Erynn Beaton* and Hyunseok Hwang

Increasing the Size of the Pie: The Impact of Crowding on Nonprofit Sector Resources

<https://doi.org/10.1515/npf-2016-0012>

Abstract: The number of nonprofit organizations is rapidly increasing, which has led nonprofit practitioners to complain of funding scarcity, nonprofit scholars to closely study nonprofit competition, and policymakers to consider increasing nonprofit barriers to entry. Underlying each of these perspectives is an assumption of limited financial resources. We empirically examine this assumption using county-level panel data on nonprofit human services organizations from the National Center for Charitable Statistics. Contrary to the limited resources assumption, our fixed-effects models show that increasing nonprofit density, at its current levels, has the effect of increasing sector financial resources in each county. We suggest that these findings prompt a tradeoff for policymakers. A sector with free market entry results in a nonprofit sector with more, smaller nonprofits, but such a sector may have the capacity to serve more people because it has more total sector financial resources. Conversely, a sector with higher barriers to entry would translate to a sector with fewer, larger nonprofits with less overall capacity due to fewer sector financial resources.

Keywords: nonprofit finance, density, sector capacity, competition

Introduction

The American nonprofit sector is a large and ever-growing fleet of relatively small organizations. In 1989, only 17.9 percent of nonprofits reported expenses over \$1 million. That has gone virtually unchanged – in 2012 it was 17.7 percent (NCCS 2016). For some, a nonprofit sector composed of many, small organizations is suboptimal, because duplicative overheads and fundraising costs (Egger 2004; Rose-Ackerman 1982) cause diseconomies of scale. Many donors and watchdog organizations share this view, reacting adversely to administrative expenses (Cnaan et al. 2011; Okten and Weisbrod 2000). However, this

*Corresponding author: Erynn Beaton, John Glenn College of Public Affairs, The Ohio State University, Columbus, OH, USA, E-mail: beaton.13@osu.edu

Hyunseok Hwang, Department of Sociology, Texas A&M University, College Station, TX, USA, E-mail: gustjr2002@tamu.edu

perspective of inefficiency overlooks the benefits of a fragmented nonprofit sector. Focusing on these benefits, we take an alternative view. We argue that a crowded nonprofit sector can result in more resources for the sector and capacity that is instrumental in fulfilling the persistent demand for nonprofit services.

To illustrate these opposing perspectives, we draw on a metaphorical pie of the nonprofit sector. The area of the pie represents the corpus of nonprofit financial resources, or the sum of organizational revenues. Each slice of the pie represents a nonprofit and its proportion of the sector's financial resources. Under the first perspective, the circumference of the pie is fixed, and the pie has fewer, larger slices. If a new nonprofit is added, the remaining organizations' slices are reduced in size. In our proposed alternative view, "crowding in" occurs and the circumference of the pie grows as slices are added. The result is a larger pie, with smaller slices – meaning more financial resources for the nonprofit sector spread across a larger number of small organizations. There are several mechanisms through which nonprofit leaders may strategically cause "crowding in." For instance, nonprofit leaders tend to differentiate themselves from other nonprofits to maximize their funding sources (Barman 2002) and may take advantage of issue salience (Faulk 2014) to expand their funding.

In the following pages, we first review the state of crowding in the nonprofit sector. Focusing on sector financial resources, we further examine the assumption that nonprofits operate in a context of limited resources. This leads us to question the assumption of limited resources and, in the next section, to mine the literature for examples that might contradict such an assumption. We dub these examples "mechanisms for increasing the size of the pie" and rely on them to draft hypotheses about the relationship between crowding and nonprofit sector revenue. We then test our hypotheses using fixed-effects models generated using county-level data from the National Center for Charitable Statistics. We conclude with implications for researchers, policymakers, and nonprofit managers regarding how to respond to an increasingly crowded nonprofit sector.

Crowding & financial resources in the nonprofit sector

The surge in the nonprofit sector is a global trend (Salamon 1994) that is particularly pronounced in the United States (Corbin 1999). We observe an increase in the number of nonprofit organizations in the United States going back as far as records allow, to the 1930s (Hall 2006). Harrison and Thornton

(2014) point out that, due to the rate of nonprofit proliferation, the nonprofit sector is increasingly dense; there are more nonprofits per capita today than in the past. We know that proliferation is in part caused by free market entry (Rose-Ackerman 1982), increased government funding (Lecy and Van Slyke 2013), and the high survival rates of nonprofits (Harrison and Laincz 2008).

Because the number of nonprofit organizations is proliferating rapidly, there is extensive debate on whether there are too many nonprofits (Paarlberg and Varda 2009; Harrison and Thornton 2014). While there are many bases on which one could evaluate the implications of crowding, for the purposes of this paper we interpret the question to mean: what is the impact of crowding on nonprofit sector financial resources? Given the fiscal challenges that the nonprofit sector faces (Salamon 1999) and the importance of financial leadership to the sustainability of nonprofit organizations (Bell 2010), we consider the impact on sector financial resources to be of central importance.

The traditional economic assumption is that sector financial resources are fixed, so they are unable to grow as crowding occurs. This assumption is so ingrained in the literature that it is often mentioned in passing, as in Grønbjerg's statement that "only limited donations or public funding is available" (1993) in her description of the accountability context of nonprofits. The assumption that nonprofit resources are limited has also become a fundamental assumption in nonprofit definitions. For instance, Barman (2002) defines nonprofit competition as "the simultaneous demand by two or more actors for limited environmental resources." Faulk (2014) describes the origin and flaw of this assumption:

Rose-Ackerman (1982) argues that greater density of nonprofit organizations competing for the same pool of funding is inefficient. Because charitable funding is essentially a common pool resource, more numerous actors tapping into the funding pool presents a problem of the commons that diminishes the utility of these funds over time. This argument, however, depends on **stable or static levels of funding** for nonprofits to share as their market grows. (emphasis added)

The tragedy of the commons results only because common resources are fixed in their supply. If nonprofit sector funding is fixed, the proliferation of nonprofit organizations results in fewer resources spread among more nonprofits. We join Paarlberg and Varda (2009) in making the opposite argument that nonprofit sector resources are not a common pool that is fixed. They contend that the sector is not harmed by, but can benefit from, increasing density, because relational synergies can generate incremental resources. Thus, the debate between fixed or variable financial resources in the nonprofit sector is an empirical question.

Unfortunately, basic statistics cannot help us answer the question of whether sector financial resources are fixed. As Figure 1 illustrates, nonprofit

Figure 1: The trend in nonprofits and sector revenue.

sector revenue has grown alongside proliferation in the number of nonprofits. If funding were fixed, we would expect sector revenues to remain relatively flat despite increased crowding. On the other hand, it is also true that nonprofit sector revenues have grown at a slightly lower rate than the number of nonprofits (Blackwood, Roeger, and Pettijohn 2012). Further analysis is needed to understand whether sector funding is fixed or if it varies based on crowding.

Before we move to an empirical examination of this question, we further review literature that provides evidence both in support of and in contradiction to the premise that higher nonprofit density may lead to more sector financial resources. Evidence in support of a positive relationship offers us mechanisms for “increasing the size of the pie.” Evidence counter to such a relationship offers us mechanisms for “decreasing the size of the pie.” We argue that this evidence collectively offers plausibility to our argument that a positive relationship exists between density and sector financial resources and leads us to our hypotheses.

Mechanisms for increasing the size of the pie

In the following sections, we explore some of the mechanisms through which nonprofit density might increase sector financial resources. While we cannot provide a full review of the research supporting such a proposition, we can provide key examples that give it plausibility. We provide these examples in the context of the three major sources of nonprofit revenue: individual contributions, government funding, and earned income. We know that each of these revenue sources have distinct structural dimensions (Grønbjerg 1993). Therefore, we expect they are subject to discrete mechanisms worth discussing.

Solicitation as a mechanism for increasing the individual contributions pie

An important source of nonprofit revenue is individual contributions, and there are several ways in which nonprofit organizations can increase the funding supply among individual donors (Barman 2002). We share the one most convincing to us: the solicitation effect. The more nonprofit fundraisers make an “ask” or solicit an individual donor, the more donors are likely to give (Wiepking and Maas 2009), either because giving elicits a warm glow (Andreoni 1990) or because it eschews negative feelings of guilt (Basil, Ridgway, and Basil 2006). When solicitation is combined with social pressure, such as asking face-to-face (Brockner et al. 1984), the effect is even stronger. Many nonprofits employ fundraisers responsible for solicitation with a budget at their disposal, and research shows that fundraising expenditures increase contributions (Weisbrod and Dominguez 1986). Even small organizations without fundraisers solicit donations through volunteers, board members, and staff. We posit that a higher density of nonprofits corresponds with an increase in solicitation efforts, which in turn increases sector revenue.

Contract bidding as a mechanism for increasing the government funding pie

Government funding is another important source of revenue for many nonprofits, particularly human services organizations (Pettijohn et al. 2013), and research shows that local governments are more likely to outsource public service delivery when there are multiple bidders for the contract (Girth et al. 2012).

Governments believe that contract competition results in higher quality services and lower prices (Boyne 1998), so in the absence of multiple proposals, governments would prefer to provide the service themselves instead of outsourcing (Girth et al. 2012). However, contract competition rarely exists, especially for social services (Van Slyke 2003). For instance, in New York City where there are many nonprofits, Savas (2002) found that the Department of Homeless Services often received only one proposal per contract. This research suggests that higher nonprofit density, to the extent that organizations can bid on the same public contracts, may increase sector revenue through greater government outsourcing to the sector.

Entrepreneurship as a mechanism for increasing the earned income pie

Earned income includes nonprofit revenue from “dues, fees, service charges, rent, and product sales” (Grønbjerg 1993), and efforts to increase these sources of revenue are referred to as social or nonprofit entrepreneurship (Leroux 2005). Battilana et al. (2012) offer the example of Hot Bread Kitchen, a New York City nonprofit organization founded in 2000 that serves low-income immigrant women by offering them a job baking bread that is sold to paying customers. Social entrepreneurs like Hot Bread Kitchen compete more with for-profits than they do with other nonprofits (Schiff and Weisbrod 1991), suggesting that earned income may be incremental to the nonprofit sector rather than cannibalistic. Therefore, to the extent that some nonprofits entering the sector exhibit entrepreneurship, we might expect higher nonprofit density to increase sector revenue.

Table 1 summarizes the evidence provided in this section to support the plausibility of the argument that more nonprofits may lead to an increase in

Table 1: Example mechanisms for increasing the size of the pie.

Revenue source	Example mechanism
Individual contributions	Solicitation: Higher density means more solicitation of individual donors, which may increase the number and size of gifts.
Government	Contract Bidding: Higher density of nonprofits qualified to fulfill the same government contracts means more outsourced government funding to the nonprofit sector.
Earned income	Entrepreneurship: Higher density of entrepreneurial nonprofits means more opportunities for commercial revenue taken from the private sector.

sector revenue. Given these mechanisms for increasing the size of the pie, we suggest it is likely that a positive relationship exists between nonprofit density and the financial resources available to the sector. As discussed in our methods section, instead of testing this relationship for three revenue sources – individual contributions, government and earned income – we break it into two: contribution and non-contribution revenue. Given our supporting mechanisms, we offer these hypotheses for each revenue source:

Hypothesis 1 (H1): Higher levels of nonprofit density in a geographic area will lead to an increase in nonprofit sector contribution revenue in that area.

Hypothesis 2 (H2): Higher levels of nonprofit density in a geographic area will lead to an increase in nonprofit sector non-contribution revenue in that area.

Mechanisms for decreasing the size of the pie

Of course, there are also mechanisms that would cause density to have a negative impact on nonprofit sector revenue. Before we move on to testing our hypotheses, we attend to those factors that would prevent sector revenue from increasing indefinitely. In the following sections, we point out two examples of such mechanisms: crowd-out and transaction costs.

Crowd-out as a mechanism for decreasing the size of the pie

Crowd-out occurs when an increase in revenue from one source causes another source of revenue to decrease. For instance, research suggests that funding from the government can reduce individual contributions, because donors may choose to donate less if the government offers subsidization (Vesterlund 2006). However, studies show that crowd-out from government funding is incomplete (Boris and Steuerle 2006; Von Kotzebue and Wigger 2010), ranging from 0.5 to 35 percent (Steinberg 1991). Portfolio theory suggests that nonprofits can and should diversify their portfolio to maximize income and reduce any potential crowd-out across funding sources (Froelich 1999; Kearns et al. 2012). Andreoni and Payne (2011) demonstrate that the impact of crowd-out can be diminished if nonprofits maintain their fundraising productivity after receiving government funding. Despite nonprofits' best efforts, crowd-out will occur. Therefore, to the extent that crowd-out exists, it would be unlikely for nonprofit density to infinitely expand sector financial resources.

Transaction costs as a mechanism for decreasing the size of the pie

An increase in the transaction costs, such as administrative overhead and excessive fundraising expenditures, can repel potential donors (Rose-Ackerman 1982; Bekkers and Wiepking 2010) and lead to less giving (Von Kotzebue and Wigger 2010). Thornton (2006) presents evidence of this effect, showing that high levels of competition and density can cause excessive fundraising. Donors often reduce their contributions when they deem fundraising expenditures excessive (Weisbrod and Dominguez 1986). Thus, heightened nonprofit density may lead to lower sector revenue if transaction costs become too high.

Though crowd-out and transaction costs are merely examples of mechanisms that would serve to limit the financial resources available to the nonprofit sector, we find them sufficiently convincing to expect a second-order effect, leading us to our two final hypotheses:

Hypothesis 3 (H3): Higher levels of nonprofit density in a geographic area will lead to a second-order decrease in nonprofit sector contribution revenue in that area.

Hypothesis 4 (H4): Higher levels of nonprofit density in a geographic area will lead to a second-order decrease in nonprofit sector non-contribution revenue in that area.

To summarize, we question the assumption that the nonprofit sector's financial resources are fixed. Extant research offers convincing evidence that nonprofit density increases sector resources. This evidence comes in the form of mechanisms such as solicitation, contracting bidding, and entrepreneurship. The research also leads us to expect a second-order decrease in sector resources as nonprofit density increases. This evidence comes in the form of mechanisms such as crowd-out and transaction costs.

Methods & data

To test our hypotheses, we follow the methods that the density and community carrying capacity literature employs (Corbin 1999; Hannan and Freeman 1977; Marquis, Davis, and Glynn 2013; Lacey and Van Slyke 2013; Grønbjerg and Paarlberg 2001; Carroll and Hannan 1989; Guo and Brown 2006). Nonprofit research in this area offers precedent for limiting the scope of the study to 501(c)3 human services organizations (Lacey and Van Slyke 2013). The human services sub-sector is defined as a broad range of service areas that include housing, food, employment, recreation, youth development, crime, legal support,

and public safety (Barman 2013). The human services sub-sector is conventionally selected for density analyses, because it accounts for approximately 25 percent of all US registered public charities, making it the largest sub-sector. Further, human services organizations have grown in numbers that are on par with overall sector growth and non-human services growth (NCCS 2016), making it a representative sub-sector. Finally, human services organizations are emphasized here, because they operate programs within local service delivery systems (Twombly 2003), suggesting that they are more likely to compete with one another for the same set of financial resources (Thornton 2006).¹ Thus, to qualify for the sample, an organization must be classified as a human services nonprofit by the National Taxonomy of Exempt Entities (NTEE) (Barman 2013).²

We rely on data collected by the Internal Revenue Service (IRS) on nonprofit tax form 990 and compiled by the National Center for Charitable Statistics (NCCS) Core Files. One challenge posed by this data results from changes to IRS reporting requirements over time. Before the Pension Protection Act of 2006, nonprofits with less than \$25,000 in annual revenue were not required to file a 990 form (Roeger 2010), and data on those organizations does not exist. This leads us to limit the sample to organizations with \$25,000 or more in annual revenue for each year in order to standardize the sample qualification parameters over time. Thus, the scope of this study is limited to nonprofits classified as human services organizations that have \$25,000 or more in revenue each year.

To represent the geographic boundaries that typically surround nonprofit competition for funding, we aggregate the sample of qualified nonprofits contained in the Core Files to the county level. Studies have used varying geographic boundaries, but we follow past literature by adopting the county as the unit of analysis (Grønbjerg and Paarlberg 2001; Ben-Ner and Hoomissen 1992; Marcuello 1998), particularly for its relevance to policymakers, who are often organized at the county level (Grønbjerg and Paarlberg 2001; Hoyman et al. 2016). County economic and demographic data is collected from the US Census Bureau and the Bureau of Economic Analysis (BEA). The dataset is a time series including the years 1993, 1995, and 1997–2009 (15 years) aggregated into county panels (2,840 entities).³ Table 2 summarizes each of the variables employed,

¹ Thornton (2006) identifies 16 NTEE Codes that comprise nonprofits that “compete with relatively well-defined markets.” Ten of the sixteen are human services.

² We use the NTEE core codes from the NCCS Core Files. In our dataset, we include nonprofits classified under the major group of “human services” that are coded as I, J, K, L, M, N, O, or P. See Barman (2013) for a further review of the NTEE system.

³ Initially, the NCCS Core File provided 42,600 observations, but while matching with the BEA and Census data, 7 of the observations were dropped due to missing values. The analysis ultimately contains 42,593 observations.

Table 2: Summary of variables, sources, and transformations.

Variable name	Type	Source	Variable transformations
Total Revenue	Dependent	NCCS	–Adjusted for Inflation –Per Capita (divided by Population)
Contribution Revenue	Dependent	NCCS	–Adjusted for Inflation –Per Capita (divided by Population)
Non-Contribution Revenue	Dependent	NCCS	–Adjusted for Inflation – Per Capita (divided by Population)
Density	Independent	NCCS	– Per Capita (divided by Population) –Squared Variable Included
Federal Expenditure	Control	Census	–Adjusted for Inflation –Per Capita (divided by Population)
GDP	Control	BEA	–Adjusted for Inflation –Per Capita (divided by Population)
Poverty Rate	Control	Census	–No Transformations –Expressed as a percentage

their data sources, and transformations. Below we provide further rationale for the inclusion of each variable and its transformations.

Dependent variables

The dependent variables in our four hypotheses are the two sources of nonprofit sector revenue: contribution and non-contribution revenue. These two sources were chosen following Hansmann (1987) and Chetkovich and Frumkin (2003), who distinguish between donative (contribution) and commercial or fee-based (non-contribution) revenue. *Contribution revenue* is entered in the 990 tax form under “Contributions and grants” and comprised approximately 45.4 percent of human services sector revenue in 2009 (NCCS 2016). *Non-contribution revenue* is a calculated variable constructed by subtracting contribution revenue from total revenue for each nonprofit, comprising the remaining 54.6 percent of revenue in 2009 (NCCS 2016). Non-contribution revenue includes “Program service revenue,” “Investment income,” and “Other revenue.” Program service revenue accounted for the vast majority of non-contribution revenue in 2012 (NCCS 2016).⁴ Because of the way revenues are reported on tax form 990, it is impossible to separate government revenue, because it can take the form of grants

⁴ In 2012 program service revenue accounted for 91.7 percent of non-contribution revenue (NCCS 2016).

(contribution revenue) as well as contracts and vouchers (non-contribution revenue). In addition to testing contribution and non-contribution revenue, we also test total revenue for comparison. As explained above, data for each of the human services nonprofit organizations contained in the Core Files was aggregated to the county level by summing the revenues of all the in-scope nonprofits. To appropriately control for population in the county, we express all three revenue variables on a per capita basis.

Independent variable

We maintain the same sample of in-scope nonprofit organizations, counting the number of qualified organizations in each county at each point in time. *Density* is the independent variable employed in all four of our hypotheses, calculated as the number of in-scope nonprofit organizations per capita (Harrison and Thornton 2014; Grønbjerg and Paarlberg 2001). Our hypotheses suggest a non-linear relationship between density and sector revenue, so we include a squared transformation of the density variable.

Control variables

Several variables must be included in our model to control for effects beyond our independent variable that may impact nonprofit sector revenue. We include county Gross Domestic Product (GDP) per capita, federal government expenditures per capita, and poverty rate. These variables are selected on the basis of their proven significance in other studies of nonprofit density (Corbin 1999; Grønbjerg and Paarlberg 2001; Lecy and Van Slyke 2013; Matsunaga and Yamauchi 2004; Marquis, Davis, and Glynn 2013).

We use *GDP* for each county to control for fluctuations in the economy that may impact nonprofit revenue. County-level GDP is not reported by the Census or BEA, but BEA researchers suggest a formula to construct county GDP (Guci, Mead, and Panek 2016). The formula for constructing county GDP is displayed below in Equation 1.

Equation 1: GDP Calculation

$$GDP_{it} = \frac{Earnings_{it}}{Earnings_{st}} \times GDP_{st}$$

where t = year, i = county, and s = state

Government contracts and grants are an important source of funding for human services nonprofits (Pettijohn et al. 2013). Therefore, *federal*

expenditure in each county is necessary to control for the size of government (Grønbjerg and Paarlberg 2001; Lecy and Van Slyke 2013) and to estimate the effects of government expenditures in the nonprofit sector (Paarlberg and Yoshioka 2016). The data is obtained from the Census's USA Counties database.

Poverty Rate is often included in models as a control variable measuring demand heterogeneity (Corbin 1999; Grønbjerg and Paarlberg 2001) or to control for strength of demand (Lecy and Van Slyke 2013). This analysis uses the percentage of people living in the county below the poverty line, taken from the US Census.

Transformations

All dollar values are adjusted for inflation in 2012 values based on the Consumer Price Index (CPI) calculation from the US Bureau of Labor Statistics (BLS). Population is an important variable in studies of the nonprofit sector. To account for county population consistently, all variables (with the exception of poverty rate) are transformed into per capita terms, meaning the variable is divided by the county population. County population figures were sourced from the US Census. By accounting for population in our transformations instead of including population as a control variable, we expect the R-squared to be low in our models. Population often explains a consequential portion of models of the nonprofit sector, so removing population from our model will impact the overall explanatory value but enable us to isolate density as an independent variable impacting sector revenue.

Analysis

Table 3 shows descriptive statistics and Table 4 shows correlations. These statistics are consistent with expectations. Total revenue per capita has increased between the beginning of our panel in 1993 and the end of our panel in 2009. Density has also increased over the panel period, depicted visually in Figure 2. In 1993, 337 counties had zero human services nonprofits, but by 2009 every county had at least one. These statistics demonstrate the increasing proliferation of nonprofits. GDP and federal expenditures have also increased over the panel time period. Our analysis will determine whether these environmental and governmental factors are responsible for the increase in sector revenue or whether nonprofit density has also had an impact.

Table 3: Descriptive statistics for the panel of counties.

	All	<u>Mean</u> 1993	2009	<u>SD</u>	<u>Min</u>	<u>Max</u>
Dependent variables						
1) Total revenue	292.62	191.85	359.01	525.94	0.00	22,018.18
2) Contribution revenue	126.64	89.15	163.05	328.65	0.00	12,402.41
3) Non-Contribution revenue	166.00	102.70	195.98	317.63	0.00	15,267.21
Independent variables						
4) Density	0.00028	0.00019	0.00036	0.00022	0.00000	0.00388
Control variables						
5) GDP	39,036	32,813	41,315	10,710	14,328	28,673
6) Federal expenditure	8.09	6.81	10.35	10.56	0.00	1,902.40
7) Poverty rate	14.52	16.28	16.15	6.06	1.70	62.00

Table 4: Pearson’s correlation matrix.

Variables	1	2	3	4	5	6	7
1) Total revenue	1.00						
2) Contribution revenue	0.82	1.00					
3) Non-contribution Revenue	0.81	0.32	1.00				
4) Density	0.35	0.23	0.34	1.00			
5) GDP	0.30	0.18	0.31	0.33	1.00		
6) Federal expenditure	0.08	0.07	0.05	0.10	0.07	1.00	
7) Poverty rate	−0.08	0.02	−0.14	−0.18	−0.52	0.06	1.00

Figure 3 adds a dimension to these descriptive statistics. While the variables in our model are aggregated at the county level, Figure 3 disaggregates this data and shows that the average and median nonprofit size has changed over the panel period. Average revenue per human services nonprofit has increased slightly, but median revenue per nonprofit has decreased drastically. This is important because, even if our hypotheses that higher density leads to higher sector revenue are correct, the additional revenue seems to be distributed disproportionately to the largest nonprofits.

We estimate our models by employing a two-way fixed effects regression. If we run a simple ordinary least squares (OLS) regression model for the panel data, estimators are likely to have omitted variables. Two-way fixed effects regression models focus on the variation within-entities (counties) and changes

Figure 2: Trend in average density.

Figure 3: Average and median nonprofit size.

over time (years), but also allow us to control for omitted and unobserved variables (Kennedy 2003; Wooldridge 2010). Between one-way and two-way fixed effects regressions, we employ a two-way fixed effects estimator to control for unobserved time-invariant differences by removing the influence of time- and entity-invariant variables, which minimizes omitted variable bias in the analysis (Stock and Watson 2011).

Equation 2: Fixed Effects Model

$$\begin{aligned} \text{Total Revenue}_{it} = & \beta_1 \text{Density}_{it} + \beta_2 \text{Density}_{it}^2 + \beta_3 \text{GDP}_{it} + \beta_4 \text{Federal Expenditure}_{it} \\ & + \beta_5 \text{Poverty Rate}_{it} + \alpha_i + \mu_{it} \end{aligned}$$

where t = year and i = county

Equation 2 shows an equation of the two-way fixed effects model including the independent and control variables. Before arriving at a two-way fixed effects regression, we follow the traditional practice of conducting a Hausman test, which confirms whether or not there is a correlation between regressor errors. In each model, the null hypothesis was rejected with a p-value of 0.000 suggesting fixed effects is the better fit for our models (Allison 2009). The variance inflation factor (VIF) is 1.26 on the baseline model (Model 2 in Table 5), suggesting limited multicollinearity (Wooldridge 2015).

Results

Table 5 presents the coefficients for seven fixed effects models – the first three use total revenue per capita as the dependent variable to show the overall relationship between density and sector revenue, while the last four serve to test our hypotheses. Beginning with control variables, we find that county GDP per capita is positively and significantly associated with all three dependent variables: total revenue per capita, contribution revenue per capita, and non-contribution revenue per capita. Federal expenditure per capita presents non-significant associations with the dependent variables. Poverty rate has a statistically significant negative association with contribution revenue, because counties with more poverty are less likely to have high levels of individual contributions. Conversely, poverty rate has a statistically significant positive association with non-contribution revenue, likely because counties with more poverty receive more government support in the form of program service revenue.

Turning to the independent variables, Model 1 provides a baseline model for total revenue per capita without the density variable, resulting in a 0.043 R-squared. When density is added in Model 2, the R-squared increases and density

Table 5: Fixed effects models.

Dependent variables	Model 1	Model 2	Total revenue Model 3	Contribution revenue Model 4	Model 5	Non-contribution revenue Model 6	Model 7
Independent variables							
Density		327,808*** (12,166)	440,464*** (20,123)		186,937*** (13,083)		253,778*** (14,066)
Density (squared)			-70,934,000*** (100,957,100)		-28,304,480*** (6,563,674)		-42,702,320*** (7,057,149)
Control variables							
GDP	0.00420*** (0.000410)	0.00304*** (0.000409)	0.00308*** (0.000409)	0.00176*** (0.000265)	0.00127*** (0.000266)	0.00244*** (0.000286)	0.00181*** (0.000286)
Federal expenditure	0.159 (0.136)	0.0667 (0.135)	0.0580 (0.135)	0.163* (0.0882)	0.120 (0.0879)	-0.00428 (0.0951)	-0.0617 (0.0945)
Poverty	0.599 (0.865)	0.656 (0.857)	0.721 (0.857)	-1.457*** (0.559)	-1.406** (0.557)	2.054*** (0.603)	2.125*** (0.599)
Constant	43.27** (21.76)	18.77 (21.58)	-0.799 (21.75)	54.06*** (14.07)	35.64** (14.14)	-10.70 (15.16)	-36.38** (15.20)
Observations	42,593	42,593	42,593	42,593	42,593	42,593	42,593
counties	2,840	2,840	2,840	2,840	2,840	2,840	2,840
R-squared	0.043	0.060	0.061	0.017	0.025	0.036	0.048

Notes: Standard errors in parentheses *** p < 0.01, ** p < 0.05, * p < 0.1.

is positively associated with total sector revenue. In Model 3, the R-squared is highest, suggesting Model 3 has the strongest depiction of the relationship between nonprofit density and sector revenue. In Model 3, the statistical significance of the density squared variable illustrates a non-linear (inverted U-curve) relationship between total revenue per capita and density. Similar increases in R-squared were observed for contribution and non-contribution dependent variables, but the intermediary model was removed for brevity.

H1 leads us to expect a statistically significant positive coefficient for the density variable in predicting contribution revenue, while H3 leads us to expect a statistically significant negative coefficient for the density-squared variable. Model 5 confirms both hypotheses. At mean density (0.00028), the predicted contribution revenue is \$128 per capita, all else being equal. Our results predict that contribution revenue per capita will continue increasing with density, but at a declining rate. For instance, as density increases by one standard deviation from the mean (to a density of 0.00050), the predicted contribution revenue increases to \$164.29 per capita, all else being equal. Predicted contribution revenue would continue increasing as density increases until the county hits a density of 0.0033. After this threshold, the predicted contribution revenue per capita begins declining.

Similarly, H2 leads us to expect a statistically significant positive coefficient for the density variable in predicting non-contribution revenue, while H4 leads us to expect a statistically significant negative coefficient for the density-squared variable. Consistent with Model 3 and 5, Model 6 confirms H2 and H4. At mean density (0.00028), the predicted non-contribution revenue is \$168.05 per capita, all else being equal. As with contribution revenue, our results predict that non-contribution revenue per capita will continue increasing with density, but at a declining rate. Using the same example, as density increases by one standard deviation from the mean (to a density of 0.00050), the predicted non-contribution revenue increases to \$216.59 per capita, all else being equal. Predicted non-contribution revenue would continue increasing as density increases until the county hits a density of 0.0029. After this threshold, the predicted non-contribution revenue per capita begins declining. In the next section, we expand on our explanation and interpret these findings.

Interpretation of results

All four hypotheses have been confirmed, answering our research question about the relationship between nonprofit density and nonprofit sector financial resources. At first, there is a positive relationship between density and sector

financial resources, presumably because underlying mechanisms such as solicitation, contract bidding, and entrepreneurship are in effect. But sector resources eventually hit a tipping point at which more nonprofits per capita cause sector resources to taper off and maybe even decline, presumably because of mitigating mechanisms such as crowd-out and transaction costs. To further interpret these results, we take a slightly larger than average county with a population of 100,000 as an example. In this county, imagine there are 28 human services nonprofits (density = 0.00028, which is the mean density). If an additional nonprofit were to enter the sector (for a total of 29 nonprofits), we would expect this organization to add approximately \$480,210, increasing the total sector revenue by that amount. If another organization were to enter (for a total of 30 nonprofits), we would expect this organization to add slightly less – approximately \$398,620 – increasing the total sector revenue by that amount. As more nonprofits enter, each would add slightly less to the sector's total resources than the one before. This would continue until the sector reaches 310 human services nonprofits. After 310 organizations had entered, total sector revenue would peak and the addition of more organizations would cause sector revenue to decline. Figure 4 depicts this relationship visually.

If higher nonprofit density results in more sector resources, but that effect diminishes after a certain threshold, it is worthwhile to determine where that threshold exists. Said another way, the implications of our models rely on an understanding of where the majority of counties fall on this curve. If most of them fall to the left of the sector revenue threshold, then increasing nonprofit density is still making a positive contribution to nonprofit sector capacity. This would suggest there is still more to be gained from the mechanisms that are increasing the size of the pie. On the other hand, if most counties fall to the right of the revenue threshold, then increased density is having a detrimental impact on sector revenue. This would suggest that the negative mechanisms of crowd-out and transaction costs are overwhelming the positive mechanisms, resulting in lower sector capacity. We find that less than one percent of counties in 2009 were past peak revenue, suggesting that increased density in the vast majority of counties is still having a positive impact on sector financial resources and the corresponding capacity to serve.

Limitations of the study

Quantitative studies of the nonprofit sector relying on IRS data are limited by the quality of that data; this study is no exception. In addition, we address two other limitations that put the study's findings in context. First, this research offers no

Figure 4: Marginal effects on model 3 for a county with population of 100,000.

empirical conclusion about whether the nonprofit trends identified (higher density and more, yet deescalating, sector revenue) are optimal. Our descriptive statistics show the median nonprofit is getting smaller, but our results suggest this more fragmented sector is able to procure more collective revenue than if crowding receded. We take no position on whether the revenue growth observed is “enough.” For instance, it would be natural to conclude that sector revenue growth caused by heightened density was “enough” if the average and median nonprofit sizes were maintained or growing. Our findings indicate that this is not the case. However, we also caution against prematurely dismissing the observed revenue growth as inconsequential. It may be that a more populous and fragmented nonprofit sector offers the greatest capacity to serve. Small, locally embedded nonprofits may be better equipped to both generate revenue from, and in return to also serve, their communities (Milbourne 2009). We leave it to policymakers and future researchers to evaluate whether the incremental sector revenue each new nonprofit delivers is ample.

Second, the empirical test conducted in this study does not test any particular mechanism that is causing nonprofit density’s curvilinear relationship with sector financial resources. In our literature review we provide five possible mechanisms (solicitation, contract bidding, entrepreneurship, crowd-out, and transaction costs) to derive hypotheses. We suspect that all of these mechanisms play a role in the observed relationship, but we leave it to future researchers to test that proposition. Even so, the current study overturns a long-held assumption that nonprofit sector resources are currently fixed. By itself, such a groundbreaking revelation has many important implications that we go on to explore in the next section.

Discussion of research implications

This is a study of nonprofit sector revenue and crowding. The traditional view is that a crowded nonprofit sector will face a set of fixed financial resources (Rose-Ackerman 1982). Our results invalidate this assumption, showing that there is an abundance of financial resources available to the nonprofit sector and increased density has the ability to increase sector resources, even if at a declining rate. Our results are supported by other studies including the work of Sargeant and Jay (2002). They find that after mergers between nonprofit organizations, donors who once gave to each organization will now only give to the new organization what they would have previously given to one, which effectively reduces total revenue and service capacity.

The result of this effect is a dense nonprofit sector filled with a large number of small nonprofit organizations. Some may argue that this is inefficient due to accumulated sector overheads and fundraising costs. For instance, Thornton (2006) shows that crowding leads to higher sector fundraising expenditures, but decreases the levels of fundraising effectiveness. We accentuate the other side of this argument, focusing on the financial benefits of a fragmented nonprofit sector. Some research suggests that the most small, niche charitable organizations are more efficient than larger, more product and geographically diversified charitable organizations (Kistruck, Qureshi, and Beamish 2013) and that density can increase fiscal efficiency (Guo and Brown 2006). There are merits to, and evidence for, the argument in favor of a concentrated sector with lower capacity and the argument in favor of a fragmented sector with greater capacity. More research should be conducted to examine, both normatively and empirically, the tradeoffs between efficiency, sector capacity, and organization size.

Though our study does not measure competition, we believe it says something noteworthy about the precursors to funding competition in the nonprofit sector. Nonprofit competition is a consequential and complex topic, and “before we can even engage in such a normative discussion, we need to understand something of the dynamics” (Ashley and Young 2014). We contribute to the understanding of competition dynamics. Competition is, in part, a response to a perception of scarcity, and as we show, sector financial resources are not fixed, meaning scarce, in the way researchers and practitioners tend to think of them. While our results show that the median nonprofit size is declining, which could cause competition, we also show that sector resources are increasing, which could lead to less “combative” competition (Ritchie and Weinberg 2000). In this way, our results concur with recent research on nonprofit competition

concluding that nonprofit crowding is not leading to intense competition (Harrison and Thornton 2014; Seaman, Wilsker, and Young 2014). While some organizations may be losing revenue, total sector revenue is benefiting from specialization and legitimacy (Paarlberg and Hwang 2017).

To the research on nonprofit competition, we add the suggestion that competition occurs in a process of structuration (Giddens 1984). Increased crowding of the nonprofit sector, a symptom of competition, leads to more financial resources, which in turn tempers competition, but also simultaneously leads to greater crowding. If, alternatively, crowding did not increase the size of the nonprofit financial pie, we would expect combative competition and less crowding because fewer nonprofits would enter the sector due to its hostility. Therefore, we submit that nonprofit competition does not occur in a linear manner, but rather a circular one where crowding begets tempered competition and tempered competition begets crowding. Testing such a circular relationship is a methodological challenge that future research must undertake.

Discussion of policy & nonprofit implications

The results of our study present policymakers with a choice between limiting market entry, which may limit the size of the nonprofit sector pie, and maintaining free market entry, which increases the size of the pie and arguably allows the sector to serve more people. We leave the final judgment to policymakers. However, we suggest that in a context where demand for nonprofit services seems to be never ending, serving more people at the expense of efficiency may be the best option. This is especially true as niche, locally based nonprofits may have the best handle on the needs of their beneficiaries and may be able to most effectively tailor their services to the population (Barman 2002; Galaskiewicz and Bielefeld 1998; Milbourne 2009). In the meantime, it seems there is little lost for most counties by maintaining free market entry. The vast majority of counties in the US are still far from reaching the sector revenue threshold and the marginal decreases from new entrants remain relatively minor.

Our findings also have implications for nonprofit managers. For their part, nonprofits must focus on manipulating the mechanisms described earlier that increase and decrease the size of the pie. By strategically choosing nonprofit revenue sources (Kearns et al. 2012), continuing to fundraise despite government funding (Andreoni and Payne 2011), and taking advantage of the solicitation

effect (Wiepking and Maas 2009), nonprofits can increase their organizational revenue and that of the sector.

Conclusion

We began this study skeptical of the assumption that nonprofit revenue is limited and that inefficiency is the only consequence of increased density. Because these assumptions have a significant impact on how policymakers respond to nonprofit crowding, we investigate it as an empirical question. Our results show that extraordinary levels of nonprofit density have the potential to reduce the financial resources available to the sector, but the vast majority of counties are currently far from that point. Current levels of nonprofit density are expanding sector resources and arguably the capacity to serve those in need. Much more research is needed to understand how the relationship between density and resources operates. We have proposed an initial set of mechanisms that serve and hinder this relationship, but we encourage more research examining how both nonprofit leaders and policymakers can maximize the size of the pie.

References

- Allison, P. D. 2009. *Fixed Effects Regression Models*. Thousand Oaks: Sage.
- Andreoni, J. 1990. "Impure Altruism and Donations to Public Goods: A Theory of Warm-Glow Giving?." *Economic Journal* 100 (401):464–477.
- Andreoni, J., and A. A. Payne. 2011. "Is Crowding Out Due Entirely to Fundraising? Evidence from a Panel of Charities." *Journal of Public Economics* 95 (5):334–343.
- Ashley, S., and D. R. Young. 2014. "Editors' Note to Special Symposium Issue on Nonprofit Competition." *Nonprofit Policy Forum* 5 (2):207–210.
- Barman, E. 2013. "Classificatory Struggles in the Nonprofit Sector the Formation of the National Taxonomy of Exempt Entities, 1969–1987." *Social Science History* 37 (1):103–141.
- Barman, E. A. 2002. "Asserting Difference: The Strategic Response of Nonprofit Organizations to Competition." *Social Forces* 80 (4):1191–1222.
- Basil, D. Z., N. M. Ridgway, and M. D. Basil. 2006. "Guilt Appeals: The Mediating Effect of Responsibility." *Psychology & Marketing* 23 (12):1035–1054.
- Battilana, J., M. Lee, J. Walker, and C. Dorsey. 2012. "In Search of the Hybrid Ideal." *Stanford Social Innovation Review* 10 (3):50–55.
- Bekkers, R., and P. Wiepking. 2010. "A Literature Review of Empirical Studies of Philanthropy: Eight Mechanisms that Drive Charitable Giving." *Nonprofit and Voluntary Sector Quarterly* 40 (5):924–973.

- Bell, J. 2010. "Financial Leadership in Nonprofit Organizations." In *The Jossey-Bass Handbook of Nonprofit Leadership and Management*, edited by D. O. Renz. Hoboken, NJ: John Wiley & Sons.
- Ben-Ner, A., and T. Hoomissen. 1992. "An Empirical Investigation of the Joint Determination of the Size of the For-Profit, Nonprofit and Government Sectors." *Annals of Public and Cooperative Economics* 63 (3):391–415.
- Blackwood, A. S., K. L. Roeger, and S. L. Pettijohn. 2012. *The Nonprofit Sector in Brief: Public Charities, Giving, and Volunteering*. Washington, D.C.: Urban Institute.
- Boris, E. T., and C. E. Steuerle. 2006. *Nonprofits and Government: Collaboration and Conflict*. Washington, D.C.: Urban Institute.
- Boyne, G. A. 1998. "Bureaucratic Theory Meets Reality: Public Choice and Service Contracting in US Local Government." *Public Administration Review* 58 (6):474–484.
- Brockner, J., B. Guzzi, J. Kane, E. Levine, and K. Shaplen. 1984. "Organizational Fundraising: Further Evidence on the Effect of Legitimizing Small Donations." *Journal of Consumer Research* 11 (1):611–614.
- Carroll, G. R., and M. T. Hannan. 1989. "Density Delay in the Evolution of Organizational Populations: A Model and Five Empirical Tests." *Administrative Science Quarterly* 34 (3):411–430.
- Chetkovich, C., and P. Frumkin. 2003. "Balancing Margin and Mission Nonprofit Competition in Charitable versus Fee-Based Programs." *Administration & Society* 35 (5):564–596.
- Cnaan, R. A., K. Jones, A. Dickin, and M. Salomon. 2011. "Nonprofit Watchdogs: Do They Serve the Average Donor?" *Nonprofit Management and Leadership* 21 (4):381–397.
- Corbin, J. J. 1999. "A Study of Factors Influencing the Growth of Nonprofits in Social Services." *Nonprofit and Voluntary Sector Quarterly* 28 (3):296–314.
- Egger, R. 2004. *Begging For Change: The Dollars And Sense Of Making Nonprofits Responsive, Efficient, And Rewarding For All*. New York: HarperCollins.
- Faulk, L. 2014. "Overcoming the Cause of Failure and the Role of Issue Salience: Toward a Comprehensive Theory for Nonprofit Activity and Competition in a Three-Sector Economy." *Nonprofit Policy Forum* 5 (2):335–365.
- Froelich, K. A. 1999. "Diversification of Revenue Strategies: Evolving Resource Dependence in Nonprofit Organizations." *Nonprofit and Voluntary Sector Quarterly* 28 (3):246–268.
- Galaskiewicz, J., and W. Bielefeld. 1998. *Nonprofit Organizations in an Age of Uncertainty: A Study of Organizational Change*. Piscataway, NJ: Transaction Publishers.
- Giddens, A. 1984. *The Constitution of Society*. Berkley, CA: University of California Press.
- Girth, A. M., A. Hefetz, J. M. Johnston, and M. E. Warner. 2012. "Outsourcing Public Service Delivery: Management Responses in Noncompetitive Markets." *Public Administration Review* 72 (6):887–900.
- Grønbjerg, K. A. 1993. *Understanding Nonprofit Funding: Managing Revenues in Social Services and Community Development Organizations*. San Francisco: Jossey-Bass.
- Grønbjerg, K. A., and L. Paarlberg. 2001. "Community Variations in the Size and Scope of the Nonprofit Sector: Theory and Preliminary Findings." *Nonprofit and Voluntary Sector Quarterly* 30 (4):684–706.
- Guci, L., C. I. Mead, and S. D. Panek. 2016. A Research Agenda for Measuring GDP at the County Level. Bureau of Economic Analysis.
- Guo, C., and W. A. Brown. 2006. "Community Foundation Performance: Bridging Community Resources and Needs." *Nonprofit and Voluntary Sector Quarterly* 35 (2):267–287.

- Hall, P. D. 2006. "A Historical Overview of Philanthropy, Voluntary Associations, and Nonprofit Organizations in the United States, 1600–2000." In *The Nonprofit Sector: A Research Handbook*, edited by W. W. Powell and R. Steinberg, 32–65. New Haven, CT: Yale University Press.
- Hannan, M. T., and J. Freeman. 1977. "The Population Ecology of Organizations." *American Journal of Sociology* 82 (5):929–964.
- Hansmann, H. 1987. "Economic Theories of Nonprofit Organization." In *The Nonprofit Sector: A Research Handbook*, edited by P. D. Hall and W. W. Powell, 27–42. New Haven, CT: Yale University Press.
- Harrison, T., and J. Thornton. 2014. "Too Many Nonprofits? an Empirical Approach to Estimating Trends in Nonprofit Demand Density." *Nonprofit Policy Forum* 5 (2):213–229.
- Harrison, T. D., and C. A. Laincz. 2008. "Entry and Exit in the Nonprofit Sector." *The B.E. Journal of Economic Analysis & Policy* 8 (1):1–40.
- Hoyman, M., J. McCall, L. Paarlberg, and J. Brennan. 2016. "Considering the Role of Social Capital for Economic Development Outcomes in U.S. Counties." *Economic Development Quarterly* 30 (4):342–357. doi:10.1177/0891242416659135.
- Kearns, K. P., D. Bell, B. Deem, and M. Lydia. 2012. "How Nonprofit Leaders Evaluate Funding Sources: An Exploratory Study of Nonprofit Leaders." *Nonprofit and Voluntary Sector Quarterly* 43 (1):121–143.
- Kennedy, P. 2003. *A Guide to Econometrics*. Cambridge, MA: MIT Press.
- Kistruck, G. M., I. Qureshi, and P. W. Beamish. 2013. "Geographic and Product Diversification in Charitable Organizations." *Journal of Management* 39 (2):496–530.
- Lecy, J. D., and D. M. Van Slyke. 2013. "Nonprofit Sector Growth and Density: Testing Theories of Government Support." *Journal of Public Administration Research and Theory* 23 (1):189–214.
- Leroux, K. M. 2005. "What Drives Nonprofit Entrepreneurship? A Look at Budget Trends of Metro Detroit Social Service Agencies." *The American Review of Public Administration* 35 (4):350–362.
- Marcuello, C. 1998. "Determinants of the Non-Profit Sector Size: An Empirical Analysis in Spain." *Annals of Public and Cooperative Economics* 69 (2):175–192.
- Marquis, C., G. F. Davis, and M. A. Glynn. 2013. "Golfing Alone? Corporations, Elites, and Nonprofit Growth in 100 American Communities." *Organization Science* 24 (1):39–57.
- Matsunaga, Y., and N. Yamauchi. 2004. "Is the Government Failure Theory Still Relevant? A Panel Analysis Using US State Level Data." *Annals of Public and Cooperative Economics* 75 (2):227–263.
- Milbourne, L. 2009. "Remodelling the Third Sector: Advancing Collaboration or Competition in Community-Based Initiatives?." *Journal of Social Policy* 38 (2):277–297.
- NCCS. 2016. National Center for Charitable Statistics.
- Okten, C., and B. A. Weisbrod. 2000. "Determinants of Donations in Private Nonprofit Markets." *Journal of Public Economics* 75 (2):255–272.
- Paarlberg, L. E., and H. Hwang. 2017. "The Heterogeneity of Competitive Forces: The Impact of Competition for Resources on United Way Fundraising." *Nonprofit and Voluntary Sector Quarterly* 46 (5):897–921.
- Paarlberg, L. E., and D. M. Varda. 2009. "Community Carrying Capacity: A Network Perspective." *Nonprofit and Voluntary Sector Quarterly* 38 (4):597–613.
- Paarlberg, L. E., and T. Yoshioka. 2016. "The Impact of Local Economic Structure on Community Philanthropy." *Public Administration Review* 76 (2):340–350.
- Pettijohn, S. L., E. T. Boris, C. J. De Vita, and S. D. Fyffe. 2013. *Nonprofit-Government Contracts and Grants: Findings from the 2013 National Survey*. Washington, D.C.: Urban Institute.

- Ritchie, R. J. B., and C. B. Weinberg. 2000. "A Typology of Nonprofit Competition: Insights for Social Marketers." *Social Marketing Quarterly* 6 (3):64–71.
- Roeger, K. L. 2010. *Small Nonprofit Organizations. A Profile of Form 990-N Filers*. Washington, D.C.: Urban Institute.
- Rose-Ackerman, S. 1982. "Charitable Giving and "Excessive" Fundraising." *The Quarterly Journal of Economics* 97 (2):193–212.
- Salamon, L. M. 1994. "The Rise of the Nonprofit Sector." *Foreign Affairs* 73 (4):109–122.
- Salamon, L. M. 1999. "The Nonprofit Sector at a Crossroads: The Case of America." *Voluntas: International Journal of Voluntary and Nonprofit Organizations* 10 (1):5–23.
- Sargeant, A., and E. Jay. 2002. "The Role of Funders in Nonprofit Merger Activity: Implications for Charity Fundraising and Marketing Practice." *Journal of Marketing Management* 18 (9–10):953–970.
- Savas, E. S. 2002. "Competition and Choice in New York City. Social Services." *Public Administration Review* 62 (1):82–91.
- Schiff, J., and B. Weisbrod. 1991. "Competition Between For-Profit And Nonprofit Organizations In Commercial Markets." *Annals of Public and Cooperative Economics* 62 (4):619–640.
- Seaman, B. A., A. L. Wilsker, and D. R. Young. 2014. "Measuring Concentration and Competition in the US Nonprofit Sector: Implications for Research and Public Policy." *Nonprofit Policy Forum* 5 (2):231–259.
- Steinberg, R. 1991. "Does Government Spending Crowd Out Donations?." *Annals of Public and Cooperative Economics* 62 (4):591–612.
- Stock, J. H., and M. W. Watson. 2011. *Introduction to Econometrics*, 3rd ed. MA: Addison Wesley.
- Thornton, J. 2006. "Nonprofit Fund-Raising in Competitive Donor Markets." *Nonprofit and Voluntary Sector Quarterly* 35 (2):204–224.
- Twombly, E. C. 2003. "What Factors Affect the Entry and Exit of Nonprofit Human Service Organizations in Metropolitan Areas?." *Nonprofit and Voluntary Sector Quarterly* 32 (2):211–235.
- Van Slyke, D. M. 2003. "The Mythology of Privatization in Contracting for Social Services." *Public Administration Review* 63 (3):296–315.
- Vesterlund, L. 2006. "Why Do People Give." *The Nonprofit Sector: A Research Handbook* 2:168–190.
- Von Kotzebue, A., and B. U. Wigger. 2010. "Private Contributions to Collective Concerns: Modelling Donor Behaviour." *Cambridge Journal of Economics* 34 (2):367–387.
- Weisbrod, B. A., and N. D. Dominguez. 1986. "Demand for Collective Goods in Private Nonprofit Markets: Can Fundraising Expenditures Help Overcome Free-Rider Behavior?." *Journal of Public Economics* 30 (1):83–96.
- Wiepking, P., and I. Maas. 2009. "Resources that Make You Generous: Effects of Social and Human Resources on Charitable Giving." *Social Forces* 87 (4):1973–1995.
- Wooldridge, J. M. 2010. *Econometric Analysis of Cross Section and Panel Data*. Cambridge, MA: MIT Press.
- Wooldridge, J. M. 2015. *Introductory Econometrics: A Modern Approach*. Toronto, Canada: Nelson Education Ltd.