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True Grit: Exploring Nonprofit Sector Resilience Following Economic Recessions

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Abstract: The nonprofit sector has been portrayed as *resilient,* describing a sector that persists despite challenges. We investigate nonprofit resiliency by examining how organizational characteristics, strategies, and community factors equipped organizations to recover following economic recessions. Utilizing a fixed effects panel regression model, our study covers a period of 29 years (1989–2018), encompassing three economic crises in the United States. The primary focus is examining the sector's financial health and the resilience of the constituent organizations. Our findings describe a sector buoyed by the resilience of larger and older organizations, earned revenue, and contribution revenue, as well as the role of community factors in influencing the sector's resilience. This study examines a wider timeframe and employs a more expansive sampling approach compared to previous studies on nonprofit resilience. In doing so, it contributes valuable insights to our understanding of the *resilient sector*.

Keywords: nonprofit resilience; resilient sector; nonprofit financial health; revenue sources; economic recession

During the recent COVID-19 pandemic, the nonprofit sector was pressured to provide services at the same time its revenue sources were unpredictable (Kim and Mason 2020; Maher, Hoang, and Hindery 2020; Newby and Branyon 2021). This pattern has played out in prior periods of natural and economic disasters, leading Lester Salamon to describe the history of the nonprofit sector as a "story of resilience, of a set of institutions and traditions facing enormous challenges and also important opportunities, but that has found ways to respond to both, often with considerable creativity and resolve" (2003, p. 5). Salamon (2003) referred to the nonprofit sector

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as the "resilient sector" – implying it gets back up when it has been knocked down, with organizations consistently playing vital roles as service providers, advocates, exemplars of public sentiment, community-builders, and as value guardians despite the hardships faced (Bucholtz 1998; Frumkin 2005; Lipsky and Smith 1993; Salamon 2003; Warren 2003).

The nonprofit sector is not immune to external conditions. The sector relies upon external sources for resources and responds to demands in its external environment, such as health care and other services deemed essential during the COVID-19 pandemic. Research has demonstrated the impact of external events, such as natural disasters or economic recessions, on nonprofit organizations and has provided insights into the recovery processes they undergo. Geller, Salamon, and Mengel (2010) surveyed nonprofits in five key subsectors (children and family services, elderly housing and services, education, community and economic development, and the arts) during the Great Recession and found they experienced declining revenues, increasing costs, and increasing demands. These nonprofits also exhibited enormous resilience by initiating a range of fundraising, belt-tightening, and entrepreneurial strategies (Geller, Salamon, and Mengel 2010). Dietz et al. (2014) investigated closure rates among diverse nonprofit subsectors (arts and culture, education, environment, health, human services, international affairs, public and societal benefit, and others) after the Great Recession and found that closure rates increased for all subsectors examined. For human service nonprofits specifically, evidence depicts a "perfect storm" created by these events resulting in a combination of revenue constrictions at the same time as increased service demands (Salamon, Geller, and Spence 2009, p. 1). This combination bears concerning implications given the sheer size of the sector in terms of the share of gross national product and the crucial contributions nonprofits make to national and community life, which may require policy intervention so that services are not disrupted or terminated. Research has identified characteristics and strategies contributing to resilience, offering approaches and capacities that equip organizations to persist and bounce back following similar events. However, this research is constrained in its scope, often focusing on a singular event or a limited set of factors, and frequently adopting the perspective of only a few subsectors.

Given the limited perspectives of prior research, we wanted to more broadly examine the resilience of the nonprofit sector. Rather than focusing on a singular event, we investigate how the sector has fared over the recent past, examining nearly three decades (1989–2018), which included three economic crises in the United States. We ask if the sector is, in fact, resilient and how organizational characteristics and strategies, as well as community factors, equip the sector to rebound after inevitable storms are encountered. In the following, we define key terms and highlight the prior research on the topic that informs our study's hypotheses. We then describe our analysis approach and findings and conclude by discussing these findings and their implications for research and practice. In summary, we identify organizational

variables that contribute to resilience, including size, age, and revenue mix, and also that community-based factors are positively correlated with sector resilience. This study provides novel insights into what is meant by "the resilient sector" extending beyond previous research by examining a longer timeframe and assessing the generalizability and durability of factors contributing to nonprofit resilience.

1 Defining Nonprofit Resilience

We begin by defining key terms, acknowledging the various and sometimes conflicting definitions we found in the prior literature. First, we adopted from Chen (2021b, p. 1), Meyer (1982), and Staw, Sandelands, and Dutton (1981) a definition of *resilience* as the "ability or capacity of an organization to maintain or recover to at least its original performance level after a disruptive event." Some literature has framed resilience with a more limited view, describing s*urvival* as the ability or capacity to persist following an adverse event and continue to provide services (For examples, see: Irvin and Furneaux 2021; Searing, Wiley, and Young 2021) or *stability* as in maintaining operating capacity (For examples, see: Calabrese 2018; Kim and Mason 2020). As Young and Searing explain, "resilience is not simply about survival but also maintenance of viability, dynamism and effectiveness over time" (2022, p. 4). We distinguish resilience as not merely survival following an adverse event but rather maintaining or amelioration of organizational performance to pre-event conditions or levels (Chen 2021a,b), reflecting recovery (i.e. returning to normal state) and rebound (i.e. bouncing back). We also found literature describing resilience as strategies, activities, and characteristics of the nonprofit that equipped them to cope with or navigate the event (For example, see: Geller, Salamon, and Mengel 2010; Salamon, Geller, and Spence 2009). These strategies, activities, and characteristics are essentially a means to an end, and our research focuses more on the end result.

Next, a study of nonprofit resilience is essentially a study of performance. Performance analysis evaluates how the nonprofit carries out its mission, and financial performance is often a proxy for mission performance since nonprofits need resources for their mission-related activities. An inquiry about performance following an adverse event explores both the financial vulnerability and resilience of a nonprofit organization or the sector as a whole. Particularly, financial vulnerability refers to the capacity of a nonprofit to sustain its financial performance when facing an adverse event. In contrast, financial resilience, as defined earlier, refers to the capacity of nonprofits to maintain their original level of services after an adverse event. Research on nonprofit financial performance has robust findings of factors and characteristics that predict *vulnerability*, such as the equity ratio, administration

costs, operating margins (surplus), and revenue diversification (Greenlee and Trussel 2000; Hager 2001; Hung and Hager 2019; Keating et al. 2005; Trussel 2002; Tuckman and Chang 1991), size, age, subsector (Searing 2018; Trussel and Greenlee 2004), and contextual factors (Never 2014; Prentice 2016). Our research complements this vulnerability research by examining what equips nonprofits to maintain their performance following an adverse event.

We also see a need to understand both organizational and sector resilience. Organizational-level research examines strategies or characteristics that equip the organization to be resilient from an internal perspective (For example, see Chen 2021b; Hutton et al. 2021; Witmer and Mellinger 2016). Looking more broadly at mission sub-sectors or the entire nonprofit sector allows us to understand what happens between organizations. For example, research focused on particular mission-specific sub-sectors, such as international NGOs (Kerlin 2013) or social service organizations (Pennerstorfer, Reitzinger, and Schneider 2020), helps us understand how events impact the performance of specific mission areas. We aim to substantiate Salamon's "resilient sector" claim by considering the entire nonprofit sector, which includes its various subsectors. This approach utilizes a broader sampling frame than previous research.

2 Evaluating Sector Resilience

In this section, we provide more details about our study's research purpose and related hypotheses. First, the primary intention of our research is to confirm Salamon's "resilient sector" assumption. To that end, we look across the past three decades to answer this research question: Is the nonprofit sector resilient (i.e. return to pre-event performance) following periods of economic recession? Since this study encompasses the entire nonprofit sector, we are drawn to universally impactful events, such as a pandemic or economic recession, rather than those that impact only particular sub-sectors or specific geographic regions. To understand resilience, our study's timeframe accounts for a sufficient time period following the event, as limiting a timeframe to the event or immediate aftermath may be evidence of coping strategies rather than recovery to pre-event levels.

Next, we conducted a thorough review of existing literature to identify factors that either contribute to or hinder nonprofit resilience. We draw upon this research to understand how generalizable these findings are across adverse recession events and across the entirety of the nonprofit sector. Refer to Table 1 for a summary of this prior research's sampling frame, the triggering events that necessitated a recovery, and the factors that contributed to or hindered resilience. Since we seek to examine resilience across multiple recession events and the entire nonprofit sector, we use these factors to frame hypotheses for our current study.

Table 1: Significant factors of nonprofit resilience, alphabetized by author.

Author(s)	Sample	Event	Organizational characteristic	Financial measure | strategy	External factors
Chen (2021a)	New Orleans, LA area nonprofits	Hurricane	Organization size (+), nonprofit mission	Equity ratio (+), surplus (+)	
Chen (2021b)	Southeastern U.S. nonprofits serving a mix of missions	Hurricane	Insurance (+), recovery planning (+)	Slack resources (+)	External relations (+)
Kim and Mason (2020)	U.S. human service and arts nonprofits	COVID-19	Nonprofit mission	Operating reserves (+)	
Lin and Wang (2016)	New Jersey human services and community improvement nonprofits	2007–2009 great recession	Organization age (+), management quality (+)	Fundraising strategies (+), operating margin (+), equity ratio (+), administrative cost ratio (−), debt ratio (−), revenue diversification (−)	Urban/Suburban/Rural locations
Morreale (2011)	New York nonprofits serving a mix of missions	2007–2009 great recession	Organization size (+)	Government funding (+), earned income (+), donated income (−)	
Park and Mosley (2017)	Chicago, IL area children and youth serving nonprofits	2007–2009 great recession	Managerial strategy (+)	Fundraising strategies (+)	External relations (+)
Searing (2018)	US nonprofits	Unknown event leading to insolvency and financial disruption		Equity balance (+), surplus, revenue diversification (+)	

2.1 Organizational Characteristics Related to Resilience

According to the liability of newness theory (Stinchcombe 1965), new organizations have higher risks of failure than more established organizations because the new organizations lack social capital, financial resources, or routines acquired through

experience to contribute to efficiency and legitimacy to survival. In recessions, new nonprofits have less experience coping with an adverse event, increasing their failure in a disaster context. Dietz et al. (2014) documented nonprofit closures following the Great Recession. Lin and Wang (2016) used organizational age as an explanatory factor in their analysis of human service nonprofits following that same event. We assess that older organizations will have enhanced coping skills that equip both survival and resilience. Therefore, we developed the following hypothesis:

Hypothesis 1a: Younger nonprofit organizations will be less resilient than older ones.

Similar to organizational age, organizations that persist over time, also have the opportunity to accrue a track record and resources that enable growth. Size has also been used as an explanatory factor of resilience, implying that organizations have resources, staffing, and other capabilities to cope with adverse events and equip their recovery (Chen 2021a; Lin and Wang 2016; Morreale 2011). Moreover, policy and funding pressures have converged to favor larger nonprofit organizations (Smith and Phillips 2016), and in turn, a reinforcing relationship emerges. Therefore, larger organizations may experience reduced vulnerability as they expand, while smaller organizations may face distress in the presence of adverse environmental events. Accordingly, we hypothesize the relationship between size and resilience to assess if larger organizations are more resilient.

Hypothesis 1b: Larger nonprofit organizations will be more resilient than smaller ones.

2.2 Revenue Sources

By their very nature, nonprofits are mission-driven organizations. The nonprofit sector is a rich amalgam of diverse missions ranging from disaster relief to human services to membership associations. In order to fulfill their missions, nonprofits require financial resources. According to Wilsker and Young (2010), a benefits theory of nonprofit finances links a nonprofit's mission and related programs or services to its revenue sources, which comprise its revenue portfolio. Benefits theory states that modern nonprofits and other private social purpose organizations create a mix of public and private benefits for their beneficiaries through their specific missions. In return, these beneficiaries, or their representatives, support the organizations using various financing methods (Young 2017). Further, exploring benefits theory

means identifying the different types of benefits and beneficiaries and explaining how suitable financing methods can turn these benefits into financial support (Young 2017). Nonprofits manage their revenue portfolios by considering their programs or services and the associated strategies to obtain the resources. A portfolio's revenue sources are typically divided among three major streams: public, earned, and investment, and each has associated characteristics (Carroll and Stater 2009). Public revenue sources include funding from government, individuals, and philanthropic foundations.

Individual giving is a volatile source of funding for nonprofits. Research has found that financial security (O'Herlihy, Havens, and Schervish 2006) and stock market returns (Deb et al. 2003) are strong predictors of changes in individual giving patterns. Trend reporting on charitable giving also indicates a decline following the most recent Great Recession (Osili et al. 2021). Whereas Blackwood, Roeger, and Pettijohn (2012) found that U.S. nonprofit Form 990 filings report that 13.3 % of revenues are from private contributions, some nonprofit sub-sectors are more reliant on charitable donations than others (Salamon 2012; Young 2017). Charitable gifts are a key income source for nonprofits. Unlike earned income, these gifts often support public services that cannot be easily withheld from non-paying beneficiaries, creating a free rider problem. While the public nature of these services can inspire altruism, organizations struggle to get beneficiaries to pay amounts that fully reflect the value of the benefits received (Young 2017). Additionally, these organizations may serve beneficiaries who are unable to pay or operate at a scale that makes them ineligible for government funding. Therefore, we hypothesize that the instability of charitable donations, in the face of adverse events, will hinder nonprofit resilience.

Hypothesis 2a: Nonprofits that are less reliant on individual contribution revenue will be more resilient than nonprofits that are more reliant on individual contribution revenue.

Contrary to assumptions about the nonprofit sector's reliance on donated resources, the primary revenue source for the nonprofit sector is earned income (National Center for Charitable Statistics 2020; Salamon 2012). Although the commercialization of nonprofits is not without criticisms, particularly its impact on mission drift (e.g. Du Bois et al. 2004; Eikenberry 2009; Eikenberry and Kluver 2004), a contrary perspective is that commercialization enables nonprofits' autonomy, independence, and flexibility as well as increased effectiveness in delivering services (Chetkovich and Frumkin 2003; Froelich 1999; Gras and Mendoza-Abarca 2014; Mitchell 2014; Pfeffer and Salancik 2015; Young and Salamon 2002). Hung (2020) offers a comprehensive meta-analysis of the extant literature, documenting that "how and when to

embrace commercial activities that fulfill social missions and serve beneficiaries is more important to nonprofits than the question of whether or not to embrace commercialization" (p. 305).

Commercialization and earned income are not universally engaged revenue strategies across the nonprofit sector, though, as some populations served do not have means for self-pay, or the inherent structure of the program does not prompt an associated fee for service. However, the mission areas reliant on earned revenue, such as health and education-related causes, comprise the largest portions of the nonprofit sector (National Center for Charitable Statistics 2020). Nonprofits that heavily relied on earned revenue were less likely to experience revenue volatility than nonprofits that relied on donative revenues (Carroll and Stater 2009) since contributions are sensitive to changes in the external environment (Keating et al. 2005). These factors lead us to hypothesize that earned revenue equips resilience.

Hypothesis 2b: Nonprofits that are more reliant on earned income will be more resilient than nonprofits that are less reliant on earned income.

2.3 Financial Reserves

As nonprofits strategically select their revenue portfolio, one strategy for selection involves determining how to handle profits or revenue earned in excess of expenses. Instead of spending all profits on programs, building reserves through steady investments can benefit nonprofits in developing their infrastructure and emergency management. During economic downturns, managers can finance capital without borrowing, reducing current and future operating expenses. Moreover, financial reserves possess the potential to avert the need to resort to lines of credit during periods of temporary cash shortages and ensure that expenditures align with the organization's long-term objectives (Calabrese 2018). Research findings have indicated that financial reserves allow nonprofits to weather an adverse event and return to pre-event performance (Chen 2021b; Kim and Mason 2020). Therefore, our following hypothesis evaluates the contribution of financial reserves to nonprofit resilience.

Hypothesis 3: Nonprofits with reserve funds will be more resilient than nonprofits without reserve funds.

2.4 Evenness of Resources Distribution in a Community

According to population ecology theory, the resource supply of a community is linked to the carrying capacity of that community (Hannan and Freeman 1987). Carrying capacity refers to the number of organizations a community can sustain. The distribution of resources, or more particularly the evenness of resource distribution in a community, affects the performance and sustainability of organizations (Paarlberg et al. 2018). If the carrying capacity of a community is overstretched, organizational performance may suffer. Nonprofits compete for financial and human resources to survive and grow in the market of a local community (Soule and King 2008). When a market is dominated by a few large nonprofits, or when resources are concentrated among a limited number of nonprofits, competition tends to be less intense. This is because large nonprofits typically operate with lower costs compared to small ones, and direct competition between large and small nonprofits is rare (Carroll 1985). Therefore, an uneven distribution of resources implies reduced levels of resource competition within a community. In such a context, nonprofits may be more resilient as they are not directly competing for scarce resources. Therefore, we develop the following hypothesis to evaluate the effect of community factors on nonprofit resilience:

Hypothesis 4: Nonprofits operating in unevenly distributed resource communities will be more resilient than nonprofits in evenly distributed resource communities.

3 Methods

3.1 Data

Data were obtained from National Center for Charitable Statistics (NCCS) Core Public Charities (PC) files. These core files are compiled by the Urban Institute and contain tax return information of most 501(c)(3) public charities that are required to file Form 990 annually with the United States Internal Revenue Service (IRS). Through 2010, all nonprofit organizations with gross revenues above $25,000 annually were required to file a Form 990, and for the years following 2010, the filing limit increased to $50,000 in annual gross revenues. In addition, most religious organizations do not file Form 990. The core files are available for nearly 30 years, from 1989 to 2018. Three major economic recessions occurred in the United States during this period, and this study uses this longitudinal data to assess nonprofit resilience following

each recession event. The three occurrences are from July 1990–March 1991, March 2001–November 2001, and December 2007–June 2009 (National Bureau of Economic Research 2021).

The annual core files were first merged into a single panel dataset from 1989 to 2018, including 8,818,340 observations from 743,437 nonprofits. This panel dataset was further processed following Calabrese (2011). First, observations with revenues and expenses less than zero were removed (n = 162,810). Second, observations with missing or obviously incorrect rule dates (i.e. inconsistently labeled across the panel) were removed (n = 104,343). Third, extreme values of surplus, equity ratio, contribution, and earned revenue were trimmed because extreme values of a variable can skew the regression results (Bailey 2015). Extreme values are defined as values that are more than three standard deviations away from the mean value (n = 262,002 observations). Fourth, observations with revenue less than $50,000 are removed. Finally, all fiscal data were adjusted to the 2004 currency value for inflation using the Consumer Price Index (CPI). Following these cleaning procedures, 5,261,629 observations from 532,921 nonprofits remained in the final panel dataset. The final dataset is an unbalanced panel since there are year gaps in some organizations' reporting.

3.2 Variables

The dependent variable is nonprofit resilience. The resilience of a nonprofit is defined as the fiscal performance growth ratio by comparing an organization's pre- and post-recession fiscal performance. Using growth rate to measure nonprofit fiscal performance change is widely adopted in multiple nonprofit studies (Chikoto and Neely 2014; Greenlee 2002; Hager 2001; Lin and Wang 2016; Never 2014; Trussel 2002). Fiscal performance is assessed by two fiscal measures – total expenses and total revenue. First, total expenses reflect the nonprofit presence in a community (Never 2014) and are negatively affected by external disturbances (Chen 2022). Total revenue is also evaluated since economic recessions tend to significantly impact nonprofit revenues – as private donors may reduce their contributions to nonprofits and the government may cut funds due to tightened budgets (Lin and Wang 2016). By examining the pairing of these two variables, our analysis aims to understand whether both the resources nonprofits attract for their mission and the expenses associated with accomplishing that mission rebound following an adverse event.

The variable recession was operationalized using data from the National Bureau of Economic Research (NBER), which indicated three time periods of recession during the panel: July 1990–March 1991, March 2001–November 2001, and December 2007–June 2009. Three years prior to the recession are treated as pre-recession years.

The average data of pre-recession years is used as a baseline to calculate the fiscal growth rate. The five years after the recession are treated as post-recession years. For example, take the second recession period of March 2001–November 2001. The years 1998–2000 are treated as the pre-recession years, with the year 2001 considered the recession period. The years 2002–2006 are treated as the post-recession years. The only exception to this rule is the first recession, which occurred in July 1990–March 1991. The pre-recession year in our analysis is limited to 1989, as it represents the earliest available data in the NCCS Core PC files. If the fiscal performance growth ratio is positive, a nonprofit would perform better in this post-recession year compared to the pre-recession year. If the fiscal performance growth ratio is negative, a nonprofit would perform worse in this post-recession year compared to the pre-recession year. Resilience is not a binary condition, so we regard the dependent variable as a continuous variable such that nonprofits with low or zero growth rates can still contribute to the regression result. The formula to calculate the fiscal performance growth rate is shown below:

$$\text{Fiscal performance growth ratio} = \frac{\left(\text{fiscal performance of postrecession year}_i - \text{fiscal performance of prerecession year}_j\right)}{\text{fiscal performance of prerecession year}_j}$$

Where:

Recession Period1 1990–1991: i = 1992–1996; j = 1989

Recession Period2 2001: i = 2002–2006; j = 1998–2000

Recession Period3 2007–2009: i = 2010–2014; j = 2004–2006

This analysis uses six independent variables: organizational age, organizational size, contributions, earned income, reserve fund, and community factors. Organizational age is calculated as the difference between the current tax file year and the year in which tax-exempt status for the organization was granted. Size is indicated by the natural logarithm of the total assets, which has consistently been used in the literature (Hodge and Piccolo 2005; Keating et al. 2005; Prentice 2016; Trussel 2002). Contributions are calculated as a ratio of contribution to total revenue. Earned income is calculated as a ratio of earned income to total revenue. Financial reserve is indicated by an organization's equity ratio, which is calculated as a ratio of net assets to total revenue. To evaluate community factors, the *Evenness of Resources Distribution* is measured using a Blau Index (BI) (Paarlberg et al. 2018), which ranges from zero to one. When the BI is closer to one, resources are more equally distributed in a community, indicating a higher level of competition in a community. However, if the BI is closer to zero, resources are concentrated within a few large nonprofits, which suggests a lower level of resource competition in the community. The formula for the BI calculation is shown below:

$$\mathrm{BI} = 1 - \sum\left(\frac{\mathrm{expense}_i}{\mathrm{total\ expense}_j}\right)^2$$

Where i denotes nonprofits and j denotes counties.

The control variables include subsector and surplus. The first control variable follows the assumption that nonprofits in different subsectors compete for a separate pool of resources, such as volunteers and donations (Carroll and Stater 2009). Thus, they may experience a different level of resilience. Subsector is a nominal variable categorized based on major codes under the National Taxonomy of Exempt Entities-Core Codes (NTEE-CC) classification. The NTEE-CC is a classification system adopted by IRS and NCCS to classify nonprofits based on their major mission areas. It includes five categories: arts, culture and humanities, education, health, human services, and others. Surplus is also a control variable and refers to the total operating margin, measured as the difference between total revenue and total expense to total revenue (Tuckman and Chang 1991). Surplus is expected to have a positive relationship with nonprofit resilience (Chen 2021a; Lin and Wang 2016).

3.3 Model Specification

A fixed effect panel regression is adopted to study how organizational characteristics and strategies, and community factors help equip the sector to return to pre-conditions after inevitable storms occur. Panel regression is chosen since the dataset is longitudinal. In other words, multiple years of data are assessed for each nonprofit. The fixed effect model is chosen because we assume that there is an omitted variable bias in our study (Greene 2008). For example, management strategies may affect nonprofit resilience too. Choosing the fixed effect model over the random effect model is also confirmed by running the Hausman tests. The panel regression model used in this study is shown below.

$$\begin{aligned}\text{nonprofit resilience} = {} & \beta_1 \mathrm{size}_{it} + \beta_2 \mathrm{contribution}_{it} + \beta_3 \text{earned income}_{it} \\ & + \beta_4 \text{equity ratio}_{it} + \beta_5 \mathrm{blau}_{it} + \beta_6 \mathrm{subsector}_{it} + \beta_7 \mathrm{surplus}_{it} \\ & + \beta_8 \mathrm{age}_{it} + u_{it} + \varepsilon_{it}\end{aligned}$$

Where i denotes individual nonprofits;
t denotes the fiscal year;
u_{it} denotes error between nonprofits;
ε_{it} denotes error within nonprofits

4 Results

To assess our main research question, we illustrate the trends of each dependent variable in a consolidated figure (refer to Figure 1). Tracing this trend line across the years in the analysis, we observe instances where the ratios fall below zero, indicating declines associated with and immediately following the recession years. However, the overall trend lines show growth and recovery of the sector over time, demonstrating the general resilience of the nonprofit sector. This observation aligns with Salamon's portrayal of the nonprofit sector as resilient.

Next, we used fixed effects panel regression to analyze the proposed hypotheses. Table 2 provides descriptive statistics of each variable used in the panel regression. On average, nonprofits have a positive total expense growth rate, and the highest growth rate occurs after Recession Period 1 1990–1991. Nonprofits also have a positive total revenue growth rate on average, but revenue growth is relatively slower compared to the growth of total expenses. The age of nonprofits ranges from 0 to 118, with an average of 19. Regarding revenue source, on average, about 58 % of nonprofits' revenue comes from contributions, while around 37 % is derived from earned revenue. Table 3 shows the subsector distribution of the five major subsectors. The human services subsector has the most nonprofit organizations in numbers, making up nearly 37 % of all nonprofits in this study. Tables 4-1–4-6 shows

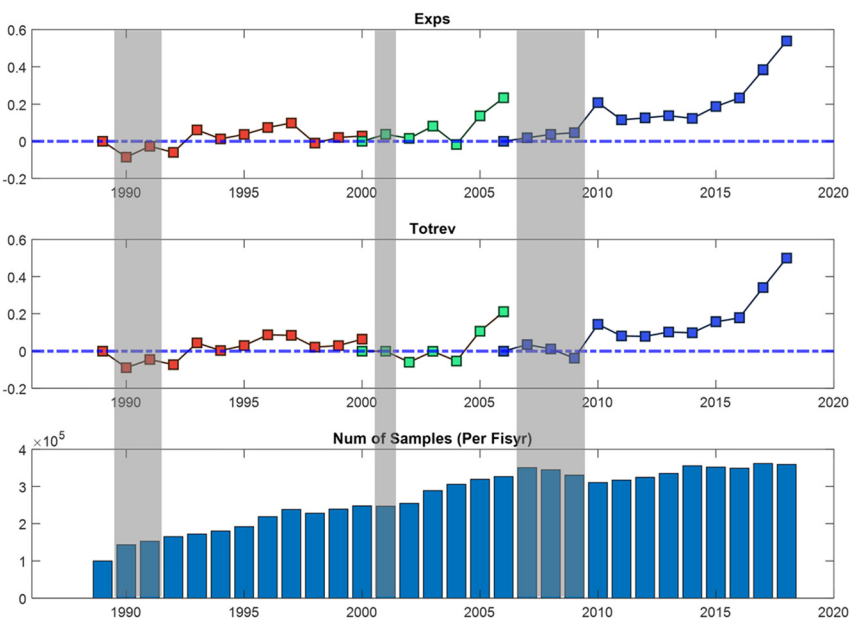

Figure 1: The trends of total expense and total revenue growth after economic recessions.

Table 2: Descriptive table.

Variables	Count	Mean	S.D.	Min	Max
DV: Exps_1990	287,715	4.367463	381.9903	−1	110,754.1
DV Exps_2001	526,204	7.158556	995.2838	−1	390,001.2
DV: Exps_2007	559,798	2.392047	193.4392	−1	48,649.29
DV: Totrev_1990	288,937	0.553718	10.14898	−0.9995194	1,466.252
DV: Totrev_2001	527,302	0.3951791	5.85903	−0.9994745	1,502.737
DV: Totrev_2007	560,605	0.3550138	3.305076	−0.9995902	728.2128
Size	4,964,225	12.53238	2.389413	0	24.51592
Age	5,261,629	19.38922	15.92375	0	117.98
Contribution	5,246,030	0.575522	0.4063228	0	1
Earned income	5,246,030	0.3736223	0.4040864	0	1
Equity ratio	5,261,629	1.520116	8.310596	−903.8015	8,611.136
Blau index	5,261,629	0.9451425	0.1197847	0	1
Surplus (one year lag)	5,211,507	0.1325138	0.2570038	−0.2622991	1

Table 3: Subsector distribution.

Subsector	Frequency	Percentage	Cumulative percentage
Arts, culture and humanities	528,267	10.04	10.04
Education	799,373	15.19	25.23
Health	768,964	14.61	39.85
Human services	1,924,055	36.57	76.41
Other	1,240,970	23.59	100.00

Table 4-1: Variable correlations for recession period 1990 using total expense ratio as dependent variable.

Exps_1990	Exps_1990 1	Size	Con.	Earn.	Equity.	Blau	Surplus.	Age
Size	0.0087	1						
Contribution	0.0042	−0.223	1					
Earned income	−0.0044	0.1205	−0.8828	1				
Equity ratio	0.0023	0.1503	−0.048	−0.1162	1			
Blau	−0.0003	−0.046	0.0096	−0.0021	−0.0083	1		
Surplus (one year lag)	−0.0012	0.0036	−0.0022	0.0013	−0.0003	−0.0304	1	
Age	−0.0081	0.3402	−0.1211	0.0853	0.033	−0.0572	0.0041	1

Table 4-2: Variable correlations for recession period 2001 using total expense ratio as dependent variable.

	Exps_2001	Size	Con.	Earn.	Equity.	Blau	Surplus.	Age
Exps_2001	1							
Size	0.0079	1						
Contribution	−0.0007	−0.1901	1					
Earned income	−0.0001	0.102	−0.921	1				
Equity ratio	0	0.0819	−0.0106	−0.0542	1			
Blau	−0.0011	−0.04	0.0104	0.0022	−0.0033	1		
Surplus (one year lag)	−0.0011	0.0023	−0.0012	−0.0004	0.0002	−0.0145	1	
Age	−0.0081	0.3533	−0.121	0.0896	0.0179	−0.0695	0.0008	1

Table 4-3: Variable correlations for recession period 2007 using total expense ratio as dependent variable.

	Exps_2007	Size	Con.	Earn.	Equity.	Blau	Surplus.	Age
Exps_2007	1							
Size	0.0024	1						
Contribution	0.0052	−0.1777	1					
Earned income	−0.0052	0.1031	−0.9393	1				
Equity ratio	0.0019	0.1989	−0.015	−0.1194	1			
Blau	0.0011	−0.0025	−0.0015	0.0025	−0.0148	1		
Surplus (one year lag)	0.002	0.0039	0.0001	−0.0015	0.0028	−0.0269	1	
Age	−0.0082	0.3551	−0.1288	0.1005	0.0485	−0.0224	0.0052	1

the correlation between variables. The fixed effect panel regression results are shown in Table 5. As described in the method section, two measures of nonprofit resilience (total expense resilience and total revenue resilience) were used, and their results are depicted separately (Table 6).

4.1 Total Expense Resilience

Among the three hypotheses, Hypotheses 1b and 2 are partially supported by our analysis, while Hypotheses 1a, Hypotheses 3 and 4 are not supported. Hypothesis 1b proposes that larger nonprofits are more likely to be more resilient. The coefficient for size is positive, and the variable is significant for the Recession Period 2, 2001, and the Recession Period 3, 2007–2009 at 0.001 and 0.05 levels, respectively. This indicates

Table 4-4: Variable correlations for recession period 1990 using total revenue ratio as dependent variable.

	Totrev_1990	Size	Con.	Earn.	Equity.	Blau	Surplus.	Age
Totrev_1990	1							
Size	0.034	1						
Contribution	−0.0045	−0.2239	1					
Earned income	0.009	0.12	−0.8811	1				
Equity ratio	−0.0089	0.1515	−0.0489	−0.1179	1			
Blau	−0.0119	−0.0461	0.0098	−0.0022	−0.0083	1		
Surplus (one year lag)	0.0006	0.0037	−0.0024	0.0014	0	−0.0305	1	
Age	−0.004	0.3382	−0.1202	0.0851	0.0325	−0.057	0.0041	1

Table 4–5: Variable correlations for recession period 2001 using total revenue ratio as dependent variable.

	Totrev_2001	Size	Con.	Earn.	Equity.	Blau	Surplus.	Age
Totrev_2001	1							
Size	0.028	1						
Contribution	0.0098	−0.1904	1					
Earned income	−0.003	0.1017	−0.9202	1				
Equity ratio	−0.0071	0.0825	−0.0109	−0.0547	1			
Blau	−0.0086	−0.04	0.0105	0.0022	−0.0033	1		
Surplus (one year lag)	−0.0004	0.0022	−0.0013	−0.0005	0.0003	−0.0145	1	
Age	−0.0361	0.3521	−0.121	0.09	0.0175	−0.0695	0.0007	1

Table 4–6: Variable correlations for recession period 2007 using total revenue ratio as dependent variable.

	Totrev_2007	Size	Con.	Earn.	Equity.	Blau	Surplus.	Age
Totrev_2007	1							
Size	0.0395	1						
Contribution	0.0179	−0.178	1					
Earned income	−0.0103	0.1029	−0.9388	1				
Equity ratio	−0.0251	0.1994	−0.0156	−0.1197	1			
Blau	0.0025	−0.0025	−0.0016	0.0025	−0.0147	1		
Surplus (one year lag)	0.0001	0.0039	0.0001	−0.0015	0.0029	−0.0269	1	
Age	−0.0555	0.3545	−0.129	0.1009	0.048	−0.0224	0.0053	1

Table 5: Panel regression results.

	Total expense resilience			Total revenue resilience		
Variable	**Exps_1990**	**Exps_2001**	**Exps_2007**	**Totrev_1990**	**Totrev_2001**	**Totrev_2007**
Size	1.216	8.165***	2.946*	0.784***	0.364***	0.183***
	(1.219)	(1.500)	(1.478)	(0.0250)	(0.01000)	(0.00692)
Age	−0.308	0.670	0.505	0.0555***	0.0592***	0.0476***
	(0.456)	(0.526)	(0.457)	(0.00937)	(0.00350)	(0.00214)
Contribution	40.18***	20.57	1.736	1.478***	2.557***	2.088***
	(8.707)	(12.82)	(14.10)	(0.177)	(0.0847)	(0.0657)
Earned income	37.08***	16.88	3.147	1.076***	2.081***	1.613***
	(9.086)	(13.47)	(14.65)	(0.185)	(0.0891)	(0.0683)
Equity ratio	−0.334*	−0.0399	0.0139	−0.0263***	−0.00238***	−0.0267***
	(0.139)	(0.0512)	(0.175)	(0.00287)	(0.000341)	(0.000818)
Blau index	−866.1	−534.2	2.959	0.329	−3.447	0.121***
	(1,150.6)	(2,729.8)	(5.743)	(23.65)	(18.19)	(0.0269)
Education	0.0794	−6.780	0.283	0.658	−0.0408	0.127
	(31.18)	(8.584)	(30.62)	(0.642)	(0.0572)	(0.143)
Health	0.341	−5.768	13.71	0.374	−0.0580	0.263
	(28.89)	(9.304)	(30.72)	(0.594)	(0.0620)	(0.144)
Human services	0.401	−8.282	23.29	0.563	−0.0545	0.255*
	(27.23)	(8.153)	(27.55)	(0.561)	(0.0543)	(0.129)
Others	0.457	−9.134	−14.38	0.667	0.0518	0.259*
	(24.68)	(7.857)	(26.67)	(0.508)	(0.0523)	(0.125)
Surplus (one year lag)	−0.258	−4.266	4.715	0.0614	−0.0108	−0.00494
	(2.058)	(2.370)	(2.565)	(0.0423)	(0.0158)	(0.0120)
Constant	824.6	412.2	−60.34	−12.69	−4.333	−5.369***
	(1,155.4)	(2,734.7)	(35.73)	(23.75)	(18.22)	(0.167)
N	286,119	667,186	673,127	287,300	668,497	674,063
R-square	0.0001	0.0001	0.0000	0.0064	0.0062	0.0078

Standard errors in parentheses. $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$. Arts, culture and humanities was the reference group.

that larger nonprofits generally have advantages in maintaining or growing their expenses after recessions.

Hypothesis 2 proposes that two revenue sources (contribution and earned income) are associated with nonprofit resilience. Both are statistically significantly associated with nonprofit resilience during the Recession Period 1, 1990. A higher contribution share of the total revenue is positively correlated with the total expense growth ratio. The effect size is 40.18, indicating that a one-dollar increase in contribution is associated with a 40.18 percentage point increase in the total expense growth ratio. The variable is significant at the 0.001 level. There is a statistically significant relationship between earned income and expense growth ratio, with

Table 6: Overall prediction of nonprofit resilience.

Variable	Total expense resilience			Total revenue resilience		
	Exps_1990	Exps_2001	Exps_2007	Totrev_1990	Totrev_2001	Totrev_2007
Size (ln assets)	–	↑	↑	↑	↑	↑
Age	–	–	–	↑	↑	↑
Contribution	↑	–	–	↑	↑	↑
Earned income	↑	–	–	↑	↑	↑
Equity ratio	↓	–	–	↓	↓	↓
Community factors (Blau)	–	–	–	–	–	↑
Education	–	–	–	–	–	–
Health	–	–	–	–	–	–
Human services	–	–	–	–	–	↑
Other subsector	–	–	–	–	–	↑
Surplus (one year lag)	–	–	–	–	–	–
Constant	–	–	↓	–	–	↓

The arrows indicate the significant relationships.

β_3 = 37.08 and p < 0.001. These findings suggest that both contribution and earned income play a role in enhancing the resilience of nonprofits, although their impact may vary under different circumstances.

Hypotheses 3 and 4 are not supported by the analysis. Hypothesis 3 proposes that nonprofits with more reserve funds are more likely to be resilient. The hypothesis achieves statistical significance during the Recession Period 1, 1990, but the coefficient is negative (β_6 = −0.334, p < 0.05). This suggests that nonprofits with a larger equity ratio are less likely to be resilient in some circumstances. The findings of Hypothesis 4 indicate that the levels of resource competition in communities do not affect nonprofits' resilience levels.

Table 5 also reports the results of the two control variables. The findings indicate that the subsector does not affect nonprofits' total expense recovery. The nonprofit's surplus is also not statistically significant across all three recession periods. The findings suggest that surplus does not affect nonprofits total expense recovery.

4.2 Total Revenue Resilience

The fixed effect panel regression results with the total revenue growth ratio as the dependent variable are shown in Table 5. Among the three hypotheses, Hypotheses 1 and 2 are supported across all three recession periods, and Hypothesis 3 is not supported. Hypothesis 4 is partially supported by our analysis. Hypothesis 1a and 1b are supported. The coefficients are positive, and the variable is statistically significant at 0.001 levels, suggesting that larger and older nonprofit organizations are more resilient than smaller and younger ones in total revenue resilience.

Hypothesis 2 is also supported, indicating that contribution and earned income revenue sources are positively associated with total revenue resilience and are statistically significant at 0.001. The findings suggest that nonprofits with more contributions and earned income are more resilient.

Hypothesis 3 is not supported by the analysis. The findings suggest that the equity ratio is negatively associated with total revenue resilience across all three recession periods, but the effect size is very small. Unlike total expense resilience, Hypothesis 4 is supported in the Recession Period 3, 2007–2009, indicating operating in unevenly distributed resource communities will be more resilient than nonprofits in evenly distributed resource communities.

For the control variables, human services sector achieved statistically significant results in the Recession Period 3, 2007–2009, indicating the human service sector is more resilient than the arts and humanity sector in some circumstances. The surplus variables do not achieve statistical significance, suggesting surplus is not associated with total nonprofit revenue resilience.

5 Discussion

This study explored the resilience of the nonprofit sector, examining how organizational characteristics, strategies, and community factors contribute to nonprofit recovery following economic recessions. Our descriptive analysis reveals that, in general, the nonprofit sector demonstrates resilience by recovering after recessionary periods, returning to pre-recession levels, and experiencing growth over time. Our analysis used factors relating to organizational resilience to assess the sector's overall resilience. The findings hold insights about nonprofit vulnerabilities, which are useful for policymakers and philanthropic funders to understand the intricacies of why some organizations may not survive, even as the overall sector persists. The findings imply that one-size-fits-all or fits-most solutions are insufficient to equip the sector's resilience, but instead, targeted policy solutions and

philanthropic support directed to organizations with known vulnerabilities would best preserve the resilience of the overall sector.

As we investigated various factors contributing to this resilience, the only factor that consistently equips resilience nearly across all recession periods is organizational size, as larger organizations tended to recover to pre-event performance. This finding follows the liability of smallness theory and other empirical studies that the dynamics of the nonprofit sector favor larger nonprofits, which are buoyed by financial security and professionalized capacity (for examples, see: Chen 2021a; Lin and Wang 2016; Morreale 2011; Smith and Phillips 2016). With our focus on resilience, not merely survival, larger organizations are more likely to recover following an adverse event and smaller organizations experience an impact that challenges their resilience. Acknowledging this, we consider that both research and policy should endeavor to understand what equips the resilience of smaller nonprofits in terms of strategies, capacities, and policy interventions.

The age of nonprofit organizations was found to be a significant factor, particularly in relation to revenue measures. Inconsistent with the argument of liability of newness theory, age was a liability to resilience in terms of total revenue. These findings may imply that younger nonprofits need to consider how to maintain their sustainability and develop the capacity to bounce back when facing adverse events. These lessons of both size and age instruct nonprofit practitioners who lead smaller, younger nonprofits to proactively leverage support for their organization, as well as communicate their needs so that their organization can withstand disruptive environmental conditions.

We also found that nonprofit revenue structure is associated with resilience. More specifically, relying on contributions and commercial income allowed nonprofits to be resilient in terms of total revenue growth across all three recession periods and total expense growth during the regression period of 1990. In light of these findings, nonprofits should manage their revenue portfolios mindful of how each source equips their resilience. The nonprofit sector is a rich composite of diverse missions ranging from disaster relief to human services to arts and humanities, and to fulfill their missions, nonprofits need financial resources. Following Wilsker and Young (2010), a benefits theory of nonprofit finances connects a nonprofit's mission and associated programs or services to its revenue sources, collectively forming its revenue portfolio. Whereas the mission may dictate the sources of revenue, nonprofits should consider how to develop complementary or supplemental sources to maintain stability in light of external instabilities. For example, during the COVID-19 pandemic, nonprofits with public-interfacing programs and operations had to investigate alternative sources to offset lost revenue due to safety protocols that halted in-person activities. Organizations that hold contracts or other fixed sources of funding may also want to develop

supplementary sources of unrestricted funding to offset more restricted sources. Moreover, policymakers and administrators who oversee these funding sources may also want to develop funding policies that equip, rather than constrain nonprofit recipients when external perils arise.

Unlike previous studies (for examples, see: Chen 2021b; Kim and Mason 2020), our findings do not support the hypothesized relationship between financial reserves and resilience. One reason might be we use a different measure for financial reserves compared to many previous studies. Our sampling relied upon digitized 990 data, which does not include a direct measure of financial reserves so instead, we used an indirect measure of financial reserves – equity ratio, which cannot differentiate between restricted and unrestricted funds of nonprofits. This may lead to a different result since the measure we employ does not distinguish the liquidity of assets. Additionally, financial reserves may concentrate in large nonprofits, rendering them too small to significantly impact the average nonprofit. Although reserve funds did not achieve statistical significance in our study, this does not imply that they are unimportant in real life. Disasters may impact subsectors to varying degrees. For instance, if a disaster severely affects the arts and small colleges, reserve funds become crucial, as these subsectors rely more on reserves when private donations decrease substantially. Future studies should reconsider this hypothesis and utilize an unrestricted measure of financial reserves.

This study found a community with more concentrated resources and less competition equips the revenue resilience of their nonprofits after the Great Recession. Nonprofit managers should not only consider the organizational characteristics when they prepare for economic downturns but also should monitor their resource environment. If a nonprofit is located in a community with intense competition, its managers should carefully plan for economic downturns. Some other community factors that are not included in this study may impact nonprofit resilience. Given data availability, our study did not include all community-level factors. A future study should investigate the relationship between community factors and nonprofits in situations of economic recession, or other types of adverse events, like natural disasters, which are often felt more locally and may even be more challenging to overcome as they destroy local infrastructure and other local capacities for recovery.

The controls we employed were derived from prior research (Carroll and Stater 2009; Tuckman and Chang 1991), and the findings are insightful for the study and practice of nonprofit resilience. We found that resilience did not significantly vary across subsectors, suggesting that adverse events may affect the nonprofit sector similarly regardless of the specific mission area. Our findings also indicate that when nonprofits experience surpluses, they may still be cautious in their spending following an adverse event. Research should investigate if this tendency is prudent

or an unnecessary caution. These findings have the potential to provide nonprofits with valuable insights into the nature of resilience and guide them in understanding the optimal conditions for how prudent rainy-day spending facilitates performance recovery.

Also present in the findings, although not directly reflected in the study hypotheses, are differences across independent variables and their association with resiliency across the three recession periods. While this may seem to challenge the interpretation of the findings, this may also reflect the larger societal context in which recessions occur as well as other factors external to organizations. First, while the NBER defines a recession as "a significant decline in economic activity that is spread across the economy and lasts more than a few months," there is no fixed rule or threshold measure that determines decline. Rather, NBER relies on a number of indicators or measures, including personal income minus government transfers, employment, consumer spending, and industry production. Likewise, economists point to different causes or drivers of recession periods. This study examined three recession periods, and each recession was created by different triggering factors. The 1990–1991 recession can be linked to the Gulf War and resulting oil price shocks, the 2001 recession to the dotcom bubble collapse, and the 2007–2009 recession to a housing market collapse (among others). As a result, the government reacts with different economic strategies such as changing interest rates and/or offering recovery and reinvestment loans or grants, among others. In each of these instances, these exogenous factors may have different relationships with the nonprofit sector, its sub-sectors, and various organizational dimensions. Rather than attempt to control for the myriad variables that make up and impact the state of the economy, which ultimately impacts nonprofits, our analysis focuses on those factors observed for individual organizations and, in most instances, are within the ability of individual organizations to impact. In other words, while it would be challenging for any single organization to set public policy (e.g. interest rates or government response funding) or control other exogenous factors (e.g. housing availability, prices, and loan practices), organizations do have agency over revenues, spending, and savings. We therefore urge organizations to consider the variables that they can manage that explain resilience across different recession periods and suggest future research dig into each of these more specifically since these findings help summarize the insights from prior research.

Finally, we remark on the logic of resilience in that resilience findings were not uniform across both dependent variables. We observed a pattern of resilience when using total revenue growth as the dependent variable. Organizational size, age, and revenue structure consistently contribute to revenue growth after recessions. In contrast, our finding for total expense growth is less consistent. Only organizational size – affects nonprofit expense growth after two recessions. Revenue structures and

reserve funds are occasionally associated with one of the three recessions. The rationale behind this could be that total expenses reflect the level of mission performance, whereas revenues indicate the resources attracted for that mission. The nonprofits' capacity to attract resources is more likely to be determined by their characteristics and revenue structures that are out of or less controlled by nonprofits. However, nonprofits' mission performance level may not be only affected by their characteristics and revenue structures; it may also relate to other factors, such as nonprofit strategic choices based on community needs. Nonprofit professionals should focus on developing multiple channels to build organizational capacity. This "organizational slack" can be drawn upon during crises and used in ordinary times to innovate, refresh, and improve operations (Young and Searing 2022).

Moreover, it is important to note that singularly focusing on one dimension in either the practice or study of resilience may not be sufficient, nor may it account for the fullness of challenges or opportunities nonprofit organizations encounter following an adverse event. Nonprofit resilience requires that both the resource environments as well as the operational decisions of those inside organizations act in concert for the recovery and continued sustenance of organizations and the sector. Thus, research must account for this complexity and duality in its design. Practice must act in concert at the micro level of singular organizations, at the community level, and at the macro level of policymakers and infrastructure organizations.

In sharing our findings, we acknowledge they are not without limitations. First, the measure of the pre-recession trend for the 1990 recession is based on a single year rather than an average of three years as in the other two recession periods due to the data availability, but this may lead to inaccuracy. Besides, our analysis tends to have omitted variable bias. Due to data limitations, we cannot include community-level factors and management strategies in our analysis, which may also contribute to resilience. Third, we cannot obtain a direct measure of financial reserves and use the equity ratio instead. Both restricted and unrestricted funds are included when calculating the equity ratio, and the effect of unrestricted funds on recessions cannot be separated. We did not subtract long-term assets, estimated as net land, buildings, and equipment, from the total assets in our calculation because this approach would drop approximately 60 % of observations. Thus, future research should evaluate a separate measure of unrestricted funds. Finally, our study focused on multiple events across all subsectors, which makes it challenging to capture all nuances of resilience. Whereas some factors, such as reserve funds, were not significant, they may still be capacity supports in the face of adverse events. Future research could explore whether certain factors are useful across all types of adverse events and if some factors are especially beneficial for specific subsectors.

6 Conclusions

Our study investigated the nonprofit sector's resilience, understanding that the sector is composed of organizations, and that to understand the broader sector's resilience, organizational factors that reinforce or undermine organizational capacity must be examined. Our findings indicate that organizational size consistently equips nonprofits with resilience across most recession periods and that organizational age and revenue structure consistently contribute to revenue growth after recessions. Our findings indicate a sector that survives and rebounds in performance continues to provide services and programs and demonstrates the resolve of the sector and its organizations. As nonprofits grapple with decisions on allocating finite resources for the sustainability of their organization and policy interventions seek to avoid service disruptions, our research brings attention to aspects of both nonprofit capacity and vulnerability. This information empowers contemporary nonprofit practitioners, funders, and policymakers to draw insights from past trends, enabling them to navigate environmental factors strategically and fortify organizations against inevitable disruptions.

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