Symposium Article

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Too Many Nonprofits? An Empirical Approach to Estimating Trends in Nonprofit Demand Density

Abstract: We examine the claim that nonprofit markets have become more crowded over time. A naïve examination of the data indicates that the number of nonprofits has increased rapidly over the past two decades. However, this approach does not account for increases in population, income, or other demand factors that would alter a population's ability to support additional nonprofits. We attempt to quantify a standard unit of demand for nonprofits over time, by exploiting the panel nature of our data. Our findings indicate that nonprofit density, normalized for changes in demand, in 2005 is lower than it was in 1990. We are also able to examine the impact of incremental increases in population to absorb a nonprofit. Overall, we find that it takes far more people to support nonprofit entry in 2005 compared to 1990. It is likely that technological shifts in production and management techniques introduced since 1990 allow firms to serve larger numbers of people. Consistent with our findings, this type of change would result in fewer nonprofits per market, serving larger numbers of people. Our results therefore provide evidence that growth in the nonprofit sector has not necessarily implied increased density or greater competition in the sector.

Keywords: nonprofit, density, trends

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1 Introduction

Has the nonprofit sector become too crowded? A naïve view is to point out the large increase in the number of nonprofits over the past two decades. Since 1995,

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the number of 501(c)(3) organizations on record with the IRS has more than doubled. Yet, it is possible that this increase has merely kept pace with a growing demand for nonprofit services. We argue that growth in the number of nonprofits does not provide sufficient information to answer this question. One must also take into account changes in population, transfers, income, as well as pay careful attention to the relevant economic market and to identify the demand for nonprofit services.

This paper offers a simple empirical framework for analyzing the concentration of nonprofit markets over time. We do not find evidence to support the claim that nonprofit markets have become more crowded in the past two decades. Instead, the number of people required to support an additional nonprofit organization appears to have increased.

Why is measuring concentration in the nonprofit sector an important question? First, growth in the nonprofit sector has received much attention in both academic publications and the popular press. Indeed, studies have discussed that the growth in the number of nonprofits has outpaced the for-profit and government sectors (Harrison and Laincz 2008). This growth is provided as a possible reason for increased reliance on fee-based revenues and diversification of revenue sources (Weisbrod 2004; Carroll and Stater 2009).

Furthermore, government outsourcing to nonprofits has increased in the past two decades (Van Slyke 2003). More generally, market failure, government failure, and interdependence theories motivate our understanding of why the propensity of nonprofits varies over markets. Accordingly, the prior empirical literature uses demographic and government variables to explain why one market may have higher nonprofit density than another. However, this literature generally fails to control for the inherent change in demand for nonprofits when it investigates growth in the number of nonprofits and, thus, nonprofit density. That is, the number of nonprofits or the number of nonprofits per capita (demand densities) is still used to measure the growth in the nonprofit sector. Use of nonprofits per capita is a step in the right direction, since population is an important determinant of growth in the nonprofit sector. Our main insight into this paper is that, in addition to population, we should also use trends in other demand side variables to arrive at a more accurate understanding of nonprofit density.

Arguably, the ultimate goal is not simply to measure trends in density but to understand whether greater nonprofit concentration is beneficial for society. However, to understand the effects, we must have an accurate understanding of the trends in the competitive landscape. Understanding trends in the concentration of nonprofit markets is particularly important because of the collective nature of nonprofit output. In contrast to for-profit markets, nonprofit

activities generate conflicting views on the impact of competition. It is possible that intense rivalry among nonprofit organizations may reduce levels of charitable output. This may happen through various channels.

First, competition may lead to excessive resources allocated to fundraising. After some point, the benefit to donors for additional information about the nonprofit is valued less than the cost of an additional solicitation, thereby reducing aggregate resources available for charitable output (Rose-Ackerman 1982; Aldashev and Verdier 2010).¹ In a similar spirit, Prüfer (2011) analyzes the welfare implications of a reduction in nonprofit competition via mergers. The author finds that mergers – by reducing competition – could increase consumer welfare by reducing excessive investments in quality.

Second, many nonprofits rely on fee for service revenue to subsidize their charitable output (Steinberg and Weisbrod 2005; Eckel and Steinberg 1992). As competitive pressures increase, the surplus available for cross subsidy may decline. Finally, competition from for-profit organizations may pressure charitable organizations to reduce charitable output. By mimicking charitable organizations, for-profits may force competing nonprofits to reduce quality for quantity of charitable output (Hirth 1999; Steinberg 2006).

In a competing view, some practitioners and policy makers argue that there is too little rivalry among nonprofits. Pallotta (2008) and his subsequent TED talk advocates that nonprofits are unnecessarily passive in their overhead and fundraising expenditures.² He argues that nonprofits could achieve greater scale economies by competing more aggressively, primarily by allocating more resources to overhead and fundraising. Related academic research supports this idea, noting that fundraising efforts for many nonprofits fall short of profit (or net revenue) maximizing levels (Okten and Weisbrod 2000). This strategy may be optimal for individual organizations. However, collectively, increased fundraising and overhead expenditures may push nonprofit markets toward the situation described in Rose-Ackerman and Prüfer.

A small empirical literature has emphasized the disciplining influence of market competition on administrative or fundraising expenses (Feigenbaum 1987; Castaneda, Garen, and Thornton 2008; Thornton 2006). More recently, empirical evidence provided by Ly and Mason (2012) shows that exogenous increases in competitive pressures result in significantly longer funding cycles

¹ A similar argument has also been made in for profit markets (Berry and Waldfogel 1999). They point out that if entry's main effect is to steal business from other firms, rather than expand the size of the market, then excessive entry (in terms of social welfare) can occur because too many resources are devoted to advertising's fixed costs.

² http://www.ted.com/talks/dan_pallotta_the_way_we_think_about_charity_is_dead_wrong.html

for recipient projects in microfinance settings. The literature generally adopts either the number of firms (N) or the Herfindahl–Hirschman index (HHI), as a measure of competition. This approach maintains its theoretical grounding in the Structure Conduct Performance paradigm (Perloff, Karp, and Golan 2007) and is formalized in the oligopoly Cournot–Nash equilibrium model (Cowling and Waterson 1976). Recent work has also shown that such models can also be adapted to the nonprofit setting to include the different tax treatment and philanthropic motives (Gaynor and Vogt 2003; Harrison and Laincz 2008). While the question of the effects of competition is not our focus here, these papers demonstrate that competition, as measured by some function of the number of firms in the market, is a relevant factor in nonprofit behavior. Consequently, the trend in competitive pressures is an important determinant to the functioning of the sector.

Our paper does not refute use of the number of nonprofits as a measure, but shows that it is important to consider how changes in demand and organization's responses to those changes in demand affect competitive behavior. Given this connection in the literature, we infer from our results that nonprofit markets may be less competitive than they were two decades ago.

The question of whether there are too many nonprofits is also a policy relevant question. By regulating the formation and entry of new nonprofits, the IRS implicitly establishes market concentration within the sector. More overt policies, such as Certificate of Need laws, require hospitals to demonstrate demand for services prior to opening. These requirements have the added effect of erecting significant barriers to entry, which protect incumbent hospitals from competition. There is currently wide debate on the continued economic role of the nonprofit sector. Constraints on tax privileges, increased regulatory scrutiny, or new fiscal responsibilities would all have the effect of altering the competitive environment for nonprofits. While policy research has been focused on the influence of regulatory changes to charitable giving (Bakija and Heim 2011), it is also important to understand the role of competitive forces on the supply of charitable services.

2 Empirical strategy and data

As mentioned in the introduction, previous work on nonprofit density has focused on identifying determinants of growth in the nonprofit sector. To accomplish this goal, previous papers generally regress the number of nonprofits in a market against various demand characteristics. In such studies, the focus is then most often on the significance and size of the coefficients on the

demand side variables. Our model is similar to those studies, in that we also regress N on market-level variables. However, instead of focusing on the regression coefficients, our contribution is to use these models to predict the expected number of nonprofits in a market, after controlling for changes in the market. This approach offers additional insight into existing ecology studies. By normalizing economic markets, we are able to make direct comparisons of nonprofit density both across a range of geographically separated markets and over time. A key issue then is organizing nonprofits by their relevant economic markets.

The primary unit of analysis for our study is a constructed nonprofit market. Defining the relevant market for nonprofit competition is nontrivial. From the perspective of the NP firms, the end users of the charitable output are likely to be distinct from the financiers of the output. Unlike typical market structure studies, we are primarily interested in the relevant market for donations (an input) rather than the market for output. Because many charitable nonprofit firms price their output below the cost of production – consistent with their charitable mission, the binding constraint to nonprofit production should be in its inputs, particularly donations and volunteer labor. The primary market definition will be characterized by the relevant geography over which donors are willing to consider competing charities.

We make an initial conjecture that the Metropolitan Statistical Area (MSA) represents a reasonable approximation for the donor's choice set among competing nonprofits. This approach is supported by our careful selection of nonprofits to be included in the sample. It also allows our results to be comparable to other papers, which also analyze NP density using the MSA as their market boundary, examples include (Lecy and Van Slyke 2013; Corbin 1999; Kim 2013; Twombly 2003; Barman 2008).

MSAs consist of Core-Based Statistical Areas (CBSA) with populations of at least fifty thousand.³ Unfortunately, CBSA definitions are not static over time. It is possible, but not common, for additional counties to have been added to a CBSA unit over the course of our study frame. In 2009, there were 374 CBSA–MSAs. However, this paper will examine those which are contained in the continental US and have existed over the entire sample window (1990–2005), reducing the number to 363.

3 “Core Based Statistical Areas (CBSAs) consist of the county or counties or equivalent entities associated with at least one core (urbanized area or urban cluster) of at least 10,000 population, plus adjacent counties having a high degree of social and economic integration with the core as measured through commuting ties with the counties associated with the core. The general concept of a CBSA is that of a core area containing a substantial population nucleus, together with adjacent communities having a high degree of economic and social integration with that core.” http://www.census.gov/geo/reference/gtc/gtc_cbsa.html

We construct a panel of nonprofit markets by selecting individual industries using the first two digits from the National Taxonomy of Exempt Entities (NTEE),⁴ which are most likely to meet the following criteria:

1. The nonprofit firms are headquartered within an MSA.
2. Their inputs (donations and labor) are derived locally and outputs are consumed locally.
3. The nonprofit firms contained within the two-digit sub-sector are reasonably homogeneous in their outputs. Consequently, donors would likely perceive them as substitutes.
4. The nonprofit firms contained within the subsector produce output that is not substitutable with for-profit output.
5. The nonprofit firms contained within the subsector receive a non-trivial fraction of their revenues as private donations.

These criteria, similar to prior work such as Thornton (2006) and Castaneda, Garen, and Thornton (2008), result in 15 constructed nonprofit industries which are likely to compete with each other in local geographic markets. A unique market is then identified by the pairing of 1 of these 15 industries with 1 of the 363 available CBSA–MSAs, implying 5,455 potential markets in a given year. The panel is then drawn for years 1990, 1995, 2000, and 2005 from the National Center for Charitable Statistics Core Files,⁵ implying a total of 21,780 market observations available for the study. Again, a market observation is the number of competing nonprofits in the unique industry–MSA–year pairing. Table 1 summarizes the sample.

We infer the existence of a nonprofit from their Form 990 tax filing for a particular year. For each nonprofit industry, there exist MSAs where no firms operated. Similarly, there were MSAs with several hundred firms. Largely, this variation in firm frequency is driven by variation in MSA population, income, and other demographic characteristics. The crux of our empirical strategy is to control for these factors and create a normalized demand for each nonprofit industry. We can then compare these normalized densities across MSAs and over time. Figure 1 depicts a histogram of market structures, by year. Despite increasing density of NP firms, over 40% of market observations have either a monopoly provider or an absence of firms in the market. Roughly 35% of sample markets contain four or more firms.

Figure 2 demonstrates that our sample matches national trends. Over the sample range, the number of nonprofit organizations has roughly doubled in our

⁴ <http://nccs.urban.org/classification/NTEE.cfm>

⁵ <http://nccs.urban.org/database/overview.cfm>

Table 1: Summary statistics for constructed nonprofit industries

Industry	NTEE classification centile	Firms per market			Total no. of firms by NP industry			
		Avg.	Min	Max	1990	1995	2000	2005
Museums	A50, A51, A52, A54, A56, A57	5.1	0	180	1,201	1,549	2,134	2,598
Performing arts	A60, A61, A62, A63, A65, A68, A6A, A6B, A6C	16.7	0	1,154	3,781	4,850	6,507	9,190
Primary healthcare	E30, E31, E32, E40, E42	6.2	0	169	1,677	2,015	2,584	2,841
Abuse prevention	I70, I71, I72, I73	1.7	0	52	342	491	674	936
Employment training	J20, J21, J22, J30, J32, J33	6.2	0	157	1,831	2,032	2,414	2,851
Substance abuse	F20, F21, F22	5.9	0	175	1,707	2,099	2,271	2,535
Crisis intervention	F40, F42	0.8	0	14	264	301	300	338
Crime prevention and food security	I20, I21, I23, I30, I31, I40, I43, I44	2.9	0	63	638	850	1,238	1,443
Low-cost housing	K30, K31, K34, K35, K36	3.0	0	85	762	1,008	1,122	1,529
Homeless shelters	L21, L22, L25	9.2	0	416	1,938	2,578	3,343	5,589
Neighborhood centers	L40, L41, L85	2.7	0	124	534	817	970	1,577
Family counseling	P28	2.7	0	115	842	926	1,049	1,176
Senior centers	P46	1.7	0	45	543	619	638	689
Group homes	P81	4.6	0	132	1,400	1,602	1,815	1,900
	P73, P70, P72	5.9	0	123	1,688	2,111	2,381	2,512
	Totals				19,148	23,848	29,440	37,704

Source: National Center for Charitable Statistics Core Files. Markets are identified by an industry, year, MSA pair. Table summaries all years={1990, 1995, 2000, 2005}.

Figure 1: Frequency of market structure by year
Note: For presentation purposes markets were top coded at ten firms for Figure 1 only.

Figure 2: Trends in the sample

sample markets, from 20,000 to 40,000. Just as important, the number of nonprofits per-capita has followed a similarly steep trajectory. Casual observation would imply that market density has increased. However, other important factors, such as income and transfer payments, influence the demand for nonprofits. Our goal is to estimate a measure of normalized demand for a market and then ask whether that unit of demand has experienced an increase or decrease in nonprofit firms.

3 Empirical model

We use a deliberately parsimonious set of CBSA–MSA covariates to normalize our markets. The goal is to control for the most relevant demand side characteristics that will affect the ability of a market to support additional NPs and then use fixed effects to account for other systematic differences. Our model estimates the number of nonprofits in a market as a function of the type (or industry) of the nonprofit, MSA population, per-capita income, current transfer receipts, and earnings by place of work within the MSA.⁶

$$N_{mit} = \alpha + \beta' X_{mt} + \gamma' \text{YEAR}_t + \delta' \text{Industry}_i \\ + \zeta' X_{mt} * \text{Year}_t + \theta' \text{Industry}_i * \text{Year}_t + \epsilon$$

where N is the number of firms in MSA m , industry i , at year t . X represents a vector of MSA-specific covariates, including population, per-capita income, transfers, and earnings. A set of 15 industry indicators and a full set of year indicator variables are included. The model variables and the industry fixed effects are then interacted with our year dummies to control for fundamental changes in industries over time. The industry controls are particularly important given that they vary in the degree of nonprofit/for-profit competition and in the degree of government provided services. Table 2 offers summary statistics of the covariates. Twenty percent of the sample markets contain zero firms. To accommodate for the natural censoring of the dependent variable at zero, the model was estimated using Tobit on the pooled sample. Robust standard errors clustered around each MSA were used.

⁶ MSA covariates are derived from the Bureau of Economic Analysis Regional Data (CA30). Notably, transfer receipts include payments to individuals and nonprofit institutions. For complete definitions of these values see: <http://www.bea.gov/regional/>

Tabel 2: Summary statistics for the covaroates (all years)

Variable	Obs	Mean	Std.Dev.	Min	Max
Population	21,780	630,879	1,461,387	40,013	18,800,000
Per Capita Inc	21,780	\$25,359	\$6,445	\$11,203	\$68,543
Pers Trans	21,780	\$2,416,268	\$6,541,270	\$107,951	\$122,000,000
Total Earn	21,780	\$14,700,000	\$41,400,000	\$264,008	\$685,000,000

Notes: Markets are derived from an MSA, industry, year pairing. Covariates are derived from the Bureau of Economic Analysis Regional Data (CA30). Notably, transfer receipts include payments to individuals and nonprofit institutions. For complete definitions of these values see: <http://www.bea.gov/regional/>

4 Results

Recall that our purpose for the paper is to examine trends in nonprofit concentration in specific geographic markets. At a basic level, the regression now allows us to compare nonprofit markets in 1990 to other sample years, after controlling for the other variables in the model. Because of the large number of interaction terms in the model, interpretation of the individual coefficients is cumbersome. We do report the full marginal effects from our regression in Table 3. These estimates are consistent with previous findings and also intuitively appealing. That is, all demand side variables have a positive sign. The full marginal effects are not always significant, but note the significance for most of the industry-level controls.

We now focus on the relevant predictive margins, which estimate the value of the dependent variable (N), while varying one of the other covariates.⁷ It is more intuitive in our case to look at the predicted number of nonprofits for each year of the panel, presented in Table 4. Over the entire sample, the predicted value of N , now called $\hat{N}$, in 1990 is 8.22. We now use the term normalized nonprofit density because a representative market, adjusted for the covariates in 1990, is expected to support 8.22 nonprofit firms. This value increases to 9.49 in 1995, indicating that the normalized nonprofit density has substantially increased. This means that, after adjusting for income, population, transfers, earnings, and industry differences, there were more nonprofits per MSA in 1995 than in 1990. To the extent that nonprofit firms behave as Nash–Cournot

⁷ We use STATA's *margins* command to compute the predictive margins. Predictive margins evaluate the estimated model for a specific value of the variable of interest (for example year = 1995) while evaluating all other covariates at the average of their marginal effects (AME). For more information, see: <http://www.stata.com/manuals13/rmargins.pdf>

Tabel 3: Full marginal effects for the Tobit regression

Average marginal effects	Number of obs = 21,780					
	dy/dx	SE	z	$P > z$	[95% Conf. Interval]	
Year						
1995	1.27	0.10	13.25	0.00	1.08	1.45
2000	-0.04	0.39	-0.11	0.91	-0.81	0.73
2005	-0.25	0.56	-0.44	0.66	-1.35	0.85
Population^	1.93	1.30	1.48	0.14	-0.62	4.49
Per Capita Inc^	276.20	66.30	4.16	0.00	146.20	406.20
Pers Trans^	0.16	0.14	1.15	0.25	-0.12	0.44
Total Earn^	0.03	0.05	0.67	0.50	-0.07	0.14
Sector						
Performing arts	9.32	1.56	5.97	0.00	6.26	12.38
Primary healthcare	0.87	0.21	4.08	0.00	0.45	1.28
Abuse prevention	-3.61	0.61	-5.89	0.00	-4.81	-2.41
Employment training	0.94	0.25	3.80	0.00	0.45	1.42
Substance abuse	0.33	0.23	1.40	0.16	-0.13	0.78
Crisis intervention	-4.90	0.86	-5.68	0.00	-6.59	-3.21
Crime prevention and	-2.77	0.53	-5.25	0.00	-3.81	-1.74
food security	-1.69	0.30	-5.68	0.00	-2.27	-1.11
Low-cost housing	2.49	0.48	5.17	0.00	1.55	3.44
Homeless shelters	-3.16	0.55	-5.75	0.00	-4.24	-2.08
Neighborhood centers	-2.65	0.44	-6.01	0.00	-3.52	-1.79
Family counseling	-3.94	0.67	-5.86	0.00	-5.26	-2.62
Senior centers	-0.13	0.21	-0.60	0.55	-0.54	0.29
Group homes	0.53	0.26	2.07	0.04	0.03	1.03

Notes: dy/dx for factor levels is the discrete change from the base level. [^]indicates that average marginal effects were multiplied by one million for presentation purposes. 5,777 left-censored observations at $N < 0$. 16,003 uncensored observations. 0 right-censored observations. Standard errors are calculated via the Delta-method. Excluded sector is Museums.

competitors, greater normalized nonprofit density implies more competitive markets.⁸

However, $\hat{N}$ falls in 2000 to 8.18. It should be emphasized that a fall in $\hat{N}$ does not necessarily imply that the number (N) of nonprofits in the market fell.

⁸ That nonprofit firms behave as Nash-Cournot competitors is an assumption. If they do, then there is a relatively straightforward relationship between N and the degree of market competition in a market, see chapter 1 of Perloff, Karp, and Golan (2007). However, there are other models of competition among firms. There is a large industrial organization literature that attempts to determine the appropriate model of competition in a particular industry. See Schmalensee (1989) for a thorough review. Such a study is beyond the scope of this paper.

Tabel 4: Results from Tobit regression

Expression: $E(N^* N > 0)$, predict (ystar(0,.))						
Predictive margins for Year						
Year	$N(\text{hat})$	Std.Err.	z	$P > z$	[95% Conf. Interval]	
1990	8.22	1.29	6.39	0.00	5.70	10.75
1995	9.49	1.35	7.05	0.00	6.85	12.13
2000	8.18	1.20	6.80	0.00	5.82	10.54
2005	7.97	1.31	6.09	0.00	5.41	10.54
Marinal effects if Year on $N(\text{hat})$						
Year	dy/dx	Std.Err.	z	$P > z$	[95% Conf. Interval]	
1995	1.27	0.10	13.25	0.00	1.08	1.45
2000	-0.04	0.39	-0.11	0.91	-0.81	0.73
2005	-0.25	0.25	-0.44	0.66	-1.35	0.85

Notes: N (Number of nonprofits) in a market is the dependent variable. 21,780 total firms. 5,777 left-censored observations. Standard errors are calculated via the Delta-method. Marginal effects and predictive margins are for the censored prediction, $E(N^*|N > 0)$. By default STATA reports the average of the marginal effects (AME).

From Table 1, we observe that the total number of nonprofits has actually increased substantially from 1995 to 2000. The model, however, accounts for increases in the demand for nonprofits (the covariates). By 2005, nonprofit normalized nonprofit density falls to a level below those found in 1990. This finding indicates that, for our sample, increases in the number of nonprofits in these markets are more than offset by increases in population, income, transfers, and earnings.

From a longitudinal viewpoint, the average of all the sample markets appears denser in 2005 than it was in 1995. However, the level of $\hat{N}$ in 2000 and 2005 is not statistically distinguishable from 1990. This can be seen by looking at the marginal effects for year on $\hat{N}$, also presented in Table 4. In 1995, there is a statistically significant increase in $\hat{N}$. In 2000 and 2005 the point estimates for $\hat{N}$ falls below 1990 levels. However, they are not statistically distinguishable from 1990 levels.

We are also able to exploit cross-sectional variation in MSA size to see how variation in population size will influence nonprofit density within a particular year. Table 5 presents the marginal effects for a one (million person) increase in population on $\hat{N}$ over sample years. In 1990, adding one million persons to an

Tabel 5: Predictive margins for population by year

<i>dy/dx w.r.t.: population (POP)</i>						
POP at	<i>dy/dx*</i>	Std. Err.	<i>z</i>	<i>P > z</i>	95% Conf. Interval	
1990	3.28	1.480	2.21	0.027	0.376	6.180
1995	3.06	1.560	1.96	0.054	−0.004	6.120
2000	1.78	1.230	1.44	0.149	−0.638	4.190
2005	0.33	1.310	0.25	0.802	−2.230	2.890

Notes: *N* (Number of nonprofits) in a market is the dependent variable. 21,780 total firms. 5,777 left-censored observations. Standard errors are calculated via the Delta-method. Marginal effects and predictive margins are for the censored prediction, $E(N^*|N > 0)$. By default STATA reports the average of the marginal effects (AME). *Marginal effects are in units of one million persons.

MSA would, on average, increase the number of nonprofits in a market ($\hat{N}$) by 3.28 organizations.

Importantly, note that the impact of additional population is declining over time. In 1995, increasing the size of the MSA by one million people would result in an additional 3.06 nonprofits. By 2005 adding one million people would increase the number of nonprofits by only 0.33. Though not presented in this table, tests comparing means were conducted on these point estimates. Each adjacent cohort (1990, 1995, 2000, and 2005) was statistically different from each other. So it appears that the ability of incremental population increases to absorb more nonprofits has declined over time. In 2005 it takes significantly larger increases in population to support entry relative to 1990. We discuss some possible interpretations of this finding in Section 5.

It is reasonable to question whether the specific composition of markets in the sample is driving these findings. For the final set of results, we separate the influence of year and population by nonprofit industry. It makes for a messy figure, but it is possible to detect variation in patterns across NP sectors. Figure 3 reports the predicted levels of $\hat{N}$, both over time and across sectors. What is important to note here is that the pattern across sectors is largely consistent. Mirroring the overall trend discussed for Table 4, normalized demand density increases in 2000 then declines thereafter. The exceptions to this case are food security and low-cost housing. These two sectors show increases in demand density in the latter two panels. Alternatively, the remaining 13 sectors demonstrate a remarkably stable pattern, consistent with the discussion on Table 4. This figure offers reasonable confidence that the overall results are not driven by a single industry, but representative of overall trends in the sample.

Figure 3: Predictive margins by SECTOR

5 Conclusions and limitations

The purpose of this paper has been to examine the claim that nonprofit markets have become denser (less concentrated) over time. A naïve examination of the data indicates that the number of nonprofits has increased rapidly over the past two decades. However, this approach does not account for increases in population, income, transfers, or other demand factors that would alter a population's ability to support additional nonprofits. Furthermore, many nonprofits fundraise within relatively narrow geographic markets. Therefore, it is important to isolate the relevant economic market in which the nonprofit is competing.

To accomplish this, our paper constructs 15 distinct nonprofit industries, which are likely to compete locally. We specifically chose nonprofit industries such that the MSA would represent the relevant geographic donor market. We then normalize those markets by adjusting for major demand shifters. This allows us to make direct comparisons across MSAs and over time. This approach does not allow us to say anything about large national organizations such as the Red Cross or Teach for America which compete for donations across MSA boundaries.

We attempt to quantify a standard unit of demand for nonprofits over time, exploiting the panel nature of our data. Our findings indicate that normalized nonprofit density in 2005 is no higher than it was in 1990. This indicates that increases in the number of nonprofits have been matched by increases in the size of their respective markets. Despite appearances, those markets have not become denser over the sample time frame.

We are also able to exploit cross-sectional variation in the MSAs. Along this dimension, we are able to examine the impact of incremental increases in population to absorb a nonprofit. Overall we find that it takes far more people to support nonprofit entry in 2005 compared to 1990, after controlling for other demand changes. The difference is large. In 1990 an additional million people would support 3.28 additional nonprofits. The number of nonprofits supported by additional larger populations fell steadily over the sample time frame. By 2005, an additional one million people only supported 0.33 more nonprofits.

How should we interpret these findings? There are many possible stories that could fit our empirical findings. One likely story is that technological shifts in production and management techniques introduced since 1990 allow firms to serve larger numbers of people. For example, improved technology such as fundraising databases or electronic communications methods would allow nonprofits to serve a larger number of donors. This would imply an additional fixed cost, but lower marginal cost. This outcome is reflected both longitudinally – in lower normalized nonprofit density – and in the increasing population per firm required to support entry.

The effect of technology on overall competitiveness in the market is ambiguous. It is possible that improvements in fundraising technology serve to either increase or decrease barriers to entry. It may take more fundraising expenditures to attract donor sufficient attention. Alternatively, improved fundraising technologies such as social media and electronic solicitations provide new marketing outlets that may be more attractive to non-incumbent organizations. However, the role of technological shifts in nonprofit firm behavior is not well understood. Finding the exact rationale for the observed changes in market structure would require a detailed firm-level analysis across many separate industries. This is a worthy undertaking, but beyond the scope of this paper. Further inquiry is warranted.

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