

A Field Too Crowded? How Measures of Market Structure Shape Nonprofit Fiscal Health

Nonprofit and Voluntary Sector Quarterly
2018, Vol. 47(3) 453–473
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sagepub.com/journalsPermissions.nav
DOI: 10.1177/0899764018760398
journals.sagepub.com/home/nvs



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Abstract

This article explores how various dimensions of market structure, often used to measure organizational crowding, affect the fiscal health of nonprofit organizations. Using 2011 National Center for Charitable Statistics (NCCS) nonprofit sector data, our findings generally support population ecology's model of a curvilinear relationship between density and days of spending. However, we also find that single dimensions of market structure do not fully capture the effects of market competition. Increasing density has a negative effect on the fiscal health of organizations in markets in which resources are more evenly distributed among actors, whereas increasing density of organizations has a positive effect on organizational fiscal health in markets in which resources are less evenly distributed among actors. These results are sensitive to different specifications of fiscal health and field of nonprofit activity.

Keywords

carrying capacity, population ecology, market structure, fiscal health, empirical

Introduction

Are there too many nonprofits? America's nonprofit sector has steadily increased in size over the past century, raising concerns about the effect of this growth on the financial sustainability of the sector. McLaughlin (2010, p. xvi) argued that the rapid

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growth of the nonprofit sector has weakened the “collective power of the entire field,” whereas Callahan (2015) raised concerns that few nonprofits can ever reach the scale needed to make an impact. Concerns about competitive pressures push nonprofits to collaborate (Gazley & Guo, 2015), consolidate (Seaman, Wilsker, & Young, 2014), and merge (La Piana, 2010)—in part to achieve better economies of scale (Egger, 2012). Although scholars and practitioners have wrestled with various aspects of whether we have “too many” nonprofits, questions remain about how we measure crowding and how we analyze the effects of a growing field. For example, Harrison and Thornton (2014) suggested that before declaring a crowded *supply* of nonprofits, one must carefully examine changing dimensions of the *demand* for nonprofits. Anheier (2014) argued that a careful study of growth trends supports the case, at least in the United States, that we may not have exceeded our *carrying capacity* or “the number of organizations that can be supported by the social, economic, and political conditions, given available resources” (pp. 281-282).

The theoretical intuition behind these arguments is equally conflictual (see Saxton & Benson, 2005). On one hand, increasing organizational growth and density may present benefits, such as legitimation (Hannan & Freeman, 1987) and cooperation (Barnett & Carroll, 1987), for the field as a whole. Furthermore, although density may be one important predictor of organizational health within a market, other dimensions of market structure, such as the even or uneven distribution of resources, may also affect organizational performance. On the other hand, a growing number of organizations may partition a limited pool of resources and fuel competition, leading to increased costs of securing resources and diminished resources for the population (e.g., G. R. Carroll & Hannan, 1989).

Extending earlier work on carrying capacity (Paarlberg & Varda, 2009) and nonprofit demand (Christensen, Nesbit, & Bullock, 2012), our purpose is to supply the field with an empirical analysis of whether we have too many nonprofits. Building on recent research that draws our attention beyond using simple density measures to describe the size of the nonprofit environment in a particular market, such as a county or an Metropolitan Statistical Area (MSA) (Seaman et al., 2014; Walsh, 2013), our research contributes to the question of sector sustainability by exploring how nonprofit density and concentration affect organizational-level financial performance. Although there are numerous studies of the determinants of nonprofit fiscal health, a limited number of studies incorporate contextual measures (D. A. Carroll & Stater, 2009; Lam & McDougle, 2016; Prentice, 2016a). As Prentice (2016a) observed, most studies of organizational fiscal health focus on intraorganizational determinants of fiscal health, largely ignoring the context in which nonprofits operate. We could find only one nonprofit study that incorporates measures of the nonprofit market structure into such analysis.

Our research does not attempt to identify the determinants of fiscal health. Instead, our research offers three contributions to the study of nonprofit competition and sectoral carrying capacity. First, we distinguish between two measures of nonprofit structure—the density of nonprofit organizations and the concentration of resources among organizations in the field. Although Prentice (2016a) incorporated a measure of competition, organizational density, into his model of fiscal health, we test the

heterogeneous effects of density and evenness of resource distribution. Second, in contrast to a growing body of literature that explores the relationships between field crowding and organizational birth or death (e.g., G. R. Carroll & Hannan, 1989; Fernandez, 2008; Hannan & Freeman, 1987; Saxton & Benson, 2005; Sorenson & Audia, 2000; Soule & King, 2008), our model explores how density and organizational evenness affect organizational health. Third, we test the robustness of our results by comparing the results between two measures of fiscal health and across fields of activity.

We begin by distinguishing between two dimensions of market structure and then draw upon population ecology to make the case for how the density of nonprofits and resource distribution within nonprofit markets affect fiscal health of organizations within a market. Using the National Center for Charitable Statistics (NCCS) nonprofit sector data, we test the cross-level relationships between market structure and organization-level fiscal health. Although our findings generally support population ecology's model of a curvilinear relationship between density and fiscal health, we find a positive relationship between monopolistic markets and months of spending. Furthermore, we find that single dimensions of market structure do not fully capture the effects of market competition. Increasing density has a negative effect on the months of spending of organization in markets in which resources are evenly distributed among actors. However, in oligopolistic markets in which resources are unevenly distributed among actors, increasing density of organizations has a positive effect on months of spending. Finally, testing these effects across fields of activity and alternative measures of fiscal health suggests that the effects of competition are heterogeneous across fields and dependent variables.

Measuring the Structure of the Nonprofit Sector

How large is the nonprofit sector? How crowded is the field? Although politicians and journalists have argued, "there are way too many nonprofits" (Callahan, 2015), until recently, there have been limited scholarly attempts to measure the structural characteristics and the effects of structure on performance (e.g., Ritchie & Weinberg, 2000; Seaman et al., 2014). Some of this is understandable. It is difficult to measure the structure of nonprofit markets with a single indicator or index.

Nevertheless, many useful studies have focused on *density*—or number of organizations in a particular market—as a way to capture, for example, the health and vitality of a sector segment (e.g., Grønbjerg & Paarlberg, 2001; Lacey & Van Slyke, 2013). Some scholars reinforce the notion of density as an indicator of market vitality noting its positive relationship with externalities that benefit nonprofit markets (Eckel & Steinberg, 1993). Other researchers have countered by suggesting that organizational density should be examined in light of other key market dynamics. Harrison and Thornton (2014) argued, for example, that when demand (population, income, etc.) is taken into account, the density of the nonprofit market has "merely kept pace with a growing demand for nonprofit services" (p. 214).

Lecy and Van Slyke's (2013) study of the growth of human service organizations concluded "more research is needed to fully disentangle the relationship between the number of nonprofits in a community and the distribution of resources across different-sized organizations" (p. 207). As a result, scholars have begun to distinguish between the number and density of organizations and the "distribution of resources across those organizations" (Seaman et al., 2014, p. 231).

Although less frequently used to study the structure of the nonprofit sector, scholars employ a variety of diversity indices across disciplines to capture the extent to which resources are distributed evenly or, in the inverse, concentrated unevenly. For example, Simpson's index has long been used in ecology, the Herfindahl-Hirschman index in economics, and the Blau index in psychology. Seaman et al.'s (2014) work measured the extent to which total expenditures within various National Taxonomy of Exempt Entities (NTEE) categories were evenly distributed or shared among nonprofits within that same category within the largest MSAs. They discovered that the majority of markets demonstrated uneven distribution of resources across same-type nonprofits. Markets in which resources are concentrated among a limited number of organizations are monopolistic.

Although these two dimensions can be used to describe market structure, others observe that market structure is multidimensional. Seaman et al. (2014) noted some markets that are densely populated exhibit an even distribution of resources within that market, whereas others may exhibit uneven distribution of resources. Markets in which competition is limited because a small number of organizations control market share are described as oligopolistic. Recognizing density as a focus of interest, Walsh (2013) similarly recognized that the composition of a nonprofit market reflects organizational density *and* organizational evenness. A simple density measure might hide, for example, aspects of resource distribution that are harmful to, or unevenly favor, a particular subset of organizations.

The Effect of Density and Concentration From an Ecological Perspective

Scholars drawing upon population ecology are interested in the relationship between field structure and the founding or death of organizations in the field. Population ecology assumes that scarce resources in a local environment determine the carrying capacity of a particular community of organizations—the number of organizations the community can support over time. In a given space, nonprofit organizations compete for funds, members, and prestige (Soule & King, 2008). Scholars adopting a population ecology framework have used both density and evenness of resource distribution to explore the effects of market structure on performance.

Density appears to generate two competing processes: "legitimation," which spurs organizational births and tempers organizational failures, and "competition," which tends to inhibit the creation of new organizations while forcing less viable organizations to drop out of the market (Hannan & Freeman, 1987). At low levels of organizational density, legitimation processes dominate, causing high death rates until the field becomes "legitimate," a transition point marked by declining death rates and increasing

birth rates. At significantly higher levels of organizational density, competition for resources increases. Existing organizations divide a limited pool of resources (Baum & Singh, 1994), depleting the supply of members, patrons, and resources (Barron, West, & Hannan, 1994; Nownes, 2004; Soule & King, 2008). A central finding of population ecology research is that organizational density (usually operationalized with a curvilinear specification) captures the legitimation processes in the early history of an organizational population and competitive dynamics as the field grows.

Although many empirical studies focus on the relationships between density and organizational mortality (birth and death), density may also affect organizational performance (Seaman et al., 2014). In a study of credit unions, Barron et al. (1994) found that density affects organizational growth (measured by growth in assets), just as it affects founding rates. Credit unions founded during times of high density had permanently lowered asset growth rates. The asset growth rates of credit unions founded at times of peak density were 18% lower than the asset growth rates of credit unions founded at minimum density. Alternatively, Wholey Feldman, Christianson, and Engberg (1996) posited that organizations, in this case Health Maintenance Organization's, operating in high-density fields have greater incentives to manage costs and, therefore, will be more efficient. As the number of nonprofits increases, they may be more likely to spend more money on fundraising (Eckel & Steinberg, 1993; Harrison & Thornton, 2014). In a study of community foundations, Guo and Brown (2006) found that organizations operating in less dense environments are more generous grant makers. However, Prentice (2016a) found no evidence that nonprofit density dampens the financial health of human service nonprofits in a community.

Moving away from the effects of density, there is some evidence that the distribution of resources among organizations in a market affects organizational performance. Although monopolies are often associated with market failures, concentrated markets in which a few large firms control resources may produce economies of scale. One large firm may be able to produce product at a lower cost than a combination of small- and average-sized firms. G. R. Carroll (1985) posited that in markets dominated by a few large organizations, direct competition between large and small organizations is minimized, benefiting all organizations in the market.

Most studies of organization population dynamics focus solely on organizational birth and death rates and do not provide an understanding of how the organizational environment affects the population's financial health—a potentially critical predictor of nonprofit organizational death (Lecy & Searing, 2015; Tuckman & Chang, 1991). Our review leads us to three research questions:

Research Question 1: How does organizational density affect the fiscal health of an individual organization?

Research Question 2: How does the distribution of resources affect the fiscal health of an individual organization?

Research Question 3: How does the distribution of resources moderate the relationship between organizational density and fiscal health?

To test the robustness of our findings, we compared the results of these basic models across measures of fiscal health and subfields. Our focus on fiscal health greatly contributes to normative and policy issues pertaining to how the rapid growth in the number of nonprofit organizations affects the carrying capacity of the nonprofit sector.

Method

Our research questions necessitated an analysis of the effect of market structure on organizational performance. Our analyses incorporated both organizational measures and county-level measures, drawing upon multiple sources of data. Although nonprofit organizations may operate across multiple geographic contexts, counties are often key boundaries for a great deal of social and economic activity (e.g., Polson, 2017). Since the 1980s, counties have increasingly assumed greater authority and discretion to provide a broader array of services across a variety of policy areas (Percival, Johnson, & Neiman, 2009). We excluded hospitals and universities as many operate in regional or even national markets. We used the nonprofit Core Financial Files, available from the NCCS, to measure organizational characteristics.

Data

The data in the Core Financial Files were extracted from the Internal Revenue Service (IRS) Form 990—the annual tax form that nonprofit organizations submit to the IRS. The Core Files contain basic organizational information and more than 60 financial variables from the Form 990 for all nonprofit organizations required to file the Form 990. Although the Core Files include fewer financial variables than other files, the Core File compilation includes more organizations, particularly smaller organizations. It is important to note that our decision to use the Core Files, which contains all nonprofits reporting more than US\$50,000 in annual revenue, reflected our interest in capturing the effect of market structure on all financially active organizations, rather than a select sample of only the largest organizations. However, as we note later, this decision affected the interpretation of our dependent variable.

The 2011 data set originally contained 326,537 organizations. However, we excluded 28,960 organizations due to missing data and negative assets and expenditure data. We also excluded hospitals and universities because of the undue influence they may have on measures of operating margins in small counties—5,807 organizations. We also excluded any organizations that have no geographic county identifier (Federal Information Processing Standards [FIPS] code)—450 organizations. Our final analysis included 291,320 nonprofit organizations across 3,141 counties in the United States.

Using the FIPS code for each organization, we matched county-level market measures and demographic profiles—poverty rates, population, and so on—to each organization in the sample. We created measures of county-level market structure from the Core Files (NCCS). We obtained the 5-year (2008-2012) estimated demographic data at the county level from American Community Survey (ACS), which we extracted

from the U.S. Census Bureau. We describe all the variables used in the analysis in the following section.

Variables

Dependent variable. Nonprofit researchers use a variety of variables to measure the fiscal health of the nonprofit sector (Prentice, 2016b). Lam and McDougle (2016) found some differences in the effect of contextual variables across diverse measures of fiscal health. We used two measures of organizational fiscal health as dependent variables. The first measure was months of spending (Bowman, 2011; Prentice, 2016b). To get this measure, we first calculated solvency by subtracting a nonprofit's end-of-year liabilities from its end-of-year total assets and divided it by the organization's total expenditures. Multiplying this number by 12 yielded the months of spending variable, and it provided an indicator of how long an organization could continue to operate in the absence of new income and provides one indicator of short-term resilience (Bowman, 2011). Our formula is as follows:

$$\text{Months of Spending} = 12 \times \left(\frac{\text{EOY total assets} - \text{EOY liabilities}}{\text{EOY total expenditures}} \right).$$

Our use of the Core Files implies limitations in this measurement, which should be noted. Total assets as reported in the Core Files include both restricted and unrestricted assets, as well as assets that organizations cannot easily liquidate, such as real estate. In addition, measures of months of spending generally relate net assets to spending on operations. Core Files do not distinguish between program and administrative expenses. To test the robustness of this measure, we constructed a measure of months of spending using data from the full 2012 files available from NCCS. Our comparison measure excluded lands/buildings and depreciation; however, the 2012 file omits a significant number of organizations. Nevertheless, we found that the two measures are correlated at .95, reducing our concerns about the potential effect of nonliquid assets in our analysis. Because the values of this measure are highly skewed, we log transformed this variable.¹ The mean log of months of spending is 2.59, which corresponds to 13.33 months of spending (see Table 1).

To test whether our findings are robust across different measures of fiscal health and different types of organizations, we used a second measure of fiscal health—savings ratio. Savings ratio was calculated as net income (revenue – expenditures) divided by total expenditures (Prentice, 2016b). The variable was also log-transformed due to high skewness.

Independent variables: Nonprofit structure. We included two county-level measures of market structure: the density of nonprofit organizations in each county and the degree to which resources were evenly distributed across nonprofit organizations in the county (Blau index). To quantify sector size, we used a measure of nonprofit density.

Table 1. Summary Statistics of Variables.

Variable	Observation	<i>M</i>	<i>SD</i>	Minimum	Maximum
Months of spending, logged	291,320	2.59	1.62	-8.05	15.97
Savings ratio, logged	302,106	2.30	0.28	-10.64	14.90
Density per 1,000 population	305,716	1.32	0.83	0.02	12.66
Blau Index	305,716	0.90	0.13	0	0.99
Population, logged	305,716	12.85	1.56	5.86	16.10
Per capita income, logged	305,716	10.30	0.26	8.77	11.06
Location (Urban = 1)	305,716	0.88	0.33	0	1
% adults in poverty	305,716	13.55	4.96	2.52	59.68
Organization size, logged	305,716	12.02	2.75	0	23.67
Organization age	305,716	19.16	16.18	0	111

This measure captured how many nonprofit organizations existed in each county with respect to the county's population. We created this variable by dividing the number of nonprofits in the county (source: 2011 Core Files) by total county population (source: U.S. Census) and then multiplying by 1,000. Thus, our density measure represents the number of nonprofits per 1,000 people in a county. Mean density was 1.316 organizations per 1,000 population.

We used the Blau index as a measure of the evenness of nonprofit expenditures in a county. The formula for the Blau index is

$$\begin{aligned} \text{Blau index} &= 1 - \sum (\text{organization share of nonprofit expenditures in county})^2 \\ &= 1 - \sum \left(\frac{\text{expenditures}_i}{\text{total expenditures}_j} \right)^2, \end{aligned}$$

where *i* represents an individual nonprofit and *j* represents nonprofits aggregated at the county level. The Blau index ranges from 0 to 1. A value of 1 on the Blau index indicates that expenditures are distributed evenly across nonprofits in the county. A Blau index close to 0 indicates that nonprofits in the county have uneven levels of expenditures—a few larger organizations dominate expenditures in the market. The average organization was located in a county with a Blau index of .90, suggesting that, on average, organizations are located in counties with an even distribution of resources. The Blau index is complementary to the Herfindahl–Hirschman index, which is also used in studies of market structure (Seaman et al., 2014). Conceptually, a high Blau index, or a more even distribution of resources, implies greater competition for resources; whereas a low Blau index (a concentration of resources within a few, very large organizations) may suggest lower levels of resource competition, which economists describe as oligopolistic.

We also note that multiple disciplines have investigated the concepts of density and even distribution of resources—many adopting their own terms. For example, what we term density—the number of organizations in a market or geography—others call

concentration or crowding. What we conceptualize as an even distribution of resources, others term a competitive, diversified, or equitable market. So too, the measures used to operationalize these concepts vary. Our measure of density is rather straightforward: the number of nonprofit organizations per 1,000 people in a county—our market of interest. For readers from other traditions, a Blau index is equivalent to the probability of interspecific encounter (PIE), Gini–Simpson index, or Gibbs–Martin index. We selected the Blau index for its more intuitive interpretation; a high score on the Blau index indicates greater competition for resources.

Control variables. We included control variables at both the organization and county level. The first organization-level control variable was organization size, as measured by an organization's total assets. The mean of the logged size variable (as represented by organizational assets) was 12, which corresponds to about US\$162,755 in organizational assets. The second variable was organization age, which is the number of years since the organization received tax-exempt status from the IRS. Average organization age was 19 years. Age and size are both reputation measures of organizational performance and both are indicators of access to capital, financial flexibility, and economies of scale (Zietlow, 2012).

At the county level, we included four controls: per capita income for the county, percentage of people between the age of 18 and 64 years who were below the poverty line, total county population, and urban status. These environmental factors have been found to be strong predictors of organizational fiscal health in other studies (D. A. Carroll & Stater, 2009; Lam & McDougale, 2016; Prentice, 2016a). We logged both income and total population because of the skewed nature of these variables. Urban status was a binary variable and was coded as 1 if a county had 50,000 or more individuals, following the definition from the U.S. Census.² In our models we account for inflation by reporting all financial variables in 2015 dollars.

Table 1 shows the descriptive statistics for the variables in our model.

Analysis

We note that our sample was hierarchically structured, consisting of nonprofit organizations nested within counties. With hierarchically structured data, traditional ordinary least squares (OLS) regression often produces downward-biased standard errors, which may lead to exaggerated test statistics (Moulton, 1990). Because of this, we first attempted to use multilevel modeling techniques in analyzing the data, thereby estimating the average variations between groups, in our case, the counties.

In our initial analysis with the multilevel modeling approach, the estimated results showed an intraclass correlation of .01 or .02 across the models. This means that the average correlation of nonprofit organizations' fiscal health within counties was very low, indicating that each nonprofit organization's fiscal health provided unique information. With low intraclass correlation, there was diminished need to use multilevel modeling because the difference between multilevel and traditional regression models was negligible, and in that case, estimated standard errors were less likely to be biased.

Table 2. OLS Regression Estimates: The Relationship Between Market Structure and Nonprofit Months of Spending.

	Model 1	Model 2	Model 3	Model 4
Density	-0.044* (0.021)	0.065* (0.029)	-0.044* (0.021)	0.142* (0.063)
Blau index	0.001 (0.054)	-0.032 (0.059)	0.219 (0.229)	0.226** (0.081)
Density squared		-0.018** (0.004)		
Blau index squared			-0.158 (0.182)	
Blau Index × Density				-0.206** (0.074)
Population, logged	-0.066** (0.012)	-0.060** (0.012)	-0.065** (0.012)	-0.067** (0.012)
Income, logged	-0.122* (0.062)	-0.201** (0.055)	-0.121 [†] (0.062)	-0.095 (0.062)
Location (Urban = 1)	-0.143** (0.028)	-0.140** (0.027)	-0.143** (0.028)	-0.142** (0.027)
% poverty	-0.014** (0.002)	-0.015** (0.002)	-0.014** (0.002)	-0.013** (0.002)
Size of organizations, logged	0.264** (0.003)	0.264** (0.003)	0.264** (0.003)	0.264** (0.003)
Age of organizations	-0.003** (0.000)	-0.003** (0.000)	-0.003** (0.000)	-0.003** (0.000)
Constant	1.949** (0.556)	2.638** (0.504)	1.857** (0.575)	1.465* (0.592)
R ² overall	.1984	.1987	.1984	.1985
N	291,320	291,320	291,320	291,320

Note. Clustered robust standard errors (by county) in parentheses. OLS = ordinary least squares.
[†] $p < .10$. * $p < .05$. ** $p < .01$ (two-tailed test).

We, therefore, used OLS regression to estimate our models, with clustered robust standard errors at the county level, instead of multilevel techniques.

Our analysis proceeded in several steps. First, using OLS regression, we tested the linear relationships between county density, unevenness, and organizational fiscal health (Model 1 in Tables 2 and 3). Then we introduced quadratic terms for both independent variables (Models 2 and 3 in Tables 2 and 3) and tested the interaction effect between density and evenness (Model 4 in Tables 2 and 3). It is important to note throughout our description of results that the relationships that we describe are correlations, and without introducing more stringent tests of our model, we cannot imply causation. It is possible that the fiscal health of local organizations shapes the attractiveness and thus the structure of the market for other organizations.

Table 3. OLS Regression Estimates: The Relationship Between Market Structure and Savings Ratio.

	Model 1	Model 2	Model 3	Model 4
Density	-0.014** (0.003)	-0.016* (0.006)	-0.014** (0.003)	0.026 (0.017)
Blau index	-0.030* (0.015)	-0.029† (0.015)	-0.102 (0.072)	0.018 (0.022)
Density squared		0.000 (0.001)		
Blau Index squared			0.052 (0.051)	
Blau Index × Density				-0.044* (0.019)
Population, logged	-0.012** (0.002)	-0.012** (0.002)	-0.012** (0.002)	-0.012** (0.002)
Income, logged	-0.009 (0.016)	-0.007 (0.016)	-0.009 (0.016)	-0.003 (0.015)
Location (Urban = 1)	-0.013* (0.006)	-0.013* (0.006)	-0.013* (0.006)	-0.013* (0.006)
% poverty	-0.002** (0.001)	-0.002** (0.001)	-0.002** (0.001)	-0.001* (0.001)
Size of organizations, logged	0.025** (0.001)	0.025** (0.001)	0.025** (0.001)	0.025** (0.001)
Age of organizations	-0.003** (0.000)	-0.003** (0.000)	-0.003** (0.000)	-0.003** (0.000)
Constant	0.129 (0.153)	0.114 (0.156)	0.159 (0.158)	0.026 (0.151)
R ² overall	.0107	.0107	.0107	.0107
N	303,204	303,204	303,204	303,204

Note. Clustered robust standard errors (by county) in parentheses. OLS = ordinary least squares.
 †*p* < .10. **p* < .05. ***p* < .01 (two-tailed test).

Results

Table 2 shows the relationship between market structure and nonprofit months of spending.

In Model 1, nonprofit density was negatively associated with organization months of spending ($\beta = -.044$; $p < .05$). Holding other variables constant, a one-unit increase in nonprofit density, or the addition of one nonprofit per 1,000 people in the county, was associated with a 4.4% decrease in months of spending. The Blau index in the model, however, was not statistically significant. Model 2 tested the potential nonlinear relationship between nonprofit density and organization months of spending, adding the quadratic term to Model 1. Although the Blau index was still not

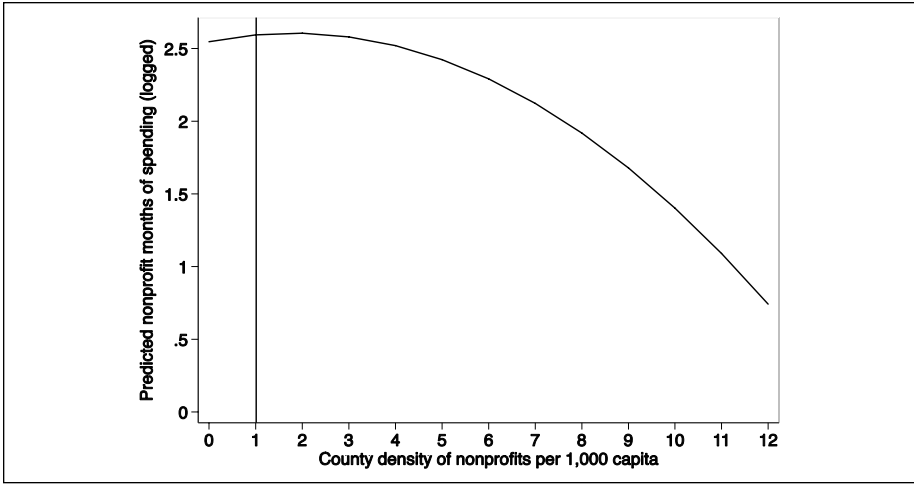


Figure 1. Predictive margins of nonprofit density (organizations per county) on months of spending.

statistically significant in Model 2, the coefficients for density and density squared were statistically significant. This indicates that density had a nonlinear relationship with the log of organization months of spending, first positive and then negative; density was positively related to the log of months of spending ($\beta = .065$; $p < .05$) and density squared was negatively related to the log of months of spending ($\beta = -.018$; $p < .01$).

This finding suggests that the effect of density on months of spending changes across different levels of organizational crowding. Figure 1 shows this nonlinear relationship. Increasing density had a positive effect on months of spending at lower levels of density and then a negative effect on months of spending as density increased. When we optimized the regression equation (taking the first derivative of the regression equation and setting it equal to zero), the optimal nonprofit capita by county per 1,000 people was 1.78, all else being equal. In other words, in our sample, once the nonprofit density exceeded 1.78, months of spending decreased. The average organization in our sample was located in a county with mean density of 1.32. The average organization was functioning on the left side of the inverted U-shape, meaning that they were operating in an environment in which density had a positive effect on months of spending. Only 10% of the counties had densities greater than 1.78. The vertical line represents average county density.

Model 3 in Table 2 investigates the nonlinear relationship between the Blau index and nonprofit months of spending. We again found no statistically significant relationship between evenness of resources and nonprofit months of spending. Although both the Blau index and its squared term did not meet the conventional statistical threshold in the model, it would be premature to conclude no statistical significant relationship

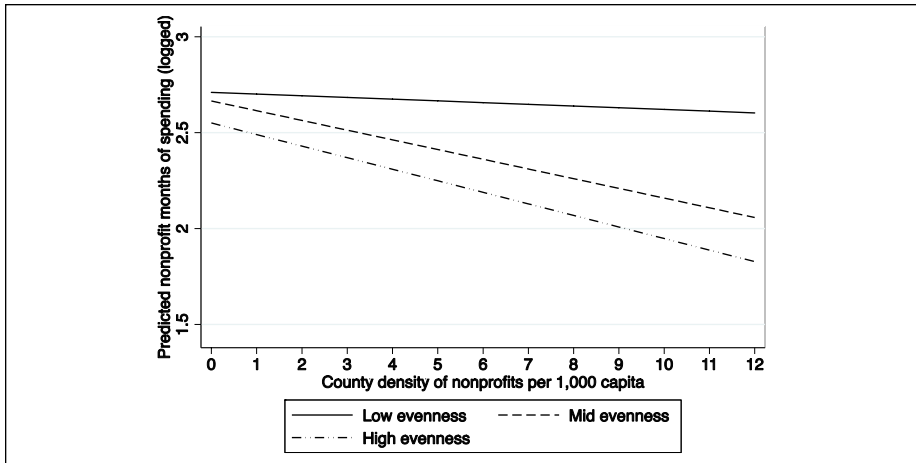


Figure 2. Predicted margins of nonprofit density (organizations per county) on nonprofit months of spending conditioned on Blau index.

between the two. We further explored this relationship by interacting the Blau index with nonprofit density.³ In Model 4, the interaction term between nonprofit density and the Blau index was statistically significant, suggesting that the effect of each term varied over the value of the other term. As it is difficult to interpret the individual coefficient of an interaction term between two continuous variables, we used a figure to visualize these relationships.

Figure 2 depicts the relationships between market structure and months of spending across three levels of market structure. Low and high evenness indicate the bottom and top quartiles, respectively, and medium evenness includes all values in between (middle two quartiles). In the predictive margins plot, at all levels of county market density, increasing density had a negative effect on nonprofit organizations located in counties with medium and higher levels of evenness. Increasing density had a stronger negative effect on organizations in markets with the most equal distribution of resources. In contrast, increasing density had a positive effect on months of spending of organizations located in markets with more concentrated resources, all else being equal. In other words, increasing organizational density had a positive effect in more monopolistic (or less competitive) markets, whereas density had a negative effect on fiscal health in markets that are more competitive.

In terms of our control variables in Table 2, organization size ($\beta = .264$; $p < .01$) was positively related to months of spending in all models; whereas organization age ($\beta = -.003$; $p < .01$) was negatively related to months of spending. All county controls (income, poverty, population, and urban status) had negative relationships to fiscal health and were mostly statistically significant at the conventional levels.

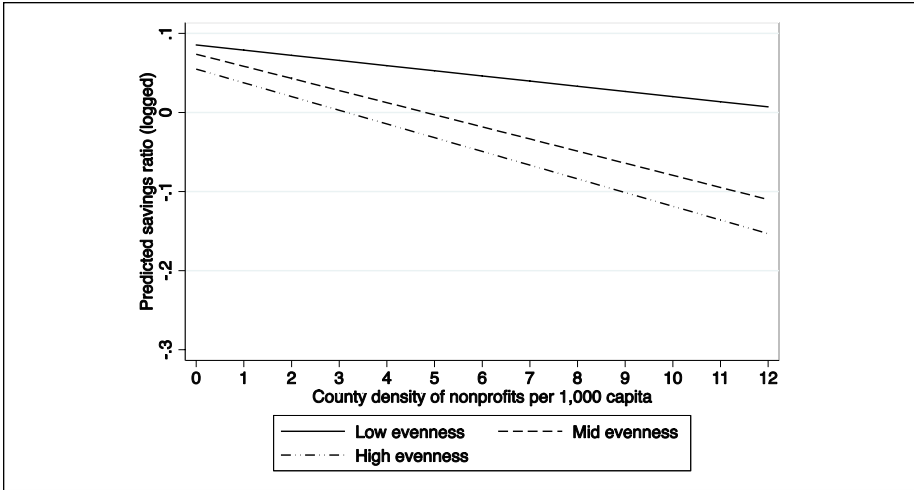


Figure 3. Predictive margins of nonprofit density (organizations per county) on savings ratio conditioned on Blau index.

Robustness Checks Across Diverse Measures of Fiscal Health and Field of Activity

To test whether our findings were robust across different measures of fiscal health and different types of organizations, we ran two more models. First, we tested for the effects of market structure on a second dependent variable—savings ratio. We found that the relationship between market structure and savings ratio was slightly different from the effects on months of spending.

Density and evenness had a negative, linear relationship with savings ratio. At no point did increasing market competition have a positive effect on savings ratio. However, the effect of the interaction between evenness and density was similar for months of spending and savings ratio (see Figure 3).⁴ The negative effect of density on both dependent variables was the strongest in those counties with medium to high evenness. These findings are important because they suggest that the effects of competition can vary not only across measures of competition but also across measures of financial health. It is also important to note that other contextual effects can also have different effects on varying financial health measures. Specifically, in Table 3, community income was not statistically significant in the face of market concentration.

Next, we tested how the effects of market structure held across diverse fields, as nonprofits operating across diverse fields face different financial constraints (D. A. Carroll & Stater, 2009). For example, D. A. Carroll and Stater (2009) found that arts organizations have lower levels of revenue vitality. Revenue structures and the effect of environment on those revenue structures are likely to differ based on the type of work organizations do. The most common way to identify nonprofit field of activity is

Table 4. Summary of Each Model of Months of Spending Across Subsectors.

Models	Art	Education	Environment	Human services	Others
Model 1: Linear model					
Density	-.127**	-.001	-.111*	-.001	-.079**
Blau Index	-.263†	-.239*	.343*	.068	.036
Model 2: Nonlinear model (density)					
The linear term	-.247**	.242**	-.015	.080**	.037
The squared term	.019**	-.040**	-.016	-.014**	-.018**
Model 3: Nonlinear model (Blau index)					
The linear term	.119	-.219	.171	-.083	.564†
The squared term	-.275	-.014	.127	.110	-.387
Model 4: Interaction model					
Density	-.299*	.284*	.180	.013	.198*
Density × Blau index	.193	-.313*	-.328†	-.016	-.301*

Note. All models include control variables such as logged income, size of organizations, and population, urban dummy (urban = 1), percentage of poverty, and age of organizations; in Model 4, Blau index is also controlled but not shown.

†p < .10. *p < .05. **p < .01 (two-tailed test).

through the NTEE codes as indicated in the Core Files. We collapsed these codes into five categories (art, education, environment, human services, and other). Running a series of split sample analyses, we found some differences in the effects of market structure on months of spending across fields of activity. Table 4 reports summary results. In general, the conditional effect of concentration on the relationship between density and months of spending was similar except for art organizations (Model 4). However, the individual terms showed differences (see, for example, Models 1, 2, 3). For example, low levels of density had a positive effect on months of spending in education and human service organizations, whereas it had a negative relationship with the months of spending for organizations in art organizations (see Model 2 in Table 4 and Figure 4). In contrast, the Blau index (the distribution of resources) had a negative relationship with months of spending in arts and education organizations (Model 1 in Table 4), but a positive relationship with months of spending in environment organizations. Across fields, the nonlinear relationship between evenness and months of spending was not supported. These mixed results suggest the importance of considering the diversity of resource fields in future analyses.

Discussion and Conclusion

There is a great interest in how the growth and size of the nonprofit sector affects organizational fiscal health. From a normative perspective, policy makers, community leaders, and the media often charge that there are “too many nonprofits.” This article helps to inform discussion of this issue and offers guidance for scholars. Our

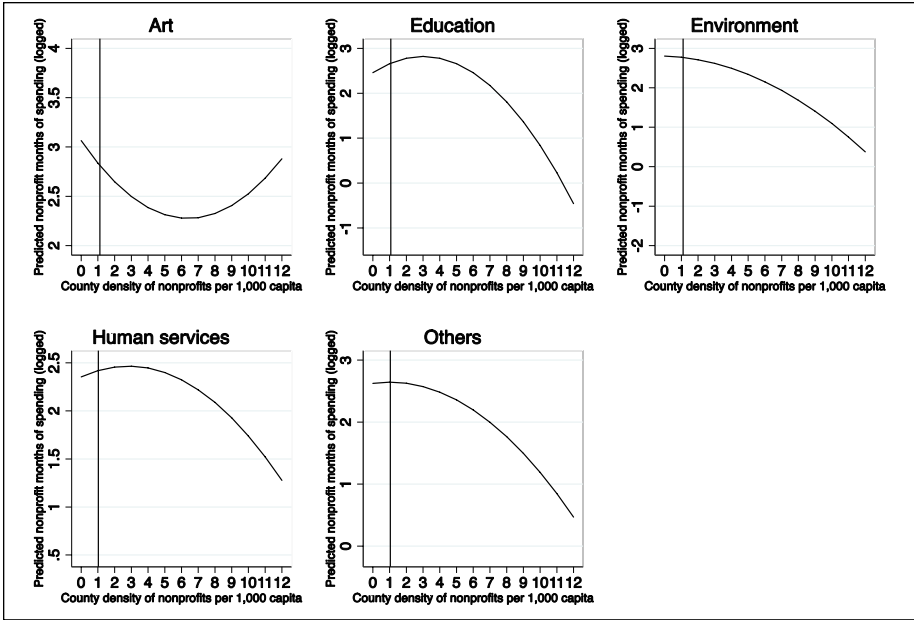


Figure 4. Predictive margins of nonprofit density (organizations per county) on months of spending by nonprofit field of activities.

key finding is that when we talk about “carrying capacity” of the nonprofit sector, it matters how we measure the structure of the sector, how we define performance, and the fields in which we test these models.

First, by using diverse measures of fiscal health as our dependent variables, we provided an empirical test of the relationship between market structure and the fiscal health of individual organizations in the sector, rather than growth rates in the number of organizations. Second, we tested the effects of two dimensions of market structure—organizational density and resource evenness (or market competition)—providing greater clarity on the dimensions of market structure. Finally, we tested the robustness of our results using a second measure of fiscal health (savings ratio), testing relationships across different nonprofit fields. In doing so, we tested for the conditional effects of market structure on nonprofit organization fiscal health. Several key findings emerge from our study that inform our understanding of nonprofit carrying capacity (Paarlberg & Varda, 2009) and provide direction for future empirical analysis.

Consistent with the basic framework of population ecology, we find that the presence of other organizations improves one measure of fiscal health—months of spending—of organizations in the field, up to a certain level of density. Our initial models suggest that most organizations operate in environments in which increasing density is beneficial (Figure 1), suggesting that most nonprofits operate in counties in which the sector has some room to grow. However, in those counties in which resources are more evenly distributed—a strong indicator of a more competitive resource environment—increasing

density negatively affects months of spending and the savings ratio. This means that the presence of more competition and greater density are associated with a general decline in fiscal health, with subtle differences depending upon how fiscal health is measured. Future studies should test models that clearly distinguish between long-term and short-term measures of fiscal health.

We also find that the nature of these relationships varies depending upon field of activity. Most notably, the relationship between density and months of spending in arts organizations exhibits a U-shaped relationship, whereas the relationship between density and months of spending in all other fields is an inverted U-shape. Differences in the resource structures across nonprofit fields may explain these results. Future research can help unpack other nonprofit fields that might be affected differently by density and why density plays out differently for these types of nonprofit organizations. At the very least, it is clear that not all nonprofit fields experience changes in density in the same way.

One reason why organizations operating in markets that are more competitive may have lower fiscal health is that they might also have higher expenses and administrative costs that stem from competition. By contrast, organizations operating in uneven markets with less competition might not have to allocate as many organizational resources to resource acquisition. For example, G. R. Carroll's (1985) study of the newspaper industry suggested that in markets dominated by a few large organizations, the smaller organizations specialize and carve out unique market niches—a situation that buffers them from direct competition with others. In such markets, organizations may have more incentive to cooperate or coordinate with each other than to compete with each other for resources. It may be possible that in uneven markets characterized by less competition, dominant actors play important roles in facilitating the interactions among smaller organizations or have the resources to support “field-building” activities that benefit the entire market. To test these propositions, future research should explore how market structure moderates the relationship between organizational characteristics, especially size and age, and financial health. Different dimensions of market structure might have different effects on younger or smaller organizations.

There are alternative explanations for our findings regarding density, competition, and fiscal health. Increased density and competition might not directly cause decreased fiscal health, but might instead lead to a different distribution of resources within the organization—including distributions that improve other aspects of the organization's performance. For example, in more even markets, competition between organizations might lead nonprofits to invest more heavily in program services, which may lead to higher quality services, but reduced fiscal health. Subsequent extensions of this resource could consider financial measures that would capture these types of investments.

Finally, our results also produce interesting questions about the relationships between county controls—population size, being an urban county, and per capita income—and nonprofit organization fiscal health. All three variables were negatively related to fiscal health in our study, but have been found to be positively associated with indicators of the fiscal health in other studies (D. A. Carroll & Stater, 2009; Lam

& McDougale, 2016; Prentice, 2016a). It is unclear whether these findings result from different geographic units of analysis or differences in the measurement of fiscal health. Given the important roles that nonprofits play in local service delivery systems and the uneven capacity of nonprofits to respond, these conflicting findings suggest the need for further research on the relationships between community context and organizational fiscal health.

There are limitations to our analysis. First, our analysis uses cross-sectional data, and we are cautious about claims of causation. Although we might assume that resource environments remain stable over time, the effects of crowding and evenness may change over time. Additional longitudinal analyses should explore how these changes over time affect nonprofit fiscal health. Second, as a preliminary model focused on market structure, our model is deliberately parsimonious and does not include other controls for the nature of the resource environment. Third, as we mentioned earlier, the effects of competition may differ across organizational size. Drawing upon the liability of newness and smallness, we might assume that small organizations are most vulnerable in highly competitive fields. However, there is a small body of empirical evidence to suggest a curvilinear relationship with mid-sized organizations being the most vulnerable (Baum & Amburgey, 2000). Furthermore, empirical testing should explore the potential for nonlinear relationships between market structure and organizational size. Finally, our model provides no measures of social performance or organizational performance relative to its goals and programs. As noted earlier, increased competition may lead to higher quality services, but this is still an empirical question.

Despite these limitations, our findings do have implications for the public debate over whether we have too many nonprofits. Assuming that increasing density has a positive or negative effect on the field and its constituent organizations is too simplistic. Most organizations operate in markets that are competitive and not dominated by a few large organizations and in which the density of organizations exerts negative effects. For these organizations, increasing density decreases average fiscal health. From a purely financial perspective, there is legitimate concern for “field crowding.” However, many more questions remain about how market structures such as density and competition affect organizational performance and health and how scholars model these relationships.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding


The author(s) received no financial support for the research, authorship, and/or publication of this article.


Notes

1. Because of the concern of the skewed nature of this variable, as a robustness check, we also ran our models with and without outliers. We found that the key results that we reported in our article were not a function of the characteristics of our outliers. We also created 3-year

- averages of our dependent variables and found that the results were consistent using these rolling averages. Because we are interested in how market structure affects the financial position of all types of organizations at one particular point in time, we have chosen to proceed with the full population of organizations, including outliers, for one point in time.
2. We followed the definition of urbanized areas from 2010 Census. More information can be found in the following link, <https://www.census.gov/geo/reference/ua/uafaq.html>.
 3. For more complete analysis, we first began testing a three-way interaction between the Blau index and density squared measures. However, the terms were not statistically significant. For simplicity, we report here the results from the model with the two-way linear interaction term between measures of market structure.
 4. Although density in Model 4 in Table 3 was not statistically significant at the conventional level ($p = .12$), we still think that it is important to plot the relationship between density, evenness, and savings ratio to see whether the effects would differ from the results of months of spending.

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