregate charitable donations. The market level total effect of nonprofit competition and its constituents are opposite to those at the nonprofit level. On aggregate, the direct effect of increased HHI on donors accounts for 40 percent of the decline in donations whereas the indirect effect via fundraising causes 60 percent of the decline. Thus, competition among nonprofits causes a growth in to the total pool of contributions in the market, with a larger part of the increase being the result of aggressive fundraising by the nonprofits.

[**Insert Table 7 near here**]

The Appendix provides several checks of the robustness of the main results at the nonprofit level. In general, I find that the results are robust to the inclusion of a time variable to account for the increasing trend in charitable consumption, trimming the data set of the top 1 percent of observations in charitable donations and fundraising expenses, and to expansion of the sample to include organizations with zero charitable donations and fundraising expenses over the six years of the model. I also consider a subset of only those markets which include nonprofits with zero fundraising in all six years. Interestingly, the HHI has a larger positive effect on charitable donations than the base model, strengthening the hypothesis of direct effect of market competition on charitable donations through changes in non-fundraising aspects of nonprofit behavior. The market level regression estimates under these alternate specifications are the same results as reported in Table 6.

5   Discussion

In this section, I bring together the estimation results to answer the main question of this paper: what is the effect of nonprofit competition and what drives this effect? The answer has many implications about nonprofit policies, mergers, nonprofit strategies and donor behavior.

An increase in nonprofit competition causes a decrease in charitable contribution received on average by a nonprofit. This decline in donations occurs primarily because of the response of donors to fundraising. Nonprofits resort to more fundraising when confronting greater competition but excessive fundraising is not well perceived by donors. The changes in the non-fundraising strategies by nonprofits also has a negative effect on the average donations.

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This is possible if the nonprofits do not correctly implement these strategies or if the effect of one strategy is negated by another. It is also possible that donors are not sensitive to such changes. Further research is needed to identify what causes the negative direct effect of competition and how nonprofit managers can utilize them to their benefit. The evidence in this paper shows that mergers can be an option for nonprofit organizations to deal with competition. There is growing support for nonprofit mergers among practitioners and experts in nonprofit management. Nonprofit mergers, by reducing the number of competing organizations in a market, will increase per-nonprofit receipt of charitable donations but reduce the fundraising expenses in the nonprofit sector.

There is positive (negative) direct and indirect effects of competition (HHI) on the aggregate donations received by all nonprofit in the market in a year. However, the increase in aggregate charitable contributions in a market, due to greater competition, does not translate into higher donative earnings for all nonprofits. An increase in the aggregate charitable donations with a simultaneous decrease in the average is possible only if the increase in number of nonprofits dominates the increase in the total contributions due to competition, as measured by HHI. One possible explanation is that donors do not adjust their monetary contributions by large amounts when reacting to changes in nonprofit competition. The entry of a nonprofit into a market pushes up the amount of total donations because some donors who are enthused by the new organizations ideology or observe greater efficiency in operation of existing nonprofits. Yet, majority of the donors do not vary their charitable donations with respect to changes in nonprofit behavior. They might switch their donations from one nonprofit to another, without increasing the amount of contributions very much. Additionally, the donor market is fixed in nature with no new donors entering to push up the level of donations. Thus, the rise in giving is not substantial enough, reducing the share of donations enjoyed by each nonprofit.

With the development of the nonprofit sector, a primary concern of scholars is that the private organizations would fail to address social goals during the provision of goods and services with external benefits. Shleifer (1998) points out that such fears can be addressed through government contracting and regulation, without resorting to government ownership. Given the importance of government regulation in maintaining the standards of the nonprofit sector, it is necessary to be careful about the impact of policies on nonprofit and donor behavior.

The rapid growth in the nonprofit sector over the last decade has increased competition among nonprofits. The findings of this paper suggests that this has caused an increase in aggregate donations flowing into the sector but not by very large amounts. As a result, the average receipt of charitable donations of a nonprofit has decreased. Fundraising expenses

of nonprofits have also increased at the same time. For a typical nonprofit heavily reliant on charitable donations as a source of revenue, there will be lesser funds available for the production of the output. In reality, the increase in aggregate donations is because of few foundations or donors and it gets unevenly distributed in favor of a handful of nonprofits, while most organizations are left to fight it out.

So should there be regulation of the number of nonprofits in a market? The results of this paper are applied to a practical example to evaluate how changes in market competition can affect the nonprofit sector. In 2006, the Pension Protection Act modified the tax codes with respect to filing of annual returns by nonprofits. Prior to the Act, nonprofits with gross receipts less than $25,000 did not have to make any annual tax filings with the IRS. The Congress then mandated that these small organizations file their returns using a new form, the Form 990-N. Any nonprofit that failed to do so for three consecutive tax years would automatically have their tax exemption status revoked. Following this policy, there has been a crackdown by the IRS on numerous small nonprofits that had failed to file their tax returns for three or more consecutive years, causing a decrease in competition in the charitable donations markets.

According to the total effect estimated in this paper, this will decrease the aggregate charitable donations that flow into a nonprofit market but not by significant amounts. There will be an increase in the average donations received by the nonprofits that continue to operate, who will devote lesser shares of their incomes on fundraising expenses. Consequently, the provision of goods and services on average by nonprofits will increase, ceteris paribus. One important caveat is worth mentioning here. The sample data of this study includes those nonprofits that have gross receipts greater than $25,000. The tax modification will mostly affect smaller nonprofits that have greater reliance on public donations and face more intense competition. While the signs of the direct and indirect effects of market competition should continue to hold, the estimated magnitudes will be different.

6   Conclusion

In this paper I estimate the effect of nonprofit competition on charitable donations, indicating the varying impact that different nonprofits strategies can have on donors. I show that greater competition among nonprofits increase the aggregate donations by all donors in the market. In spite of the marginal increase in the amount of money leaving the pockets of some donors, the competition proves detrimental for the average donations received per-nonprofit. It is also harmful because of the excessive fundraising that nonprofits undertake to deal with the competition.

The study indicates that nonprofit competition is an important determinant of charitable donations. We should move beyond the individual-level analysis of nonprofits in our attempt to enhance our understanding of nonprofit and donor interaction. It has noteworthy policy implications for individual nonprofits as well the sector as a whole. However, it does have limitations. First, the choice of market construction can be an issue of criticism. A uniform satisfactory approach to identify nonprofit markets should be addressed before the study of nonprofit competition can make serious headway. Second, the data used is restrictive because larger regional, national and international markets for donations is kept out of its scope. Several smaller nonprofits were also not examined due to lack of data. Third, the quality of the data itself is questionable. Access to more reliable data from a larger universe of nonprofits will also prove helpful. This is the first attempt at measuring the total effect of nonprofit competition on charitable donations. Additional studies are necessary to add to the robustness of the results and take our understanding of nonprofit competition forward.

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Table 1: Average Number of Nonprofits & Markets by Year by Sector

Sector	Description	NTEE Code	Average number of firms	Average number of markets
1	Museums	A50-A57	9650	259
2	Performing arts	A62-A6C	29991	271
3	Community health treatment	E30-E42	10446	250
4	Abuse prevention	I70-I73	3375	190
5	Employment and vocational training	J20-J33	10238	250
6	Nursing, home health care	E90-E92	9127	214
7	Substance abuse prevention and treatment	F20-F22	9637	237
8	Hotlines and crisis prevention	F40-F42	1498	135
9	Crime prevention and rehabilitation	I20-I44	4211	199
10	Food pantries and programs	K30-K36	4927	229
11	Public housing and rehabilitation	L21-L25	13653	243
12	Homeless shelters	L40-L41 & P85	5657	203
13	Community centers	P28	4736	198
14	Family counseling	P46	2777	170
15	Senior centers	P81	7267	235
16	Residential care and group homes	P73	3977	177
Total			**131167**	**3460**

Notes: Sector descriptions are based on Thornton, 2006. The NTEE codes and calculations are based on a sample from the NCCS Digitized Data, 1998-2003.

Table 2: Sector-wise Summary Statistics for HHI

Sector	Description	Mean	Std. Error
1	Museums	3621	24
2	Performing arts	2041	9
3	Community health treatment	3722	25
4	Abuse prevention	4376	49
5	Employment and vocational training	3047	26
6	Nursing, home health care	2048	26
7	Substance abuse prevention and treatment	2795	27
8	Hotlines and crisis prevention	6009	85
9	Crime prevention and rehabilitation	4171	44
10	Food pantries and programs	5729	40
11	Public housing and rehabilitation	1923	19
12	Homeless shelters	3121	37
13	Community centers	3753	45
14	Family counseling	4663	61
15	Senior centers	3906	33
16	Residential care and group homes	3836	49

Notes: Sector descriptions are based on Thornton, 2006. The calculations are based on a sample from the NCCS Digitized Data, 1998-2003.
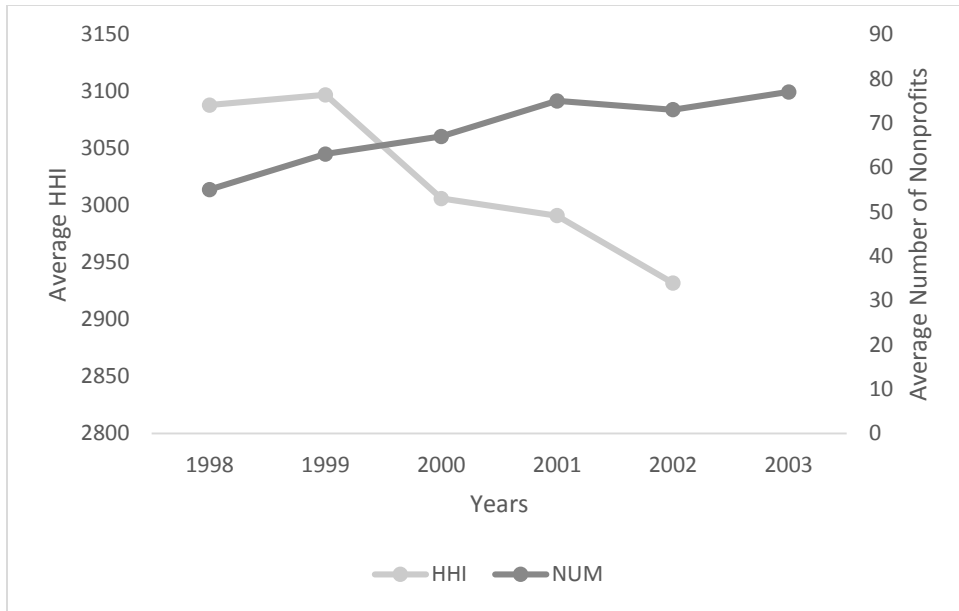
Notes: The average HHI and number of nonprofits over the six years is calculated from a sample from the NCCS Digitized Data, 1998-2003.

Fig. 1: Comparison of Average HHI and Average Number of Nonprofits over 6 Years

Table 3: Summary Statistics

	Mean	Std. Deviation
Nonprofit Level Variables		
Public Support	465	3590
Government Grants	438	2420
Program Service Revenue	1832	19700
Dues	21	777
Other Revenue	159	1985
Fundraising Expenses	37	250
Assets	3566	26100
Liabilities	1505	10500
Age	19	15
Area level control variables		
MSA Population (1000s)	3414	5578
MSA Per-capita Income (1000s)	31	5
MSA Unemployment Rate (%)	4.67	1.43
Share of population over 65 years	0.12	0.02
Share of Democrats in a state's Senate	1.2	0.88
Share of Democrats in a state's Congress	0.5	0.21
Share of States with a Democrat governor	0.5	0.5

Notes: Nonprofit level statistics are based on a sample from the NCCS Digitized Data, 1998-2003. The area level variables are from the Bureau of Economic Analysis and Bureau of Labor Statistics. All dollar values in 1000s. All dollars are real (2000 base year).

Table 4: First-stage Regression Coefficients

	(1)	(2)	(3)
	Average HHI across other markets	Liabilities	Transfers
Instrument for	HHI	Fundraising expenses	Government grants
Coefficient	0.472***	0.134***	-0.10***
R-squared	0.497	0.164	0.145
F stat. in Eq. (2)	10358.14***	756.86***	1430.54***
F stat. in Eq. (3)	2133.54***	-	91.03***

Note: *** p<0.01, ** p<0.05, * p<0.1. Logarithm of the variables have been used.
Standard errors are heteroskedasticity robust autocorrelation consistent and are clustered at the annual level.

Table 5: Nonprofit-level Regression Coefficients

	Public Support		Fundraising Expenses	
	(1)	(2)	(3)	(4)
VARIABLES	Eq.2 OLS	Eq.2 2SLS	Eq. 3 OLS	Eq. 3 2SLS
HHI	0.0030	0.108***	-0.145***	-0.212***
	(0.004)	(0.018)	(0.018)	(0.033)
Fundraising Expense	0.239***	0.830***		
	(0.003)	(0.066)		
Price	-1.371***	-1.270***		
	(0.005)	(0.005)		
Government Grants	0.0190***	-0.107***	0.0988***	-0.515***
	(0.001)	(0.019)	(0.003)	(0.035)
Program Service Revenue	-0.0124***	-0.0283***	-0.00795**	-0.0847***
	(0.001)	(0.002)	(0.002)	(0.006)
Other Revenue	0.0291***	-0.0617***	0.166***	0.187***
	(0.001)	(0.011)	(0.016)	(0.022)
Dues	-0.0196***	-0.0135***	-0.0321***	-0.0972***
	(0.002)	(0.002)	(0.006)	(0.006)
Assets	0.123***	0.0110	0.203***	0.324***
	(0.007)	(0.020)	(0.011)	(0.010)
Age	0.0106***	0.00285***	0.0197***	0.0358***
	(0.001)	(0.001)	(0.001)	(0.001)
Liabilities			0.111***	0.347***
			(0.006)	(0.013)
Constant	9.032***		0.437	
	(0.054)		(0.253)	
Observations	116,717	116,221	116,224	116,224
R-squared	0.908	0.644	0.235	-0.375

Note: Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$
Logarithm of the variables have been used. Standard errors are heteroskedasticity robust autocorrelation consistent and are clustered at the annual level.

Table 6: Market-level Regression Coefficients

VARIABLES	Public Support (1) Eq.5 OLS	Fundraising Expenses (2) Eq.6 OLS
HHI	-0.674***	-2.774***
	(0.010)	(0.021)
Aggregate Fundraising	0.365***	
	(0.006)	
Constant	15.49***	30.84***
	(0.179)	(0.355)
Observations	120,112	120,112
R-squared	0.717	0.589

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Logarithm of the variables have been used. Standard errors are heteroskedasticity robust autocorrelation consistent and are clustered at the annual level.

Table 7: Calculating Total Effect

	(1)	(2)	(3)
	Coefficients	Nonprofit	Market
Direct Effect	β_1	0.1084	-0.67
Indirect Effect	$\beta_f \gamma_1$	0.4505	-1.01
Total Effect	$\beta_1 + \beta_f \gamma_1$	0.5590	-1.68

Appendix

Nonprofit-level Regression Coefficients of Eq. (2) – Robustness Checks

VARIABLES	(1)	(2)	(3)	(4)
HHI	0.127***	0.116***	0.0510***	1.033***
	(0.017)	(0.022)	(0.007)	(0.316)
Fundraising Expense	0.845***	0.872***	0.774***	
	(0.082)	(0.090)	(0.048)	
Government Grants	-0.108***	-0.119***	-0.0870***	0.0687***
	(0.024)	(0.026)	(0.015)	(0.020)
Price	-1.272***	-1.261***	-1.271***	
	(0.007)	(0.009)	(0.007)	
Program Service Revenue	-0.0276***	-0.0296***	-0.0276***	-0.0261***
	(0.002)	(0.003)	(0.002)	(0.009)
Other Revenue	-0.0623***	-0.0655***	-0.0454***	0.0328***
	(0.013)	(0.013)	(0.009)	(0.005)
Dues	-0.0152***	-0.0137***	-0.0144***	-0.0617***
	(0.002)	(0.002)	(0.001)	(0.008)
Assets	0.00378	0.0113	0.0147	0.146***
	(0.023)	(0.021)	(0.015)	(0.025)
Age	0.00326***	0.00380***	0.00333***	0.0148***
	(0.001)	(0.001)	(0.001)	(0.002)
Observations	95,002	114,439	134,221	1,253
R-squared	0.628	0.602	0.748	0.109

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1
Logarithm of the variables have been used. Standard errors are heteroskedasticity robust autocorrelation consistent and are clustered at the annual level.
The 2SLS estimates for Eq. (2) are reported. In column (1) a time variable is included. In column (2) organizations with top 1% of charitable donations and fundraising expenses are eliminated. In column (3) all nonprofits with no reporting errors are included. In column (4) markets with nonprofits that report no fundraising are retained.

Nonprofit-level Regression Coefficients of Eq. (3) – Robustness Checks

VARIABLES	(1)	(2)	(3)
	Eq. 3 2SLS	Eq. 3 2SLS	Eq. 3 2SLS
HHI	-0.228***	-0.204***	-0.0746**
	(0.032)	(0.029)	(0.036)
Government Grants	-0.516***	-0.313***	-0.714***
	(0.042)	(0.029)	(0.041)
Program Service Revenue	-0.0867***	-0.0637***	-0.139***
	(0.006)	(0.004)	(0.008)
Other Revenue	0.180***	0.172***	0.185***
	(0.024)	(0.021)	(0.021)
Dues	-0.0922***	-0.0860***	-0.136***
	(0.006)	(0.008)	(0.005)
Assets	0.323***	0.251***	0.341***
	(0.012)	(0.006)	(0.012)
Age	0.0358***	0.0278***	0.0431***
	(0.001)	(0.001)	(0.002)
Liabilities	0.345***	0.261***	0.421***
	(0.016)	(0.014)	(0.014)
Observations	95,004	114,442	134,224
R-squared	-0.382	-0.108	-0.903

Note: Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$
Logarithm of the variables have been used. Standard errors are heteroskedasticity robust autocorrelation consistent and are clustered at the annual level.
The 2SLS estimates for Eq. (3) are reported. In column (1) a time variable is included. In column (2) organizations with top 1% of charitable donations and fundraising expenses are eliminated. In column (3) all nonprofits with no reporting errors are included.