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The Dynamic Impact of Nonprofit Organizations: Are Health-Related Nonprofit Organizations Associated with Improvements in Obesity at the Community Level?

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Abstract:

Nonprofit organizations have the potential to influence public health by filling voids not filled by government or private organizations. Here we investigate whether the presence of health-related nonprofit organizations at the local community level helps to improve community-level obesity. This study used a time-series design using a random effects model to determine whether the entrance or exits of health nonprofits at the county level was associated with lower obesity rates in the US one and two years following the entrance or departures of nonprofits. The effect was small but significant in urban areas, with a smaller effect in rural areas. Our findings suggest that the presence of health nonprofits is associated with positive health outcomes, in this case obesity. The plausibility may be explained through the increased role nonprofits play in fostering social capital and increased promotion of health-related issues.

Keywords: nonprofit, obesity, community health, health policy

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1 Introduction

Popular theories of the nonprofit sector (Powell and Steinberg 2006; Salamon 2012; Weisbrod 1975) suggest that certain failures – whether market, contract, government, or voluntary (Hansmann 1980) – can explain how and when certain nonprofits mobilize to address issues of public and social concern. Nonprofits often step in where private for-profit companies (*market and contract failure*), governments (*government failure*) and even other nonprofits and grass roots organizations or private individuals (*voluntary failure*) “fail” or are unable to act. These failures signal information about the environment and specific market demands for nonprofit action, such as the growth of the nonprofit organizations in providing health care (Needleman 2001).

Observers suggest that nonprofit organizations have responded to various failures in the market for health care, and imply that these failures help explain the growth and presence of nonprofits in the health care field today. For example, the late 1800s witnessed an expansive growth of private organizations becoming involved in health care, with many private nonprofit health care organizations playing a redistributive role by channeling goods or services from parts of the population with more of these items to parts of the population with less of them (Schlesinger, Gray, and Bradley 1996; Anheier 2014). In the latter part of the twentieth century, this redistributive response led to other changes in how organizations responded to market failures, such as providing information to consumers, educating the public on health issues, and encouraging more community representation in the governance of managed care (Schlesinger, Gray, and Bradley 1996). Nonprofits can accomplish these items partly because of their better efficiency and flexibility to adapt to new information and their ability to advocate for their scope and mission (Carver et al. 2003).

The purpose of this paper is to investigate whether the entrance of health-related nonprofit organizations helps to improve obesity at the community level. In short, does change in the supply of health-related nonprofit organizations in a community have a demonstrable community-level impact on a general indicator of health? In this US-based paper, our particular focus is the prevalence of obesity as a key domestic policy outcome of

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interest due to its epidemic prevalence both nationally and globally (Hill and Peters 1998; Malik, Willett, and Hu 2013). Because environmental conditions are important drivers of obesity, the presence of health-related nonprofits might also be important policy solutions to this problem. We raise the possibility that changes in the supply of health nonprofits may indirectly impact obesity. We conclude this article by outlining some implications of these findings for the general field of nonprofit research.

2 Literature Review

2.1 Market Failures and Nonprofit Entry/Exit

The most common explanations for the existence of nonprofit organizations are the failures of the market and government to efficiently or optimally provide certain goods or services (Douglas 1983; Hansmann 1980; Weisbrod 1975). For example, market failure theory predicts that services with significant positive externalities, such as education, should be provided by government because the market would provide education only to those willing to pay a market rate for it. Thus, we consider market and government failures to be instances when the market or government are not the ideal providers of a good or service, either due to inefficiency or sup-optimal provision. The health care market is a prime example of one specific type of market failure—contract failure (see Arrow 1963). Contract failure applies to situations of information asymmetry—when the provider of the service knows more about the quality of the service being provided than the recipient does (Hansmann 1987). This makes consumers fearful of being cheated or receiving a low-quality service. In these situations consumers turn to organizations that they consider to be trustworthy, presumably nonprofit organizations because of the non-distribution constraint, screening and selection of leaders, the presence of governing boards, and other structural aspects of the nonprofit form (Young 1989). Indeed, currently the United States has over 77,000 nonprofit hospitals and health-related organizations (McKeever 2018), indicating a substantial amount of nonprofit activity in the health care arena. Thus, while crude, nonprofit exit from and entry into the market can serve as indicator of nonprofit mobilization or activity.

Growing from and alongside failure theories, numerous nonprofit scholars have further examined how community/market factors are related to the size and structure of a community's nonprofit sector, including how these factors are connected to the uneven distribution of nonprofit organizations across geographic communities (see, for example, Grønberg and Paarlberg 2001). This body of research suggests that certain contextual variables—such as the size of the community and the lack of financial resources—are related to both the demand for and supply of nonprofit organizations in a community (Bielefeld 2000; Corbin 1999; Grønberg and Paarlberg 2001; Marcuello 1998; Twombly 2003; Wolpert 1988). Reflecting these lines of inquiry, others have established that institutional (Baum and Oliver 1991; Twombly 2003) and social contextual factors (Saxton and Benson 2005) also relate to a community's organizational makeup (Marquis, Davis, and Glynn 2013).

Thus, our simple model of nonprofit entry and exit into the market is based on the failures of established institutional actors (governments and businesses) to efficiently provide services and corresponding community attributes that are known to shape the nonprofit sector in a community. The confluence of market and government failures and community attributes has given rise to a varied and growing landscape of nonprofit activity.

2.2 Mechanisms for Achieving Community Impact

The one thing that scholars seem to agree upon related to nonprofit effectiveness is the difficulty of measuring effectiveness, because of the wide variety of measures utilized and the difficulty of assessing effectiveness across different types of organizations and mission areas (Flynn and Hodgkinson 2013; Forbes 1998; Herman and Renz 2004, 2008; Sowa, Selden, and Sandfort 2004; Willems, Boenigk, and Jegers 2014). This process is further complicated by the fact that assessments of nonprofit effectiveness depend heavily on which stakeholders are viewing the nonprofits' results (Balser and McClusky 2005; Herman and Renz 1997). Even more ambitious still is the task of assessing the collective, community-level impact of multiple nonprofits through their direct and indirect collaborations (Christens and Inzeo 2015; DiMaggio 2002; Epstein and Yuthas 2017; Flynn and Hodgkinson 2013; Kania and Kramer 2011). The focus in this article is more at the collective, or sector, level; we want to know whether the entry of new health nonprofits into a community affect a specific health outcome at the community level.

What mechanisms might explain the relationship between the nonprofit sector (and entry into the sector) and measures of community impact? We consider two possible mechanisms—nonprofit sector adaptability/innovation and collaborations. We briefly discuss how each mechanism could potentially operate and provide

examples of nonprofits working on the obesity epidemic. Nonprofits' adaptability has long been touted as an important feature of the sector. Indeed, it is because of nonprofits' flexibility and adaptability that Salamon (2015) dubs it "the resilient sector." Empirical research tends to support this assertion. Nonprofit organizations typically have more flexible rules and do not operate under as many constraints as government agencies (Eggleston and Zeckhauser 2002; Hall 1992). Nonprofit employees perceive much less red tape and greater personnel flexibility than employees in the public sector (Feeney and Rainey 2009). Nonprofits are also more likely to engage in participatory decision-making than for-profits (Kalleberg et al. 2006). Thus, nonprofit flexibility can appear in multiple ways in the organization, which often results from increased competition, greater expectations from donors, increasing costs, changing technology, and greater diversity of stakeholders (Wolf 1999).

Innovation is another sign of flexibility and adaptability. In developing his arguments about government failure theory, Douglas (1983) asserted "the absence of strong measures of accountability, far from being a weakness of the Third Sector, becomes a strength enabling it to undertake experiments, the benefits of which are too uncertain and too long term to be undertaken by either the commercial or the government sector" (p. 137). Other scholars have noted that nonprofits might have an advantage related to innovation because they are free from some of the constraints facing businesses and government agencies (Frumkin 2002; Light 1998; Payton and Moody 2008; Walker 2008). It is precisely because of their greater flexibility that nonprofits are able to innovate and experiment. Indeed, flexibility and adaptability are characteristics of innovative organizations (Hurley and Hult 1998; Kitchell 1995). Nonprofits organizations tend to value innovation and perceive themselves as innovative entities (Chinnock and Salamon 2002; Salamon, Hems, and Chinnock 2000). The capacity of the nonprofit sector to be flexible and adapt allows organizations to innovate and find new solutions to public problems (Smith 2002). These innovations pave the way for nonprofits to create lasting change at the community level.

One illustration of nonprofit adaptability is the Girl Scouts of America. The organization started a Girl Scout Research Institute to not only evaluate their own programs but to collect data on girls and their development that can be shared with other organizations and policy-makers (see <https://www.girlscouts.org/en/about-girl-scouts/research.html>). The Girl Scout Research Institute published a report in 2006 about girls' perceptions of weight and healthy living. The preface to the report indicates the organization's commitment to adaptability: "As the lives of girls continue to change, so does Girl Scouts of the USA—always adapting to ensure that girls in the twenty-first century are provided with a program that is engaging, interesting, and relevant to their needs" (Girl Scout Research Institute 2006, 4). As a result of this and other studies, the Girl Scouts created new programs focused on healthy lifestyles, such as GirlSports, a K-12 program designed to encourage girls to participate in sports. Girls Scouts sought information about an important health topic and subsequently adapted by developing new programs and offerings for the girls they serve in response to what they learned.

The entry of a new nonprofit organization can also be a signal of adaptations to meet needs in the environment. For example, the Obesity Action Coalition (OAC) is a nonprofit whose mission is "to elevate and empower those affected by obesity through education, advocacy and support" (OAC web page 2019). The organization was formed in 2005 when the founders were made aware of the need for such an organization: "During a meeting of legislators, a congressperson asked the question – 'Who represents patients who are affected by obesity?' It was then that a legislator pointed out a serious need – a group whose only focus is on those affected by obesity. With this, the OAC was formed in 2005 with the goal of building a national coalition of those who are living with and/or affected by obesity" (OAC web page 2019). The entry of this nonprofit organization was in direct response to a perceived unfilled health need and illustrates a nimble response from the nonprofit sector when an unmet need became apparent.

The second potential mechanism is collaborations and partnerships. Public problems, like obesity, are complex and require multi-faceted solutions. Many times the best results arise when multiple organizations work together in a coordinated and systematic way. Formalized collaborations involve ongoing relationships among organizations through sharing resources and programs in some way (Kohm, La Piana, and Gowdy 2000). Among the primary reasons justifying a collaboration are cost savings and enhancements to service delivery, including both better outcomes for individuals and wider reach to more individuals (Arsenault 1998; Hill and Lynn 2003; Sowa 2009). Indeed organizations might enter collaborations because it is a vehicle for achieving outcomes they cannot achieve on their own (Snively and Tracy 2002). Collaborations are also a method for diffusing important innovations through the nonprofit sector (Faems, Van Looy, and Debackere 2005). Collaborations can help reduce duplication in services, improve coordination of service-delivery, and enhance provider responsiveness (Martin et al. 1983). Through collaboration, organizations can more effectively deal with a more complex issue by providing a more wholistic solution and improving overall client access to necessary programs and services (Beatrice 1991; Farel and Rounds 1998; Poole and Van Hook 1997). Empirical research demonstrates that collaborations can yield many positive outcomes, including improved client outcomes, although success is often contingent on characteristics of the collaboration and participating organizations (Arya and Lin 2007; Gazley

and Guo 2015; Jennings and Ewalt 1998; Linden 2003; O'Regan and Oster 2000; Selden, Sowa, and Sandfort 2006).

An example of the collaboration mechanism at work is Shape Up Somerville (<https://www.somervillema.gov/departments/health-and-human-services/shape-somerville>). Shape Up Somerville is a collaboration among 50 community-based nonprofits, government agencies, educational institutions, foundations, and other partners and supporters. The goal of the collaboration is to encourage healthy eating and active living among Somerville residents. Some of the collaboration activities included changing foods served in schools, improving physical education programming, and creating more access to healthy foods through an urban agriculture ordinance that changes zoning to allow for farming in city areas. The collaboration has been widely recognized for getting results (Economos et al. 2007, 2009; Burke et al. 2009; Flood et al. 2015; Goldberg et al. 2009). In fact, one recent study found a significant decrease in body mass index (BMI) among the parents of children who were getting a Shape Up Somerville program in their school (Coffield et al. 2015). The success of the endeavor is largely credited to the partnerships involved, including funders and political leaders (Shape Up Somerville 2013). Having multiple partners not only increased partner buy-in and support, but it allowed Shape Up Somerville to reach more residents because they are all involved in different organizations.

Sometimes the entry of a new nonprofit organization signals a successful collaboration. As a collaboration grows and formalizes over time, it might require a new organization to manage and help to coordinate the activities of the partner organizations. This was the case with Healthy Suffolk (<http://healthysuffolkva.org/about/>). In 1998, community leaders in Suffolk, Virginia convened a Suffolk Partnership for a Healthy Community to learn and understand the community's health needs and to bring interested parties together. Over time the collaboration continued to grow and Suffolk Partnership for a Healthy Community (SPHC) received 501(c)3 status in 2006. SPHC's partners include other community organizations, businesses, and government agencies. The organization rebranded itself as Healthy Suffolk in 2016. This example illustrates how a new nonprofit entering the sector can be an indicator of a successful ongoing collaboration—a collaboration with the potential to affect community health outcomes.

These two potential mechanisms can help to explain how the nonprofit sector—and entry and exit into the sector—might affect community-level outcomes. Considering the scarcity of models and large sample-size empirical analyses engaging the question of nonprofit community impact, our present purpose is to offer some preliminary tests of this question—in its simplicity—and add commensurate details in future work. We preface our description of data and analysis with a short section intended to better situate our research question in the present substantive policy area of interest: obesity.

2.3 Health Nonprofits and Community Impact: A Focus on Obesity

2.3.1 Failures in the Health Care Market

Observers suggest that nonprofit organizations have responded to various failures in the market for health care, and imply that these failures help explain the growth and presence of nonprofits in the health care field today. Schlesinger, Gray, and Bradley (1996) note that the late 1800s witnessed an expansive growth of private organizations becoming involved in health care and that many of the private nonprofit health care organizations played a redistributive role. This later led to more specialized responses to market failures in the late 1900s, which includes:

- (1) maximizing the benefits of quality improvement that extend to groups other than enrollees in managed care plans, (2) providing public goods (that is, benefits to the entire community) in the form of education and information dissemination, (3) reducing problems of asymmetric information that are created when purchasers cannot readily monitor the quality of patient care, (4) limiting the costs of managed care that are shifted to other providers, and (5) encouraging community representation in the governance of managed care plans (Schlesinger, Gray, and Bradley 1996, 700–01).

There is considerable evidence that health nonprofits outperform for-profits on a variety of measures (Rosenau and Linder 2003). For example, Carreyrou and Martinez (2008) observe that “the combined net income of the 50 largest nonprofit hospitals jumped nearly eight-fold to \$4.27 billion between 2001 and 2006.” While health-related organizations comprise only 11 % of all nonprofits, they are responsible for 58 % of the financial activity of the sector (Salamon 2012).

2.3.2 Community Impact in Health Care: Obesity

The second question raised in this paper is whether nonprofit involvement in health care has any discernible community impact. There are several studies (e. g. Schlesinger 1998, which largely uses survey data) that are certainly instructive, but we are unaware of any that link the community supply of health-related nonprofits to objective measures of community health. We do so here with a focus on obesity.

Obesity has become a serious health concern in the United States (Flegal et al. 2016). Currently, an estimated 35 % of US adults are obese (Ogden et al. 2014), which is defined as a BMI of 30 kg/m² or higher (Expert Panel on the Identification, Evaluation, and Treatment of Overweight in Adults, 1998). Much of the high prevalence of obesity can be attributed to poor dietary patterns and lack of physical activity (Popkin et al. 2006). There are high physical, financial, and emotional costs for those who are obese, which can be directly or indirectly measured (Finkelstein, Ruhm, and Kosa 2005; Popkin et al. 2006; Wellman and Friedberg 2002). Obesity can also lead to other conditions and chronic diseases, including cancer, cardiovascular disease, type II diabetes, osteoarthritis, and osteoporosis (Popkin et al. 2006). People who are obese are more likely to visit their doctor, have more pharmacy dispenses, and have more inpatient hospital days than those who are not obese (Finkelstein, Ruhm, and Kosa 2005). Medical expenditures for obese individuals are 36 % higher than for those who are normal weight, and 5 % to 7 % of medical costs in the US can be attributed to obesity (Finkelstein, Ruhm, and Kosa 2005). Obese individuals are more likely to report having physical limitations than those who were normal weight (Doll, Petersen, and Stewart-Brown 2000). It has been estimated that non-obese individuals live an additional five and six years of mobility and disability-free life than their obese counterparts (Peeters et al. 2004). This may lead to higher indirect costs for those who are obese because of individuals' limited ability to work.

Even this brief overview of the public health issue of obesity demonstrates the complexities associated with the condition and the far-reaching effects of obesity. Because of the association between obesity and other chronic diseases such as diabetes, heart disease, and cancer, programs and policy targeted at helping people with chronic conditions can also help individuals who are obese, and vice-versa. Researchers say that a multi-level approach, including support from governments, private sector, and civil society, is needed to better manage the obesity epidemic (Gortmaker et al. 2011). But do the number of private nonprofits working the areas of health have the potential to impact these outcomes? As counties—our communities of interest—witness changes in their health-related nonprofit population (supply) over time, we see an opportunity to measure whether obesity rates are impacted. The argument follows the logic of the model presented previously. Among other things, health-related nonprofits bring attention to and capacity to address issues within their substantive areas of expertise—in this case detected through community health indicators.

3 Materials and Methods

3.1 Data

The first source of data was the Core Financial Files from the National Center for Charitable Statistics (NCCS), which comprise nonprofit organizational and financial data from the United States' Internal Revenue Service Form 990 that nonprofit organizations in the United States are required to submit annually. The second source of data was county-level obesity rates collected as part of the Behavioral Risk Factor Surveillance System (BRFSS) for years 2004–2012 (Centers for Disease Control and Prevention n.d.). The BRFSS is an ongoing, yearly, state-based telephone survey, supported by the Centers for Disease Control and Prevention, of non-institutionalized adult population.

We used the 2004 through 2012 NCCS nonprofit data, which includes 3,138,941 nonprofit organizations across nine years of data. Because our unit of analysis was the county-year (i. e. data for each county, by year), we collapsed this organization-level dataset into a dataset comprised of aggregated nonprofit data at the county level for each of the nine years. After the nonprofit data were collapsed, we used the county-level Federal Information Processing Standards (FIPS) code and year to append the health indicators, and demographic, data to the aggregated nonprofit dataset. We used the 2000 decennial Census data for years 2004–2009 (US Census Bureau 2000) and the 2010 decennial Census data for 2010–2012 (US Census Bureau 2010).

We excluded observations in Alaska because it has boroughs instead of counties and could not be comparably matched up with other data. To correct for missing data for the percent white, we extrapolated these data using the *ipolate* command in Stata (with the *epolate* option). This approach uses a linear function of the known responses for the variable over the nine years to fill in missing values. In other words, the values from the non-missing years were used to impute values for values from years with data, using information for the respective

county. The final usable number of observations was 17,397 county-years. All data were publicly available so no ethics approval or informed consent was required for these analyses.

3.2 Variables

The dependent variable for our analysis was the percent of county residents 18 years and older who were classified as obese (BMI greater than 30 kg/m²). BMI was calculated using individuals' self-reported heights and weights in the BRFSS. This measure was age-adjusted to the 2000 US standard population based on age groups 18–44, 45–64, and 65 years or older.

The first independent variable was the number of health-related nonprofit organizations per 10,000 individuals in the county. We used the National Taxonomy of Exempt Entities (NTEE) codes under the major group of "Health" (see <http://nccs.urban.org/classification/ntee.cfm>) from the NCCS data to obtain the number of health nonprofits in the county. When the NCCS data were collapsed at the county level, we summed all the nonprofit organizations with a relevant health related codes (see NTEE letters¹) assigned involved in health care (NTEE code of E), mental health (code of F), diseases and disorders (code of G), and medical research (code of H). This total was then divided by the population estimate for the county and multiplied by 10,000 to obtain the number of health nonprofits per 10,000 individuals in the county. In our analysis, we used the one-year and two-year difference in the number of health nonprofits per capita to represent the entry or exit of health nonprofits in the county.

The second independent variable was the mean fiscal health of all health nonprofit organizations in the county, calculated by subtracting a nonprofit's end of year liabilities from its end of year total assets, and then dividing by the organization's total expenditures. This measure reflects the length of time an organization can continue to operate in the absence of new income. The mean fiscal health variable is an aggregated measure representing the average financial health of all health nonprofits in the county.

The third independent variable was a dummy variable capturing whether there was a nonprofit hospital in the county, which reflects the health self-sufficiency of a county. It is also an important control for the fiscal health variable because nonprofit hospitals have such large budgets relative to other health nonprofits that they skew the fiscal health variable.

Other county-level covariates included in the model were: education (percent of people with a college degree); median household income; and percent of the population that was white.

3.3 Statistical Methodology

We used a cross-sectional time-series design using a random effects model, clustering the standard errors at the county level, and using the lead of the dependent variable. Specifically, we regressed the independent and control variables on the values of the dependent variable for the subsequent year(s). We used the lead variable because we expected it would take at least a year for any effects of the independent variable on the dependent variable to manifest. We estimated two models—the first had a one-year lead, and the second model had a two-year lead on the dependent variable. We also tested for interaction between urban/rural status and number of nonprofits. Stata was used for all statistical analysis and a p-value of 0.05 was used for statistical significance.

4 Results

Table 1 reports the descriptive statistics for the US counties used in the analysis, stratified by urban/rural status because of statistical interaction. For urban counties, the percent of obese individuals ranged from 11.7 to 48.3 (mean: 27.9 %). For rural counties, the range was similar—from 10.7 to 47.6 (mean: 29.1 %). The number of health nonprofits per 10,000 people ranged from 0.0 to 9.6 in urban counties (mean: 1.1) and from 0.0 to 38.8 in rural counties (mean: 1.4). The average fiscal health of the nonprofits in the county was 22.5 for urban counties and 69.9 for rural counties. Sixty-one percent of urban counties had a nonprofit hospital compared to 40.7 % of rural counties.

Table 1: Descriptive statistics for rural and urban counties, 2004–2012.

URBAN	N	Mean	Std. Dev.	Min	Max
Percent obese individuals in county (BMI > 30 kg/m ²)	9,774	27.9	4.2	11.7	48.5

Number of health nonprofits per 10,000 county residents	9,772	1.1	0.9	0.0	9.6
Average financial health of health nonprofits in county	8,671	22.5	281.4	−489.9	14,404.9
Percent with bachelors or higher in county	7,581	23.2	10.1	6.0	69.5
Percent white in county	7,602	84.0	14.3	16.1	99.1
Median household income	7,599	47,930.0	12,087.7	23,515.0	114,200.0
URBAN	N	Percent			
Presence of a nonprofit hospital in county	5966	61.0			
RURAL	N	Mean	Std. Dev.	Min	Max
Percent obese individuals in county (BMI > 30 kg/m ²)	18,252	29.1	4.4	10.7	47.6
Number of health nonprofits per 10,000 county residents	18,252	1.4	2.0	0.0	38.8
Average financial health of health nonprofits in county	13,607	69.9	1955.8	−6955.7	128,336.9
Percent with bachelors or higher in county	13,972	16.2	6.3	4.7	63.4
Percent white in county	18,243	87.5	18.0	2.9	100.0
Median household income	14,163	36,974.0	218.7	0	106,148.0
RURAL	N	Percent			
Presence of a nonprofit hospital in county	7425	40.7			

Table 2 shows the lead regression results. The one-year difference in the number of health nonprofits per 10,000 individuals was negative and significant for rural counties in both the one- and two-year lead regressions. Results were also significant for urban counties with a one-year lead and a trend for a two-year lead. For example, in the one-year lead regression, the coefficient on the one-year difference in the number of health nonprofits was −0.116. This means that an increase of one health nonprofit per 10,000 people in a one-year time period was associated with a 0.116 decrease in the percent of obese individuals in the county in the following year. In urban counties, an increase of one health nonprofit per 10,000 people was associated with a 0.414 decrease in the percent of obese individuals in the county in the following year. These effects were similar in the two-year lead model, although with somewhat smaller coefficients (−0.094 for rural with $p = 0.001$, −0.189 for urban with $p = 0.08$).

Table 2: Lead regression results on county obesity rates, 2004–2012.

	One Year Lead		Two Year Lead	
	Rural	Urban	Rural	Urban
One year difference in number of health nonprofits 10,000 county residents	−0.116** (0.0321)	−0.414** (0.120)	−0.0936** (0.0293)	−0.189 + (0.107)
Average financial health of health nonprofits in county	−0.000011 (0.00000787)	−0.000183* (0.000069)	−0.0000142 (0.0000106)	−0.000118 (0.000130)
Presence of a nonprofit hospital in county	−0.100 (0.127)	−0.231 (0.146)	−0.129 (0.124)	−0.170 (0.153)
Percent with bachelors or higher in county	−0.336** (0.0163)	−0.324** (0.0131)	−0.357** (0.0171)	−0.346** (0.0136)
Percent white in county	−0.121** (0.00530)	−0.0703** (0.00566)	−0.133** (0.00591)	−0.0822** (0.00638)
Median household income	0.0000853** (0.00000885)	0.0000553** (0.0000709)	0.000119** (0.00000893)	0.0000699** (0.00000699)
Constant	42.90**	39.53**	43.43**	40.67**

	(0.471)	(0.552)	(0.496)	(0.597)
N	10,633	6,764	9,104	5,788

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

The average financial health of the health nonprofits in the county was only associated with the percent of obese individuals in the urban counties with a one-year lead, but the effect size was very small (-0.000183 , $p = 0.008$). The presence of a nonprofit hospital in the county was not associated with obesity. Higher levels of education were associated with lower levels of obesity in all the models ($p < 0.01$). A higher percentage of white residents in a county was negatively associated with obesity across all the models ($p < 0.01$). Median household income was also positively related to the percent of individuals in the county who are obese ($p < 0.01$).

5 Discussion

The purpose of this paper was to test whether health nonprofits have a community-level impact on a health-related outcome, namely obesity. Even after controlling for various kinds of intellectual, financial, and social capital that might otherwise explain our findings, we found that a drop in the number of health-related nonprofits from one year to another was associated with higher levels of obesity. The effect is about four times as strong in urban compared to rural counties in the one-year lag model, where we intuit that urban nonprofits have a more geographically concentrated impact than rural nonprofits. The effect was also robust with a two-year lead regression.

These results indicate that the entry and exit of nonprofit organizations working in a health care domain are related to outcomes such as the prevalence of obesity. This provides basic empirical support for our simple conceptual model of nonprofit impact: the entry and exit of nonprofit organizations works to address community failures and positively affect community-level outcomes.

The explanation for this association is potentially complex and indirect, requiring different types of observational data that were unavailable to us. However, we intuit that nonprofits can enhance awareness and social capital – the networks and relations of people living and working in a society resulting in beneficial interaction – that has been associated with mental and physical health and well-being (Holt-Lunstad, Smith, and Layton 2010; Jung and Viswanath 2013; Mohan and Bennett 2016; Roy et al. 2013). Further, while it has been shown that better social relationships are associated with better health (Holt-Lunstad, Smith, and Layton 2010), nonprofits may be perceived as a proxy for civil relationships of a county, and therefore may enhance the health of the area it serves. The presence of nonprofits in an area, which can have flexibility and efficiency in their scope, can also better cater to the health needs of marginalized and underserved groups (Meade et al. 2011). While we were unable to measure the extent to which nonprofits explicitly promoted obesity awareness/reduction, the general influence of health nonprofits is conceivably felt via efforts to promote an overall healthy lifestyle in underserved populations, which may then lead to a reduction in weight gain in the populations served (Yancey 2004).

The health care context for our study makes our results particularly interesting. The health care domain in the United States is a dynamic, policy-sensitive field where nonprofit and for-profit health organizations have been pushed into greater direct competition with one another (Yancey 2004). Because of this, many communities are experiencing rapid change in distribution of health nonprofits among health care service areas. For example, in the mid-1980s, 82 % of all hospice organizations were nonprofit and 13 % were for-profit. In the late 2000s, only 40 % of hospice providers were nonprofits and 53 % were for-profits (Gray and Schlesinger 2012). Additional community changes include an increasing number of health care nonprofits, particularly hospitals, converting to for-profit status, especially in rural communities (Niggel and Brandon 2014). Many communities are experiencing substantial changes in the number of health-oriented nonprofits operating in the community. Our results show that this is interactively associated with obesity-related outcomes in urban/rural settings.

While our results show an association between nonprofit entry and obesity rates, it would substantively take the entry of several nonprofits to notably change the prevalence of obesity. For example, to decrease obesity rates by 5 % points in a county, we would need to see 50 new health nonprofits per 10,000 people in a rural county and 10 new health nonprofits per 10,000 people in an urban county. Given that rural counties in our dataset have an average of 3.2 health nonprofits and urban counties have an average of 29.5 health nonprofits, this is a substantial number. While our analysis does not indicate that these new nonprofits need to be of any particular size (in terms of budget or staff), we do not know what kind of resources it would take to see these kinds of increases in health nonprofits in a particular community. Indeed, empirical evidence seems to indicate that new nonprofit organizations, even of smaller size, are often started to address a perceived need or failure' (Carman and Nesbit

2013). Thus, it is likely that changes of this magnitude in the entry of health nonprofits to a community might take a serious investment of community resources and support for local and national public policies.

A limitation to these analyses is that this was an aggregate study, and we do not have data on individual nonprofit performance. Thus, we do not know the variability of the effectiveness of nonprofits in the sample. Also, this was an exploratory study, and we chose to use the general category of Health (major group V) under the NTEE classification system because it is a major group dedicated to public health. In doing this, nonprofits relating to medical research, which may be less related to obesity, were included in these analyses, but this also helped to reduce selection bias in our exposure. Also, the nonprofits under the sub-category of “Health and Nutrition”, which are also relevant to the topic of obesity, were not included in these analyses because they were not under the major group of “Health”. Finally, we have included the presence of a nonprofit hospital, which may have different effects on the community than having any hospital.

While we do not have data about the extent to which the health nonprofits in these communities are partnering with one another or trying to act collaboratively, our results hint at the potential value of a collective nonprofit impact (Kania and Kramer 2011). Collective impact asserts that more coordination among service providers in a particular arena, including collaboration among nonprofits and cross-sectoral collaboration, can result in greater outcomes than individual organizations working in isolation. Our results indicate that the collective entry and exit of health nonprofits in a county have a small effect on obesity rates. Thus, it is worth exploring whether greater coordination and collaboration among these organizations can lead to a greater policy impact. Future research can investigate some of these issues, including the specific programs and activities that health nonprofits are using to try to affect health-related attitudes, knowledge, behaviors, and outcomes.

6 Conclusion

In this paper we have explored the relationship between the number of nonprofit organizations in a community and community-level impact. Specifically, we have examined how the change in the number of health nonprofits in a community affects obesity rates, and have found that an increase in the number of health nonprofits is associated with a small, but statistically significant decrease in obesity rates after one year. While there is a large body of research on the effectiveness of individual nonprofit organizations (Ebrahim and Rangan 2010; Flynn and Hodgkinson 2013; Sowa, Selden, and Sandfort 2004), the nonprofit literature is largely devoid of discussions of community-level impact of nonprofits, particularly empirical studies with large sample sizes. These discussions—and accompanying research—are important because our society assumes that the presence of enough effective organizations in a community will have a discernable impact on community-level social outcomes. We hope this study helps to open the door to start conceptualizing the type of research needed to more fully investigate the community-level impact of nonprofit organizations.

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Notes

1 The NTEE codes range from A to Z with each letter representing a different domain of nonprofit activity. The organizations that we consider in this study comprise the nonprofits in the NTEE classification as letters E (health care), F (mental health), G (diseases and disorders), and H (medical research). These four groups together represent the Health category of the NTEE codes and all the health-related codes of the NTEE classification system.

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