Nonprofits in Good Times and Bad Times

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Abstract

Need fluctuates over the business cycle, yet little is known about charities over the cycle. This paper exploits data from millions of US nonprofit tax returns and provides key descriptive facts about nonprofits in the face of economic fluctuations. Nonprofit revenue, balance sheets, and spending contract during bad times and grow in good times. Nevertheless, nonprofits partially smooth expenditure relative to income. Nonprofits sharply differ from for-profit firms, which exhibit stronger procyclicality and little smoothing. These facts add to the charitable giving literature, documenting outcomes for charities rather than contributors, and the business cycle literature, highlighting distinct nonprofit versus for-profit cyclicality.

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1 Introduction

> "I've spoken of a thousand points of light—of all the community organizations that are spread like stars throughout the nation doing good."
> — Inaugural Address of President George H.W. Bush, 20 January 1989

The needs of vulnerable individuals in the US fluctuate considerably over the business cycle, with measures such as food insecurity, poverty, and homelessness rates increasing during bad times.[1] Commentators have long hoped that charities might expand to provide key services and alleviate societal needs (Lee, 2013). Empirically, society at large shares this hope.[2] This hope also helps to motivate the rich, large literature on the drivers of (individual) charitable giving. Yet, there is little comprehensive evidence on the behavior of nonprofits, i.e., charities, themselves in the face of business cycles.

In this paper, we establish a set of key facts about nonprofits in good times and in bad times. These facts are intended to improve our understanding of and to spur further research on a unique and large sector of our economy, one which is sizable enough to account for more than one in ten US business-type entities and for total revenue of just over 10% of US GDP in recent years.[3]

We build our analysis on rich micro data drawn from millions of tax returns of nonprofit organizations in the US over the past three decades—covering the near universe of nonprofits in the US for all but the smallest organizations. While US nonprofits are exempt from taxation, Internal Revenue Service (IRS) guidelines generally require the filing of annual returns to maintain tax-exempt status.[4] This legally mandated disclosure offers a useful window into financials across the distribution of nonprofit activity.[5] Crucially, the returns of tax-exempt organizations include information on income and spending, in addition to a wide range of data on the characteristics and type of each organization.[6] Throughout our

[1] For more information, see Lombe et al. (2018) for evidence on food insecurity, Kneebone and Holmes (2016) on poverty, and Sard (2009) on homelessness.

[2] 66% of respondents said yes when asked "Should charities expand their programs and services during economic downturns (e.g., recessions)?" (Google Consumer Survey run by the authors, August 2020, with 500 respondents).

[3] The one in ten statistic is based on author calculations and represents the ratio of the number of nonprofit organizations to the total number of nonprofit and for-profit organizations in 2013. In the same year, the total revenue of nonprofits was 12.9% of US GDP. See Section 2 for more detail.

[4] While there are some exceptions, learn more about this general requirement here: `https://www.irs.gov/charities-non-profits/churches-religious-organizations/filing-requirements`. See also our discussion in Footnote 13.

[5] In political economy applications, Bertrand et al. (2019) and Bertrand et al. (2020) have used related tax return data to link nonprofits to corporate contributions and lobbying.

[6] Nonprofits comprise traditional charities, with organizations such as food banks or community health

analysis, we will emphasize that this tax return database offers strong advantages for the study of nonprofits, primarily through its comprehensive measurement of a nonprofit's full financial position but also in its granular categorizations.

Our facts center around a total of seven questions, each of which is framed to shed light on whether nonprofits weather adverse economic conditions or instead succumb to increased pressures during bad times. We first explore whether nonprofits access more financial resources in bad times by: securing more revenue (Q1), drawing down their assets (Q2), and/or by increasing their liabilities (Q3). In our next step, we investigate whether nonprofits adjust their spending on activities in bad times by: increasing their total expenditure (Q4), reallocating their expenditure towards core programs (Q5), and/or smoothing their expenditure relative to their revenue (Q6). In our last exploration, we ask whether these nonprofit behaviors differ from those of for-profit firms (Q7). Leveraging our rich and comprehensive data on nonprofits, the resulting facts, i.e., answers to these questions, describe cyclicality at nonprofits in the face of nationwide business cycles, local economic fluctuations, and organization-level shocks. We emphasize that each of our facts are descriptive rather than causal in nature, with our analysis purposefully targeted towards the documentation of observed behavior.

In Q1 we ask whether nonprofits secure higher revenue during bad times. To answer this question—as well as the following four questions—we employ a series of transparent cyclicality regressions, measuring the observed elasticity of nonprofit outcomes to income growth at the national and local levels. Using this framework, we find that the answer to Q1 is no. Revenue for nonprofits is strongly procyclical, declining during bad times and increasing during good times for both the nationwide and local economies. Our most conservative specification uncovers an elasticity of revenue to local income of 0.3. For context, note that prior work importantly documents that contributions given by individuals to charities fall during economic downturns (List, 2011). Our data, by tracking organization-level rather than individual-level outcomes, allow us to speak to whether this reduction in giving translates into a reduction in total revenue. Our question is non-trivial because—even defining contributions broadly to encompass money from individuals, businesses, and government grants—the average nonprofit in our data receives around 80% of its revenue from other non-contribution sources such as the proceeds from sales of goods and services.[7] With these

clinics, but the sector also includes a wide range of scientific, educational, cultural, and medical institutions. In our empirical analysis below, we will examine behavior both for the nonprofit universe as a whole as well as for individual nonprofit sectors.

[7]See Figure 9 for the exact contribution share as well as evidence suggesting that this contribution share

distinctions in mind, however, we reproduce the findings in List (2011) by documenting the procyclicality of contribution-based revenue, and we also demonstrate that this procyclicality extends to non-contribution-based revenue as well. Across categories, we conclude that nonprofit revenue exhibits a strong comovement with the business cycle, decreasing in bad times and increasing in good times.

Declining revenue during economic downturns motivates our next two questions on nonprofit finances. Do nonprofits exploit alternative sources of resources through changes in their balance sheet, in particular through drawdowns of their assets or increases in liabilities during bad times? We find that nonprofits do in fact draw down their assets during economic downturns: with a cyclical elasticity of 0.2 for assets, the answer to Q2 is yes. We also find that nonprofit liabilities decline during bad times: with a cyclical elasticity of 0.1 for liabilities, the answer to Q3 is no. Taken together, our findings of procyclicality for both assets and liabilities imply that nonprofit balance sheets shrink considerably during economic downturns, with a shift away from external financing and towards internal financing. At a broad level, these patterns are consistent with the idea that charity financial constraints may impact their decisionmaking.[8]

In Q4 we ask whether nonprofit expenditure increases during economic downturns. We view this question as important for understanding whether nonprofits provide a form of social insurance against economic fluctuations. The separate measurement of nonprofit expenditure in our data—rather than revenue or contributions—is quite important for such purposes, since expenditure may be more tightly linked to the underlying activities or actions taken by charities. We also note that Q4 is distinct from Q1. Even though nonprofit revenue falls on average during economic downturns, it need not follow that nonprofit expenditure falls given the presence of other funding sources such as an organization's assets or borrowing. With these motivations in mind, the answer to Q4 in the data is no. Far from expanding during economic downturns, we observe significant procyclicality in nonprofit expenditure, with an elasticity of around 0.15. Spending by nonprofits falls during bad times and increases during good times, fluctuations which we also demonstrate are quite persistent.

After documenting a reduction in nonprofit expenditure during downturns, in Q5 we ask whether there is any evidence that nonprofits reallocate their (lower) expenditure during

varies intuitively across charities of different types.

[8]We revisit this possibility in our discussion of charity size in Section 4.4 below. But note that theories of firm financial frictions (Ottonello and Winberry, Forthcoming; Crouzet and Mehrotra, 2018) often imply that only firms facing few financial constraints can afford to expand their balance sheets in the face of investment opportunities. In the nonprofit case, increased need during downturns arguably provides an opportunity for expenditure in the same manner.

bad times. We are motivated by a longstanding debate in the nonprofit sector about the importance of spending on two broad categories: core programs and services versus administrative or overhead costs. Our ability to narrow in on these different types of expenditure is a key advantage of the rich tax dataset we employ. Historically, there has been a push for nonprofits to spend relatively little on overhead costs under the belief that high overhead costs are indicative of waste and not instrumental in achieving the true missions of nonprofit organizations. Under this belief, if nonprofit expenditure falls, it would be less harmful, perhaps even helpful, for such reductions to be disproportionately borne by lower administrative expenditure. We do not find evidence that this reallocation occurs in the data. Our fifth fact—answering no to Q5—is that the share of spending on core programs and services does not shift over the business cycle. We note, however, that our result need not be viewed as a "failure" of the nonprofit sector. Rather, many business leaders and academics have reasonably argued that, as detailed in Gregory and Howard (2009), a focus on decreasing the share of spending on overhead costs can lead to a "nonprofit starvation cycle" in which charities lack the necessary talent or infrastructure to effectively implement their goals.[9]

Our set of five facts so far may give the impression that, when revenue falls during economic downturns, nonprofits do little to cushion or smooth this blow. Indeed, expenditure fluctuations over the cycle are prima facie evidence against the notion of perfect expenditure smoothing at charities. However, in the next step of our analysis we push further in a more granular direction, exploiting rich disaggregated variation in revenue at the individual organization level rather than aggregate economic fluctuations. We estimate a series of smoothing regressions, asking in Q6 whether a nonprofit's smooth their expenditure with a measured elasticity of expenditure to revenue that is less than one. These regressions reveal that nonprofits do cut their spending growth when their revenue growth declines, a pattern which proves remarkably stable and survives the inclusion of a rich set of fixed effects that account for nonprofit-specific heterogeneity in trends and regional variation in the economic cycle. However, the answer to Q6 is yes: we estimate an elasticity of nonprofit expenditure to revenue far below one at around 0.2, with substantial apparent smoothing occurring. Interacting nonprofit revenue growth with an indicator for economy-wide recessions, we also find that expenditure moves substantially less with revenue during recessions. These results add important nuance to our earlier findings of nonprofit procyclicality. While nonprofits do typically cut their spending growth when times are bad, these cuts are smoother than

[9]For a range of other work on overhead costs and charity performance metrics, see Gneezy et al. (2014); Karlan and Wood (2017); Meer (2014); Brown et al. (2016); Yörük (2016); Coffman (2017); Exley (2020).

the drops in their own revenue flows, and in that sense the nonprofit sector systematically provides some insurance against economic downturns.

In Q7, we ask whether the cyclicality and smoothing behavior of nonprofits differ from for-profit firms. This question is of particular relevance given a burgeoning movement within the nonprofit sector to become more "professional" and "business-like," e.g., by adopting formal strategic plans or giving more leadership positions to paid rather than volunteer employees (Hwang and Powell, 2009).[10] To shed light on this question, we apply our empirical strategy for nonprofits in a directly comparable fashion to rich micro data drawn from the financial statements of US public firms. This produces parallel answers to Q1-Q4 and Q6 among public firms, while Q5 is not considered since the core program spending share is not a relevant metric for public firms. Consistent with our first four facts that answer Q1-Q4, for-profit firms are highly procyclical with reduced revenue, assets, liabilities, and expenditure in economic downturns. However, crucially, the magnitudes of these elasticities differ sharply across for-profit firms and nonprofits. We measure higher procyclicality at for-profit firms; for example, the measured elasticity of for-profit firms' expenditure to their local area's income fluctuations is around 4 times higher than for nonprofits. Moreover, when considering Q6, we find weaker evidence of smoothing at for-profit firms, with high estimated elasticities of revenue to expenditure within firms and no shifts in such comovement during recessions. In other words, for-profit firms do in fact behave quite differently from nonprofits. Given the size of the nonprofit sector, this heterogeneity highlights the importance of further research into the nonprofit sector by economists interested in firm behavior.

Our results complement the rich literature on charitable giving (see Vesterlund (2006), List (2011), Andreoni and Payne (2013), and Gee and Meer (2020) for excellent reviews). Much of this literature focuses on the manner in which micro conditions influence individual giving decisions, e.g., how donations are influenced by social pressure (Ariely et al., 2009; DellaVigna et al., 2012; Andreoni et al., 2016), by matching donations (Eckel and Grossman, 2003; Karlan and List, 2007; Meier, 2007), by seed money or lead donors (List and Lucking-Reiley, 20002; Karlan and List, 2020), and by household income (Randolph, 1995; Auten et al., 2002; List, 2011; Kessler et al., 2019). A smaller set of studies focus on the relationship between macro conditions and giving, such as papers relating to giving after large, tragic events (Lilley and Slonim, 2016; Bergdoll et al., 2019) and work relating to redistribution and fairness views at the societal level (Almås et al., Forthcoming).[11] An even

[10] This question is also of particular interest in light of the rich theoretical work in economics about differing incentive schemes and organizational structures in the nonprofit versus for-profit sectors.

[11] This literature typically finds that giving increases after natural disasters, which are likely times of

smaller but important and emerging body of literature seeks to understand aggregate giving in response to macro conditions.[12] This existing body of research compellingly documents the procyclicality of giving in relation to macroeconomic fluctuations (List, 2011; Reich and Wimer, 2012; Meer et al., 2017) and includes evidence that such procyclicality is smoothed during recessions (List and Peysakhovich, 2011). Relative to all of this prior work, our contributions stem from our measurement of nonprofit-level outcomes and behavior—such as the total value of revenue or spending at a charity—rather than individual behavior such as a person giving to a nonprofit. We also contribute by documenting facts within a comprehensive dataset spanning the near universe of nonprofit organizations. Taking stock, we view the study of nonprofit behavior as an important, underexplored area of work in economics. We hope that the set of macro facts we establish on nonprofit behavior encourages more work that focuses on outcomes for nonprofits themselves. Growing a literature in economics on nonprofit behavior and the outcomes for nonprofits—to complement the existing, rich literature that focuses instead on the contributors to nonprofits—is needed to improve our understanding of this large and diverse sector of the economy.

Our results also complement a wide literature measuring the cyclicality and sensitivity of for-profit firms to economic fluctuations. One stream of papers focuses on documenting the relative cyclicality of sales at small versus large firms with respect to macro fluctuations (Gertler and Gilchrist, 1994; Crouzet and Mehrotra, 2018). Another set of studies analyzes firm growth and selection patterns around recessions (Moreira, 2017; Kehrig, 2015; Bloom et al., 2018). A third body of work measures the observed volatility and sensitivity of outcomes at for-profit firms in the face of various disaggregated shocks (Davis et al., 2006; Decker et al., 2014, Forthcoming). A fourth set of research examines the cyclicality or responses to policy of economies at the local level (Nakamura and Steinsson, 2014). Relative to each of these sets of work, the contribution of our paper is to extend the knowledge of cyclicality and sensitivity patterns at for-profit firms to the large, qualitatively distinct, context of nonprofit organizations.

Section 2 describes our data and provides an overview of the nonprofit sector in the US.

increased need (although this is not always the case, see e.g., Eckel et al. (2007)). One could view such results as running counter to other findings which report decreased giving during economic downturns, also likely times of increased need. However, there are, of course, many reasons for such differences. For instance, need related to natural disasters is often salient and very targeted. Finally, for work that dives deeply into the role of nonprofit strategy in response to the financial crisis, see the analysis of 196 nonprofits from 2005 to 2015 in Horvath et al. (2018).

[12]Even setting aside the impact of macro conditions, work on aggregate giving is limited. As discussed in Gee and Meer (2020), while prior work often focuses on the drivers of a single giving decision, there has been a recent movement to consider more aggregated giving outcomes, e.g., substitution effects across charities.

Section 3 documents seven facts answering each of the questions laid out above. Section 4 discusses a range of robustness checks, which show that our facts are quite general rather than driven by one particular category of charity, legal form of nonprofit, econometric specification, or measure of economic fluctuations. Section 5 concludes. Data Appendix A provides more detailed information on our data sources and empirical strategy. Robustness Appendix B provides some additional results.

2 Data

Our definition of a nonprofit includes organizations deemed tax-exempt by the IRS. Throughout the paper, we have referred and will refer to these entities interchangeably as "nonprofits," "organizations," or "charities." Generally, the IRS requires nonprofits to file a tax return—Form 990—each year (Internal Revenue Service, 2020).[13] Unlike private businesses, whose tax returns are in general confidential in the US, nonprofit tax returns are a matter of public record. We utilize a database of individual nonprofit tax returns compiled by the National Center for Charitable Statistics (NCCS) covering essentially the universe of nonprofit Form 990 data in the US for all but the smallest organizations.[14,15] Our baseline sample includes over 8.5 million organization-years drawn from about nine hundred thousand nonprofits from 1990 to 2013.

The bulk of our analysis centers on four main outcomes measured in our data at the organization-year level: 1) revenue, including income from both contributions as well as the sale of goods and services, 2) assets, including the value of both financial as well as physical resources held by nonprofits, 3) liabilities, the value of total debt or obligations owed by a charity to outside entities, and 4) expenditure, including spending on all activities by the nonprofit. However, we also examine individual subcategories within some of these variables when relevant.

We note that the nonprofit sector accounts for a sizable portion of economic activity, organizations, and assets in the US. In 2013, almost 10% of US business-type entities were

[13] Various variants of Form 990, such as Form 990-EZ, Form 990-N, or Form 990-PF, exist for small nonprofits or nonprofits organized in specific legal forms. Our data includes all such variants. Also, most religious organizations are not required to submit tax returns to the IRS.

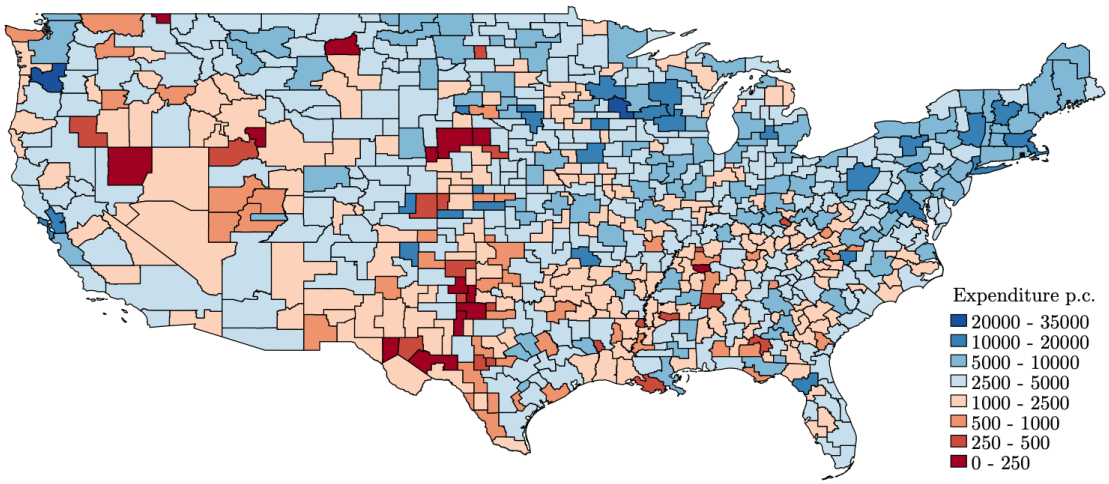
[14] In particular, the data covers nonprofits which are required to file or choose to file a version of IRS Form 990. Generally, this implies that some organizations with fewer than $25,000 in revenue and some religious organizations are not included in the NCCS data, with coverage of all other nonprofit or tax-exempt entities. See https://nccs-data.urban.org/ for more information on the data.

[15] Note that charities are not required to report in-kind contributions in Form 990. Thus, all statements made in this paper about nonprofit revenue and contributions are strictly limited to monetary values.

nonprofits, and their revenue totaled around 13% of US GDP. Compared in the same year to two commonly studied groupings of for-profit firms—manufacturers and publicly traded companies—the nonprofit sector also appears sizable. Total revenue (assets) of nonprofits were around 17% (13%) of those of all publicly listed firms. And total revenue (assets) of nonprofits were 44% (75%) of those of all manufacturing firms.

The nonprofit sector also spans the whole of the US. Figure 1 maps nonprofit spending per capita in 2010 across US commuting zones (CZ's). A CZ is a US-government delineated economic area, typically between a county and state in size, which forms a locally unified agglomeration of economic activity. We examine local areas based on this geography to ensure comparability with a range of research on local economic dynamics (Autor et al., 2013). Nonprofit spending varies considerably across regions, with values higher than $10,000 per person near Boston, Massachusetts compared to just above $1,000 per person in the Rio Grande Valley in Texas.

Figure 1: Charity Expenditure Per Capita across US Commuting Zones in 2010



Note: This figure shows nonprofit expenditure per capita across US commuting zones in 2010. Nonprofit expenditure includes all accounting expenses. See main text and Appendix A for data construction details.

There is also substantial heterogeneity in the types of nonprofits—spanning human services to the arts to scientific research—and the legal form of nonprofits—including public charities, private foundations, and some other forms. We more systematically explore this heterogeneity and demonstrate that our empirical results are robust across all major types and legal forms of nonprofit in Sections 4.2 and 4.3.

See Data Appendix A for more information on our nonprofit sample construction, as well as detailed information about our other sources of data on local and national economic

variables, which include various BEA, BLS, and Census Bureau tabulations. In Appendix A, we also provide more details on our construction of a sample of financial information on US for-profit public firms from the Compustat database. See Table A.1 for descriptive statistics on each of the main variables used in our analysis.

3 Results

In this section, we document a series of important facts about the operation of nonprofits in good times versus bad times. Each of the subsections 3.1 - 3.6 presents one empirical fact in response to one of our motivating questions about the operation of nonprofits. For rhetorical purposes, our questions are framed from a perspective which asks whether or not nonprofits secure more resources and spend more on their activities during bad times, although our econometric analysis documents variation over the full cycle in both good and bad times. Our first three questions ask whether nonprofits secure more resources in bad times—through increased revenue (Section 3.1), by drawing down their assets (Section 3.2), or by increasing their liabilities (Section 3.3). Our next three questions ask whether nonprofits adjust their activities during bad times—by increasing their expenditure (Section 3.4), by reallocating their expenditure towards core programs (Section 3.5), or by smoothing their expenditure at the organization level (Section 3.6). Our last question asks whether these patterns of nonprofit behavior differ from comparably measured for-profit firm behavior (Section 3.7). We view the presentation of these descriptive facts as an important step towards improving our understanding of how this large sector of the economy operates. We also hope that, as we discuss in Section 5, these descriptive facts will help to motivate future work, including work that seeks to identify a particular treatment effect or a particular causal mechanism of interest relating to nonprofit operations.

To examine the cyclicality of various nonprofit outcomes in Sections 3.1-3.5, we employ straightforward specifications of the general form

$$\Delta X_{j,t} = \alpha + \beta \Delta Y_{a,t} + \varepsilon_{j,t}, \tag{1}$$

where $\Delta X_{j,t}$ is the growth rate of a series of interest X, e.g., revenue, for nonprofit j in year t, and $\Delta Y_{a,t}$ is the growth rate of total personal income in area a surrounding j in the same year t.[16] We examine both national cyclicality and local cyclicality within this framework,

[16]Throughout, we define the growth rate of $X_{i,t}$ for nonprofit or region i at time t as $\Delta X_{it} \equiv 2 \times \frac{X_{i,t} - X_{i,t-1}}{|X_{i,t}| + |X_{i,t-1}|}$. This formula is chosen to safeguard against outliers without the need for censoring or winsorization and follows common practice in the firm dynamics literature (Davis et al., 1996). See Appendix A.2 for further details.

replacing $Y_{a,t}$ with income at the nationwide or CZ levels as appropriate. We also control for heterogeneity in trends across organizations and space, populating regressions of the form above with a rich set of fixed effects across increasingly conservative specifications in each section. The sign and magnitude of the observed elasticity β, our coefficient of interest, crucially reveal the comovement or cyclicality of nonprofit outcomes with respect to the broader economy.[17]

3.1 Do nonprofits secure higher revenue during downturns?

To provide some preliminary visual insight into our first question asking whether nonprofits secure higher revenue during economic downturns, Figure 2 plots quantiles of nonprofit revenue growth against CZ-level personal income growth. Nonprofit revenue is procyclical, growing more during times of high overall income growth and vice-versa during bad times.

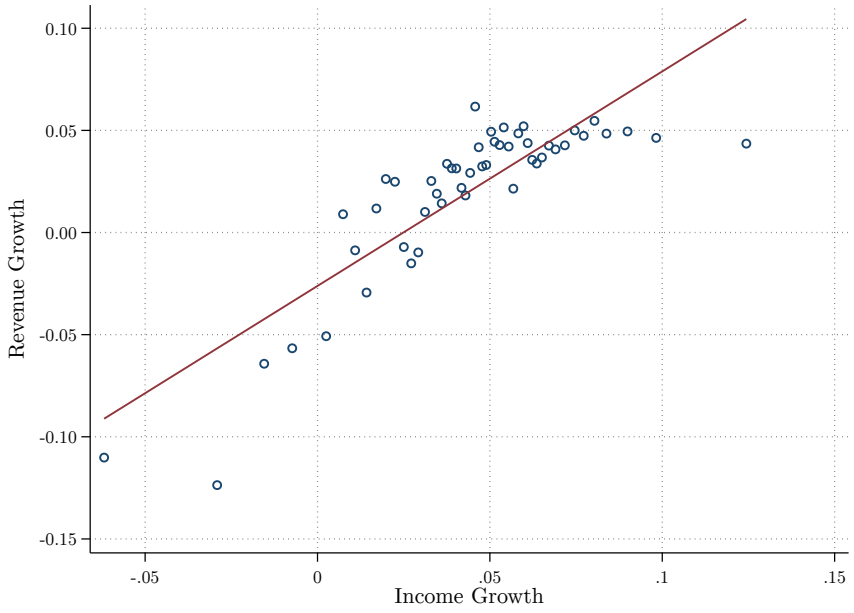
Table 1 presents cyclicality estimates from versions of Equation 1 with total nonprofit revenue as the outcome of interest. We see in column (1) that revenue for individual nonprofits grows more during periods with high national income growth. The observed elasticity of slightly greater than 1.6 proves to be economically meaningful. Nonprofit revenue grows by $1.633 \times 2.5 \approx 4.1$ percentage points less in years with one standard deviation lower national personal income growth.

Column (2) adds CZ-level personal income growth to the specification and reveals that nonprofit revenue grows both with the national and local economies, suggesting that nationwide economic fluctuations are only a part of the picture for nonprofits. We further explore local economic conditions in columns (3)-(5), adding a rich set of fixed effects sequentially discarding all common variation in personal income growth in a year, all heterogeneity in trends at the individual nonprofit level, and finally all common shifts in personal income at the state $\times$ year level. Note that examining local, rather than only national, cyclical elasticities is natural given the wide span of our data across the near universe of nonprofits, the fairly restricted time window from 1990-2013 for nationwide fluctuations, and the larger overall magnitude of local versus nationwide fluctuations in income.[18] Column (5), our most conservative and preferred specification, reveals a precisely estimated elasticity of nonprofit

[17]Note that estimating Equation 1 in growth rates rather than levels offers multiple advantages, flexibly controlling for unobserved heterogeneity in levels across charities as well as allowing for transparent nonparametric estimation of organization-specific trends. However, our results are not dependent upon the use of growth rates. See Section 4.6, which reports similar results from estimation of our regressions in levels rather than growth rates.

[18]Table A.1 reports that the standard deviation of CZ-level personal income growth is 3.2% per year, compared to 2.5% per year for national personal income growth.

Figure 2: Nonprofit Revenue and Economic Fluctuations



Note: This figure shows quantiles of nonprofit revenue growth rates against CZ personal income growth rates with 50 bins. The trend line depicts the best linear fit. Robust growth rates as defined in Appendix A.2 are used. See main text and Appendix A for data construction details.

revenue to local personal income of around 0.3. Consider two nonprofits in different CZ's experiencing local personal income growth which differs by one standard deviation or around three percentage points. On average, revenue of the nonprofit in the area with lower income growth grows by $0.337 \times 3.2 \approx 1.1$ percentage point less, a drop of around 50% relative to the average nonprofit revenue growth we observe in our sample of around 2%. Taken together, these results imply our first fact, our answer to Q1 from the Introduction.

> **Fact 1 (Nonprofit Revenue)**: Nonprofit revenue is procyclical, significantly falling during bad times and increasing during good times. The elasticity of nonprofit revenue to local personal income is approximately 0.3.

As noted in the Introduction, prior work documents the procyclicality of the contributions-based component of nonprofit revenue, or more simply, charitable donations (List, 2011; List and Peysakhovich, 2011; Reich and Wimer, 2012; Meer et al., 2017). This prior work focuses on the contributions-based component because contributions provide important insight into the drivers of charitable giving. By contrast, our focus is on the recipients of this giving—nonprofit organizations themselves—rather than the behavior of the individuals or businesses giving to nonprofits. We also note that prior documentation of the procyclicality

of contributions-based revenue, i.e., charitable giving, does not imply the procyclicality of total revenue at nonprofits. Nonprofits receive funding from multiple sources. In fact, contributions from donors—whether individuals, businesses, or government grants—comprise only around 20% of total revenue in a typical year, a fact which we detail further in Section 4.7. The remaining non-contributions-based revenue comes from sources such as the proceeds of sales of goods and services. Contributions from donors could in principle behave quite differently than, for example, fees paid to nonprofits for their services. That said, the robustness of this prior work is notable. After breaking total nonprofit revenue in our data into subcategories, we replicate and extend that previous work by documenting the procyclicality of contributions-based revenue (see the precisely estimated elasticity of around 0.1 in Appendix Table B.4). In addition, we document the novel finding of the procyclicality of non-contribution revenue (see the precisely estimated elasticity of around 0.3 in Appendix Table B.5) and in total revenue (recall Table 1).

Table 1: Cyclicality Regressions for Revenue

	(1)	(2)	(3)	(4)	(5)
			Δ Revenue		
Δ Nat. income	1.633***	1.369***			
	(0.056)	(0.115)			
Δ CZ income		0.276***	0.314***	0.294***	0.337***
		(0.100)	(0.047)	(0.059)	(0.067)
Fixed Effects			Year	Nonprofit Year	Nonprofit Year × State
Observations	8,623,305	8,623,305	8,623,305	8,623,305	8,623,305

Note: This table reports coefficient estimates for Equation 1 for nonprofit revenue. Δ refers to robust growth rates as defined in Appendix A.2. Nonprofit revenue includes all accounting income. National and CZ income refer to personal income of residents. See main text and Appendix A for data construction details. All standard errors are clustered at the state level.

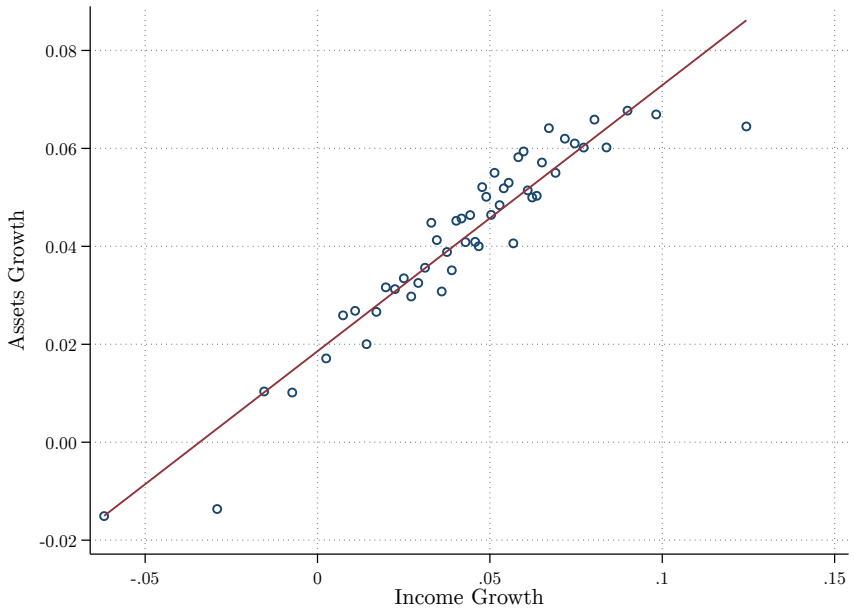
Standard errors in parentheses. Significance levels: * 10% , ** 5%, *** 1%.

3.2 Do nonprofits draw down their assets during downturns?

An organization's own accumulated assets can in principle provide a buffer against economic downturns when faced with the types of revenue declines we document above. In our second question, we ask whether nonprofits make use of this internal funding source—by drawing down their own assets —during economic downturns. The answer is yes. We find pronounced

procyclicality in nonprofit assets. In Figure 3, plotting nonprofit asset growth against local income growth, the pattern is visually apparent with substantially lower asset growth for nonprofits during periods of low local income growth, and vice-versa.

Figure 3: Nonprofit Assets and Economic Fluctuations



Note: This figure plots quantiles of nonprofit asset growth rates against CZ personal income growth rates with 50 bins. The trend line depicts the best linear fit. Robust growth rates as defined in Appendix A.2 are used. See main text and Appendix A for data construction details.

Table 2 reports a related series of cyclicality regressions for nonprofit assets. In our most conservative specification in column (5), we precisely estimate the elasticity of nonprofit assets to local income at around 0.2, a moderately large amount of procyclicality. On average, a nonprofit in an area with one standard deviation lower income growth sees their assets grow by $0.175 \times 3.2 \approx 0.6$ percentage points less, a meaningful drop of a bit more than 10% relative to average charity asset growth of around 4.2 percentage points.

> **Fact 2 (Nonprofit Assets)**: Nonprofit assets are procyclical, significantly falling during bad times and increasing during good times. The elasticity of nonprofit assets to local personal income is approximately 0.2.

Table 2: Cyclicality Regressions for Assets

	(1)	(2)	(3)	(4)	(5)
			Δ Assets		
Δ Nat. income	0.731***	0.462***			
	(0.019)	(0.027)			
Δ CZ income		0.282***	0.290***	0.221***	0.175***
		(0.031)	(0.018)	(0.018)	(0.022)
Fixed Effects			Year	Nonprofit Year	Nonprofit Year × State
Observations	8,623,305	8,623,305	8,623,305	8,623,305	8,623,305

Note: This table reports coefficient estimates for Equation 1 for nonprofit assets. Δ refers to robust growth rates as defined in Appendix A.2. Nonprofit assets include all accounting assets and are measured at the end of the year. CZ income refer to personal income of residents. See main text and Appendix A for data construction details. All standard errors are clustered at the state level.

Standard errors in parentheses. Significance levels: * 10% , ** 5%, *** 1%.

3.3 Do nonprofits increase their liabilities during downturns?

In addition to exploiting their internal resources by drawing down assets during economic downturns, nonprofit organizations might secure more external resources to support spending by increasing their liabilities. We ask whether nonprofits rely on this external funding source during downturns in our third question. The answer is no. In Figure 4, we see visually that nonprofit liability growth declines during downturns and increases during booms.

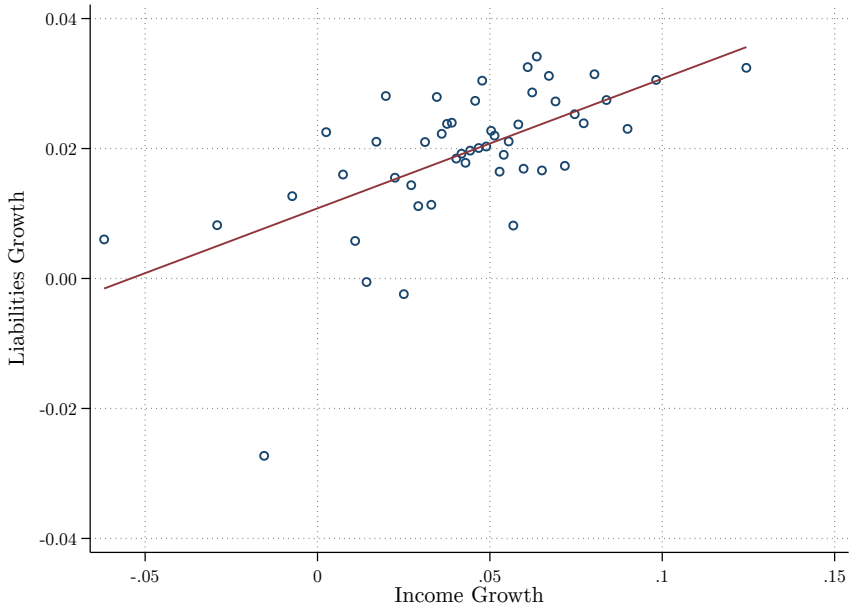
Table 3 presents a related series of cyclicality regressions for total liabilities. Column (5) reveals a positive precisely estimated elasticity of around 0.1. On average, a nonprofit in an area with one standard deviation lower income growth will grow their liabilities by 0.101 $\times$ 3.2 $\approx$ 0.3 percentage points less, a sizable drop of around 15% relative to the average of around 1.9 percentage points.

> **Fact 3 (Nonprofit Liabilities)**: Nonprofit liabilities are procyclical, significantly falling during bad times and increasing during good times. The elasticity of nonprofit liabilities to local personal income is approximately 0.1.

To summarize, nonprofits do not gather external funds during economic downturns (Fact 3 from this section); rather, they draw down their own financial assets (Fact 2 from Section 3.2). Thus, the size of nonprofit balance sheets declines considerably during downturns.

These patterns are broadly consistent with financial constraints, such as a lack of access to external financing, playing a role in determining nonprofit behavior during downturns.

Figure 4: Nonprofit Liabilities and Economic Fluctuations



Note: This figure plots quantiles of nonprofit liability growth rates against CZ personal income growth rates with 50 bins. The trend line depicts the best linear fit. Robust growth rates as defined in Appendix A.2 are used. See main text and Appendix A for data construction details.

Table 3: Cyclicality Regressions for Liabilities

	(1)	(2)	(3)	(4)	(5)
			Δ Liabilities		
Δ Nat. income	0.232***	0.091			
	(0.015)	(0.079)			
Δ CZ income		0.148*	0.144***	0.114**	0.101**
		(0.076)	(0.045)	(0.047)	(0.039)
Fixed Effects			Year	Nonprofit Year	Nonprofit Year × State
Observations	8,623,305	8,623,305	8,623,305	8,623,305	8,623,305

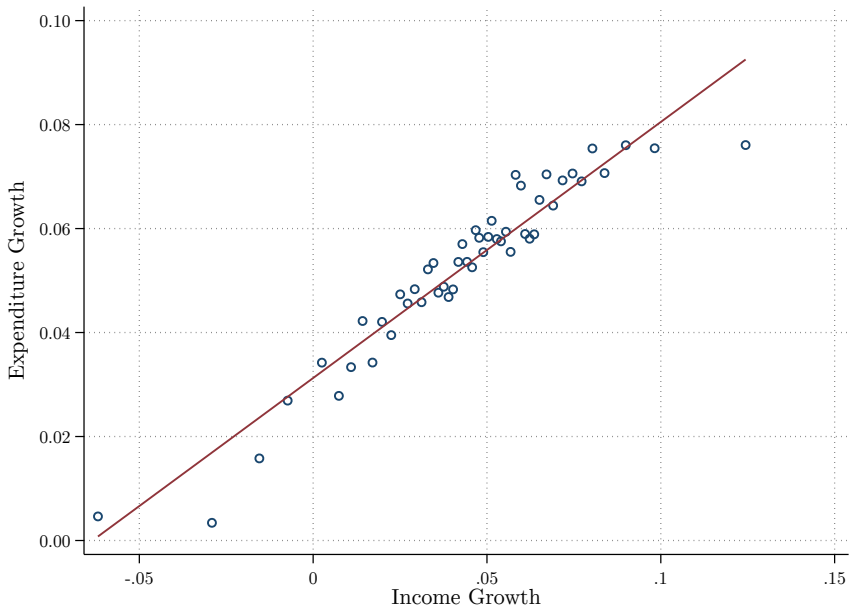
Note: This table reports coefficient estimates for Equation 1 for nonprofit liabilities. Δ refers to robust growth rates as defined in Appendix A.2. Nonprofit liabilities include all accounting liabilities and are measured at the end of the year. CZ income refer to personal income of residents. See main text and Appendix A for data construction details. All standard errors are clustered at the state level.

Standard errors in parentheses. Significance levels: * 10% , ** 5%, *** 1%.

3.4 Do nonprofits increase their spending during downturns?

If nonprofits provide a form of social insurance for society against broader economic fluctuations, as many commentators and policymakers appear to hope, then nonprofit activities during economic downturns should reflect this role. Relative to other observable outcomes at nonprofits, such as nonprofit revenue, we view nonprofit expenditure as an attractive proxy for nonprofit activities. A unique strength of our dataset is the ability to separately measure charity spending and income, so we turn to an analysis of the cyclicality of nonprofit spending now. Immediately, we see in Figure 5 that the answers to our fourth question is no: spending growth at nonprofits does not increase during local economic downturns. Instead, spending appears procyclical.

Figure 5: Nonprofit Expenditure and Economic Fluctuations



Note: This figure plots quantiles of nonprofit expenditure growth rates against CZ personal income growth rates with 50 bins. The trend line depicts the best linear fit. Robust growth rates as defined in Appendix A.2 are used. See main text and Appendix A for data construction details.

Table 4 presents a related series of cyclicality regressions for nonprofit expenditure. We see in column (1) that when national income growth falls by one standard deviation or 2 percentage points, expenditure growth for individual nonprofits declines by an average of $0.692 \times 2.5 \approx 1.7$ percentage points. Column (2) reveals that expenditure growth also comoves substantially with the local cycle. Later columns narrow to a view of the local economic cycle, with the most conservative and preferred specification in column (5). We precisely estimate the elasticity of nonprofit expenditure to local income to be around 0.15.

On average, a nonprofit in an area with one standard deviation lower income growth grows their expenditure by $0.143 \times 3.2 \approx 0.5$ percentage points less, a meaningful drop of around 10% relative to the mean of 5.2 percentage points.

Fact 4 (Nonprofit Expenditure): Nonprofit expenditure is procyclical, significantly falling during bad times and increasing during good times. The elasticity of nonprofit expenditure to local personal income is approximately 0.15.

Table 4: Cyclicality Regressions for Expenditure

	(1)	(2)	(3)	(4)	(5)
			Δ Expenditure		
Δ Nat. income	0.692***	0.481***			
	(0.021)	(0.032)			
Δ CZ income		0.220***	0.215***	0.152***	0.143***
		(0.032)	(0.020)	(0.020)	(0.016)
Fixed Effects			Year	Nonprofit Year	Nonprofit Year × State
Observations	8,623,305	8,623,305	8,623,305	8,623,305	8,623,305

Note: This table reports coefficient estimates for Equation 1 for nonprofit expenditure. Δ refers to robust growth rates as defined in Appendix A.2. Nonprofit expenditure includes all accounting expenses. National and CZ income refer to personal income of residents. See main text and Appendix A for data construction details. All standard errors are clustered at the state level.

Standard errors in parentheses. Significance levels: * 10% , ** 5%, *** 1%.

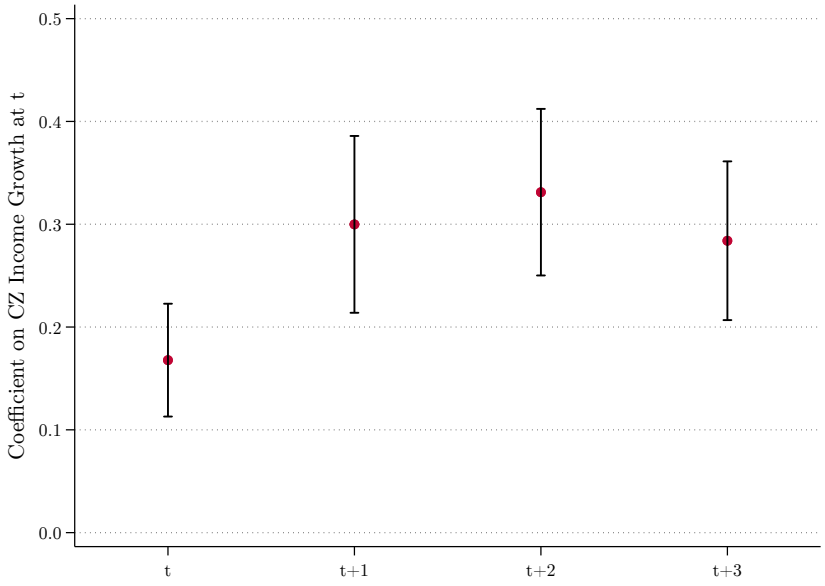
Our nonprofit expenditure fact—revealing that nonprofit expenditure grows *less* during bad times—answers a key question for research in this area and suggests potentially systematic misalignment between nonprofit activities and fluctuations in need. Now, we note that the extent to which movements in total nonprofit expenditure reflect substantive shifts in the underlying activities of nonprofits may relate to the persistence of these reductions and to the type or composition of nonprofit spending. We investigate the persistence of spending declines in this section, revisiting the composition of nonprofit spending in the next section.

To examine the persistence of expenditure dynamics, we follow Jordà (2005) and estimate the cyclicality of nonprofit expenditure at multiple horizons through a local projections approach. For horizon $h = 0, 1, 2, ...$, we estimate specifications of the form

$$\Delta_{h+1} E_{j,t+h} = \alpha^h + \beta^h \Delta Y_{a,t} + \varepsilon^h_{j,t}, \tag{2}$$

where $\Delta_{h+1}E_{j,t+h}$ is the growth rate of expenditure E within nonprofit j from year $t-1$ to $t+h$, and $\Delta Y_{a,t}$ is the one-period growth rate of total personal income in the surrounding area a in year t. The coefficients β^h trace out the observed elasticity of spending h periods ahead to overall income today. Figure 6 plots the cyclicality path based on CZ-level personal income growth. Far from representing a purely transitory phenomenon, cyclical fluctuations in expenditure prove quite persistent. Bad times in the local CZ today in fact predict slightly larger, although statistically indistinguishable, drops in expenditure three years in the future than in the current year.[19]

Figure 6: Persistence of Nonprofit Expenditure Cyclicality



Note: This figure shows coefficient estimates for Equation 2 for nonprofit expenditure. The specification includes nonprofit and state × year fixed effects. Standard errors are clustered at the state level. Robust growth rates as defined in Appendix A.2 are used. Nonprofit expenditure includes all accounting expenses. CZ income refers to personal income of residents. See main text and Appendix A for data construction details.

3.5 Do nonprofits reallocate their expenditure during downturns?

Spending on multiple, quite distinct, categories appears within our total measure of nonprofit expenditure. And the extent to which nonprofit spending serves as a useful proxy for the underlying activities of nonprofits might intuitively vary across types of spending. We therefore

[19]The figure represents coefficients estimated on a consistent sample of firms to avoid the conflation of composition and dynamics. Although similar results obtain at longer horizons, consistent estimation over longer periods than around the three years results in a less representative sample.

disaggregate nonprofit expenditure into spending on: 1) core programs and services, versus 2) administrative or overhead costs. We can observe these individual spending totals for a subsample of larger organizations which are obligated to complete the full version of Form 990. Our focus on these spending categories is motivated by well known organizations, such as Charity Navigator, commonly evaluating nonprofits positively based on the size of their program spending and negatively based on the size of their administrative overhead expenses (Charity Navigator, 2020). Such metrics are somewhat controversial, since cuts to spending on overhead categories, such as the salaries of highly skilled workers or facility maintenance, might prove quite damaging for service provision in practice (Gregory and Howard, 2009). Nevertheless, the core program spending share remains widely discussed and tracked in the nonprofit sector, making it a metric worth understanding better.

Table 5 measures the cyclicality of the core program spending share. In column (5), our key specification measuring sensitivity to local personal income fluctuations, we see that the core spending share is acyclical, with no quantitative or statistically significant link to local income. The answer to the fifth question is no: nonprofits do not reallocate their spending during downturns towards or away from core programs.

Fact 5 (Core Program Spending Share): The share of nonprofit spending on core programs relative to administrative expenditure is acyclical, reflecting uniform shifts in both categories of spending over the economic cycle.

Table 5: Cyclicality Regressions for Program Expenditure Share

	(1)	(2)	(3)	(4)	(5)
			Δ Program Exp. Share		
Δ Nat. income	-0.005	-0.011*			
	(0.005)	(0.006)			
Δ CZ income		0.006	0.006	0.003	0.002
		(0.005)	(0.004)	(0.006)	(0.008)
Fixed Effects			Year	Firm Year	Firm Year × State
Observations	275,256	275,256	275,256	275,256	275,256

Note: This table reports coefficient estimates for Equation 1 for the share of program expenditure in total expenditure in the SOI sample. Δ refers to first differences for the program expenditure share and to robust growth rates as defined in Appendix A.2 for national and CZ income. Program expenditure refers to program service expenses. National and CZ income refer to personal income of residents. See main text and Appendix A for data construction details and summary statistics. All standard errors are clustered at the state level.

Standard Errors in Parentheses. Significance levels: * 10% , ** 5%, *** 1%.

Paired with the overall spending declines reported in Fact 4, the acyclicality result from Table 5 suggests near uniform declines in nonprofit expenditure across multiple categories during local downturns. Indeed, we verify in Appendix Table B.16 that both core program and administrative spending individually decline during bad times with near-identical elasticities.

3.6 Do nonprofits engage in expenditure smoothing?

Our set of empirical facts laid out so far, notably the existence of declining expenditure at nonprofits during downturns, could give the impression that nonprofits do not smooth their expenditure—and, implicitly, their activities—in the face of revenue shifts. However, we note that both the sign and the size of shifts in nonprofit expenditure over the economic cycle matter. While nonprofit expenditure clearly falls during bad times—so some notion of perfect expenditure smoothing is not achieved—nonprofit expenditure varies much less strongly over the local economic cycle than nonprofit revenue. Comparing Fact 1 to Fact 4, the cyclical elasticity of nonprofit revenue at around 0.3 is about twice as large as the cyclical elasticity of nonprofit expenditure at around 0.15, suggesting that some meaningful degree of expenditure smoothing by charities does occur.

We also note that not all nonprofits see uniform declines in revenue during local economic downturns. By contrast, there is considerable variation in revenue across nonprofits within a region at a specific point in time. Thus, we can push further and investigate comovement between expenditure and revenue at the individual nonprofit level through a series of "smoothing regressions." Each specification has the general form

$$\Delta E_{jt} = \alpha + \beta \Delta R_{jt} + \varepsilon_{jt}, \tag{3}$$

linking expenditure growth ΔE_{jt} to revenue growth ΔR_{jt} for nonprofit j in year t. The organization-level elasticity β reveals the extent to which shifts in nonprofit expenditure are smoothed—or not—as their own revenue changes. We contrast this approach explicitly with our cyclicality regressions taking the form of Equation 1 above, which were instead targeted towards measuring expenditure shifts in the face of region- or economy-wide, rather than organization-level, fluctuations in income. In fact, the smoothing approach we employ in this section relates more naturally to notions of consumption expenditure smoothing often analyzed for individuals (Blundell et al., 2008).

Table 6 reports the corresponding results. The elasticity of expenditure to revenue proves to be precisely estimated and quite stable at just above 0.2 across increasingly conservative

specifications in columns (1)-(4). In our baseline result, in column (4), we remove both firm-specific trends and all variation at the state × year level. These magnitudes represent quantitatively meaningful differences. A charity with one-standard deviation lower revenue growth has expenditure growth which is lower by $0.222 \times 60.1 \approx 13$ percentage points on average, a drop of around two and half times mean expenditure growth in our sample of around 5.2 percentage points. We emphasize that our elasticity estimates are uniformly positive but lie substantially lower than one. In other words, while organizations do typically have lower expenditure growth in the face of lower revenue growth, spending moves far less sharply and in this sense exhibits smoothing.

Table 6: Smoothing Regressions

	(1)	(2)	(3)	(4)	(5)
			Δ Expenditure		
Δ Revenue	0.234***	0.235***	0.221***	0.222***	0.231***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Δ Revenue × NBER Recession					-0.041***
					(0.003)
Fixed Effects		Year	Firm Year	Firm Year × State	Firm Year × State
Observations	8,623,305	8,623,305	8,623,305	8,623,305	8,623,305

Note: This table reports coefficient estimates for Equations 3 and 4. Δ refers to robust growth rates as defined in Appendix A.2. Nonprofit revenue and expenditure include all accounting income and expenses, respectively. NBER Recession is an indicator for recession years as defined by the NBER. See main text and Appendix A for data construction details. All standard errors are clustered at the state level.

Standard Errors in Parentheses. Significance levels: * 10% , ** 5%, *** 1%.

A natural question is whether the nonprofit-level smoothing of expenditure changes in periods of severe macroeconomic disruptions? In particular, one might expect that in response to increased need during downturns, nonprofit activities and spending might be less tightly linked to an organization's revenue. Column (5) investigates exactly this possibility, estimating the smoothing specification in Equation 4 but interacting revenue growth with an indicator for whether the year contains a recession as defined by the National Bureau of Economic Research (NBER).

$$\Delta E_{jt} = \alpha + \beta \Delta R_{jt} + \gamma \Delta R_{jt} \times \mathbb{I}(\text{NBER Recession})_t + \varepsilon_{jt}, \tag{4}$$

The estimated interaction $\hat{\gamma}$ is sharply negative, revealing substantially stronger smoothing of expenditure within charities during recessions.[20] In particular, the elasticity of expenditure to revenue declines by -0.041 / 0.231 $\approx$ 17 percent during recessions. Taken together, the evidence of high overall expenditure smoothing and the shift towards further smoothing during downturns provide our Fact 6.

> **Fact 6 (Expenditure Smoothing)**: Nonprofits exhibit expenditure smoothing, with an elasticity of spending to revenue at the organization level substantially lower than one at 0.2. This elasticity declines further, i.e., nonprofit-level smoothing intensifies, during recessions.

3.7 Do nonprofits behave differently from for-profit firms?

Our final question asks whether nonprofit firms behave differently than for-profit firms through the lens of the empirical facts above. We gather data on US publicly listed firms, a group of for-profit businesses accounting for the vast majority of output and employment. We draw revenue, assets, and liabilities directly from financial statements reported in the standard source for information on listed American firms, the Compustat database, and we compute total expenditure at such firms as the difference between revenue and operating cashflows. We assign firms to a CZ based on headquarters location. See Appendix A for more details on our sample and variable construction.

Providing the direct for-profit equivalents of nonprofit cyclicality Facts 1 - 4 above, Panels A - D in Table 7 report cyclicality estimates for a range of for-profit outcomes: revenue, assets, liabilities, and expenditure. In Panel A, we see that the elasticity of revenue to local personal income is 0.632 / 0.337 $\approx$ 1.9 times larger for for-profit firms than nonprofits. Panel B reveals that the elasticity of assets to local personal income is 0.614 / 0.175 $\approx$ 3.5 times larger for for-profit firms. Panel C shows that the elasticity of liabilities to local personal income is 0.437 / 0.101 $\approx$ 4.3 times higher in the for-profit sector, although this elasticity isn't precisely estimated in our most conservative specifications. Finally, Panel D shows that the elasticity of expenditure is 0.522 / 0.143 $\approx$ 3.7 times higher for US public firms than for nonprofits. Uniformly, our results reveal substantially higher sensitivity to economic fluctuations in the for-profit sector than for nonprofits.

[20] Appendix Table B.8 reports related regressions, interacting nonprofit-level revenue with national income growth rather than NBER recessions. The results are similar, revealing strong smoothing at the micro level during nationwide downturns.

Table 7: Cyclicality Regressions for For-Profit Sample

	(1)	(2)	(3)	(4)	(5)
A. Revenue			**Δ Revenue**		
Δ Nat. income	2.111***	1.226***			
	(0.097)	(0.110)			
Δ CZ income		0.751***	0.738***	0.637***	0.632***
		(0.063)	(0.073)	(0.098)	(0.152)
B. Assets			**Δ Assets**		
Δ Nat. income	1.556***	0.537**			
	(0.095)	(0.250)			
Δ CZ income		0.866***	0.720***	0.640***	0.614**
		(0.253)	(0.170)	(0.215)	(0.274)
C. Liabilities			**Δ Liabilities**		
Δ Nat. income	1.852***	1.022***			
	(0.057)	(0.201)			
Δ CZ income		0.705***	0.593***	0.438**	0.437
		(0.143)	(0.112)	(0.171)	(0.276)
D. Expenditure			**Δ Expenditure**		
Δ Nat. income	2.304***	1.462***			
	(0.092)	(0.076)			
Δ CZ income		0.715***	0.696***	0.598***	0.522***
		(0.063)	(0.059)	(0.070)	(0.144)
Fixed Effects				Firm	Firm Year × State
Observations	59,231	59,231	59,231	59,231	59,231

Note: This table reports coefficient estimates for Equation 1 for for-profit revenue, assets, liabilities, and expenditure in the Compustat sample. Δ refers to robust growth rates as defined in Appendix A.2. For-profit revenue includes all accounting revenue, while expenditure is constructed as the difference between revenue and operating cashflow. Assets and liabilities are directly reported by the firm and refer to the respective accounting concept. National and CZ income refer to personal income of residents. See main text and Appendix A for data construction details. All standard errors are clustered at the state level.

Standard errors in parentheses. Significance levels: * 10% , ** 5%, *** 1%.

Shifting to an analysis of expenditure smoothing—and skipping Fact 5 since core program expenses are not a relevant metric for for-profit firms—Table 8 reports estimates of the type seen in Section 3.6 and Fact 6 above for nonprofits from our sample of for-profit firms.

Column (5) reports an elasticity of expenditure to revenue within firms during normal times of around 0.6, about three times high as our equivalent estimates of around 0.2 for nonprofits in Table 6. Furthermore, there is no evidence that smoothing of expenditure increases during recessions, as the interaction term reveals.

> **Fact 7 (For-Profit Firms)**: Relative to nonprofits, for-profit firms exhibit much higher procyclicality, together with weaker expenditure smoothing which doesn't increase during recessions.

Table 8: Smoothing Regressions for For-Profit Sample

	(1)	(2)	(3)	(4)	(5)
			Δ Expenditure		
Δ Revenue	0.625***	0.613***	0.597***	0.595***	0.593***
	(0.040)	(0.040)	(0.042)	(0.043)	(0.044)
Δ Revenue × NBER Recession					0.011
					(0.021)
Fixed Effects		Year	Firm Year	Firm Year × State	Firm Year × State
Observations	59,231	59,231	59,231	59,231	59,231

Note: This table reports coefficient estimates for Equations 3 and 4 for for-profit firms in the Compustat sample. Δ refers to robust growth rates as defined in Appendix A.2. For-profit revenue includes all accounting revenue, while expenditure is constructed as the difference between revenue and operating cashflow. NBER Recession is an indicator for recession years as defined by the NBER. See main text and Appendix A for data construction details and summary statistics. All standard errors are clustered at the state level.

Standard Errors in Parentheses. Significance levels: * 10% , ** 5%, *** 1%.

These results reveal that for-profit firms exhibit qualitatively different behavior than nonprofits in the face of fluctuations, with substantially higher volatility and little smoothing.

4 Robustness

In this section we explore multiple crosschecks or extensions to our facts above, examining alternative measures, subsamples, and functional forms for our specifications. Our conclusions remain quite robust throughout this series of checks.

4.1 Alternative Measures of Local Economic Conditions

Throughout our cyclicality analysis in Facts 1- 4, estimating regressions of the form in Equation 1, we link nonprofit outcomes to the local economic cycle. We use CZ-level personal

income growth as our baseline measure of economic conditions in an area. One might be concerned that this approach leads us to uncover patterns which are unique to an income-based notion of fluctuations rather than to measures of economic conditions focusing more narrowly on the labor market.

Table 9: Cyclicality Regressions Using Alternative Indicators

	(1)	(2)	(3)	(4)
A. Revenue		**Δ Revenue**		
Cycl. Measure	0.337***	0.279***	0.432***	-0.290**
	(0.067)	(0.045)	(0.073)	(0.132)
B. Assets		**Δ Assets**		
Cycl. Measure	0.175***	0.160***	0.209***	-0.339***
	(0.022)	(0.030)	(0.033)	(0.104)
C. Liabilities		**Δ Liabilities**		
Cycl. Measure	0.101**	0.167**	0.065**	-0.015
	(0.039)	(0.064)	(0.025)	(0.085)
D. Expenditure		**Δ Expenditure**		
Cycl. Measure	0.143***	0.152***	0.142***	-0.301***
	(0.016)	(0.021)	(0.035)	(0.087)
Cylicality Measure	Δ Income	Δ Employment	Δ Wages	Unemployment rate
Fixed Effects	Firm, Year × State	Firm, Year × State	Firm, Year × State	Firm, Year × State
Observations	8,623,305	8,623,305	8,623,305	8,623,305

Note: This table reports coefficient estimates for Equation 1 for revenue, assets, liabilities, and expenditure using alternative indicators for the economic cycle. Δ refers to robust growth rates as defined in Appendix A.2. Nonprofit revenue and expenditure include all accounting income and expenses, respectively. Nonprofit assets and liabilities are measured at the end of the year and include all accounting assets and liabilities, respectively. CZ income refers to personal income of residents. Geographic assignment of employment and wages is based on the place of work, while unemployment rates are calculated on a residential basis. See main text and Appendix A for data construction details. All standard errors are clustered at the state level.

Standard errors in parentheses. Significance levels: * 10% , ** 5%, *** 1%.

Motivated by this logic, Table 9 explores other measures of the local economy based on local labor market outcomes. Panels A-D report the estimated cyclicality of nonprofit revenue, assets, liabilities, and expenditure, respectively. For each panel, Column (1) duplicates our baseline results based on personal income growth. Column (2) exploits employment

growth. Column (3) examines per-capita wage growth. And column (4) relies upon the local unemployment rate.

Our quite uniformly precise estimates reveal that regardless of whether downturns in a CZ are measured by declining personal income, declining employment, lower wages per worker, or higher unemployment, nonprofit revenue, assets, liabilities, and expenditure robustly decline during bad times.[21] We conclude that our choice of personal income growth as a measure of the economic cycle proves to be a reasonable baseline.

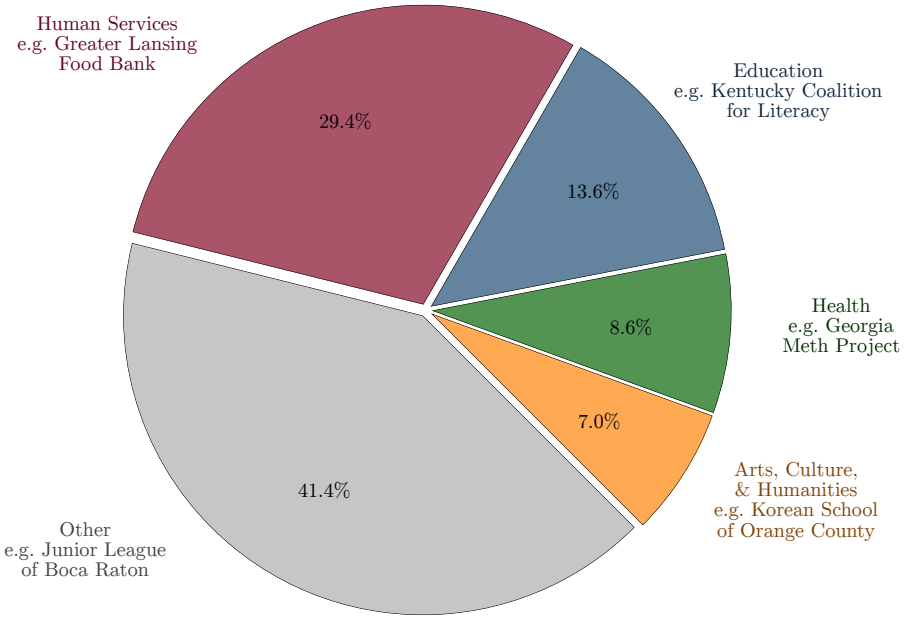
4.2 Nonprofit Type

Nonprofits can be very different from one another. To capture this fact, NCCS has developed a system of classification codes for nonprofits, the National Taxonomy of Exempt Entities (NTEE). The purpose of NTEE codes is similar to broader statistical classification schemes such as NAICS industry codes. The breadth of NTEE codes reflects substantial heterogeneity in the nonprofit sector, ranging from organizations focused on providing direct charitable services to individuals to in some cases very different nonprofits such as large universities, museums, or hospitals. Figure 7 displays the 2010 cross-section of organizations across five NTEE major code groups: 1) Human Services, 2) Education, 3) Health, 4) Arts, Culture, & Humanities, and 5) Other. Figure 7 also includes examples of organizations drawn from each category. The major category entitled "Other," a somewhat unsatisfactorily named grouping often spanning organizations with multiple purposes, makes up the largest share. Human services—nonprofits focused on the provision of nutrition, housing, and employment assistance, among other activities—accounts for the second-largest proportion, followed by education, health, and then cultural organizations.

Given this heterogeneity across types of nonprofits—which run the gamut from food banks to educational institutions, medical facilities, or art museums—one natural question is whether our baseline results mask differing underlying patterns in each category. If, say, spending at food banks increased during downturns while spending at art museums declined, one may view our facts quite differently.

[21] The single exception to this pattern is liabilities, for which we still estimate procyclicality against the local unemployment rate but in a statistically imprecise fashion. Against all other cyclical proxies, we robustly and precisely measure procyclicality of liabilities.

Figure 7: Active Nonprofits by Organizational Type in 2010



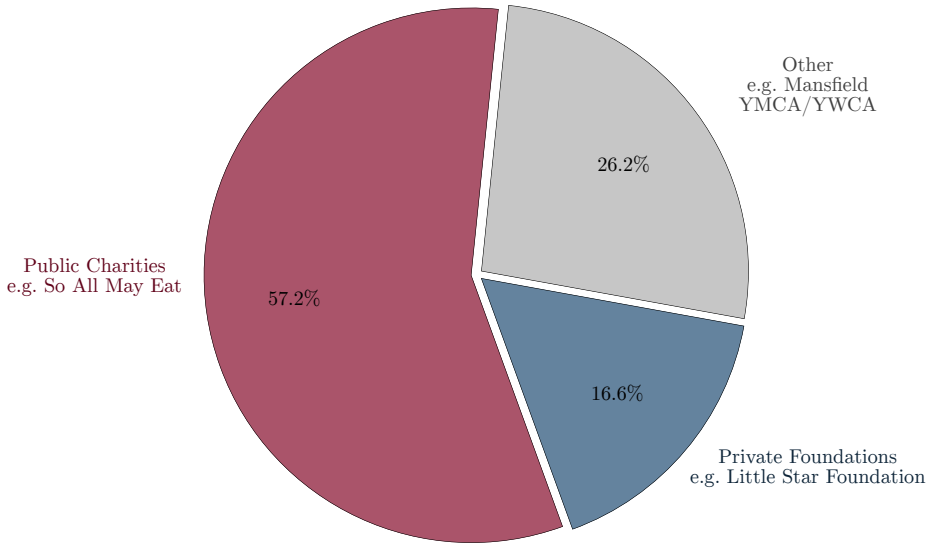
Note: This figure shows the share of active nonprofits by organizational type in 2010. Organizations are categorized by the NCCS using their NTEE classification scheme. See main text and Appendix A for data construction details.

In Appendix Table B.6, we re-estimate each of our cyclicality regressions for five subsamples. These five subsamples of organizations are the same charity type classifications appearing in Figure 7. We uniformly estimate that revenue, assets, liabilities, and expenditure are procyclical across all nonprofit types. The exact magnitude of cyclicality, and the precision of our estimated elasticities, varies somewhat across types, but in no case do we find evidence of expansion during bad times for any major grouping of nonprofits. In a similar exercise, Appendix Table B.7 reports expenditure smoothing regressions for each of our nonprofit subsamples based on the charity types in Figure 7. These estimates reveal that the organization-level elasticity of expenditure to revenue is always positive and substantially less than one, with smoothing increasing during NBER recessions for all charity types. Although nonprofits exhibit rich heterogeneity in type and purpose, we conclude that our empirical facts are robust across these categories.

4.3 Nonprofit Legal Form

Nonprofits also differ in legal structure. In particular, Figure 8 plots the 2010 proportion of nonprofits which are 1) public charities, 2) private foundations, or 3) organized in other legal ways. Public charities, accounting for the dominant share of nonprofits at slightly below 60% of organizations, collect contributions from the general public. Private foundations, a much smaller portion of charities at around 15% of the total, obtain contributions primarily from a single entity, such as a family or business. Other legal forms span various special purpose categories—clubs or organized labor, for example—and account for around a quarter of tax-exempt organizations.

Figure 8: Active Nonprofits by Legal Form in 2010



Note: This figure shows the share of active nonprofits by legal form in 2010. Nonprofit legal form is established by the NCCS based on nonprofits' tax returns. See main text and Appendix A for data construction details.

In Appendix Table B.9, we re-estimate each of our cyclicality regressions for subsamples based on nonprofit legal structure. These three subsamples of organizations are the same legal type classifications appearing in Figure 8. We uniformly estimate that revenue, assets, liabilities, and expenditure are procyclical across all nonprofit legal forms. The exact magnitude of cyclicality, and the precision of our estimated elasticities, varies somewhat across types, but in no case do we find significant evidence of expansion during bad times for any

legal form of nonprofits. In a similar exercise, Appendix Table B.10 reports expenditure smoothing regressions for each of our nonprofit subsamples based on the charity legal forms in Figure 8. These estimates reveal that the organization-level elasticity of expenditure to revenue is always positive and substantially less than one, with smoothing increasing during NBER recessions for all charity types.[22] Although nonprofits exhibit rich heterogeneity in legal structure, we conclude that our empirical facts are robust across these categories.

4.4 Nonprofit Size

At least two explanations for declines in nonprofit spending during downturns naturally suggest themselves. One possibility is that decisionmakers may be unwilling to expand because their goals place higher importance upon stability or survival. Another possibility, not mutually exclusive, is that financial constraints may shape the decisions of nonprofits. A long history of empirical and theoretical research on individuals and firms suggests that financial frictions—such as difficulty in accessing external finance, information asymmetries, etc.—may serve to powerfully drive apart the realized expenditure and the underlying goals of economic agents faced with short-term fluctuations in income. The result can be misallocation of resources or loss of welfare (Midrigan and Xu, 2014; Hsieh and Klenow, 2009; Restuccia and Rogerson, 2008). Unobservability of underlying financial constraints poses a key, universal, challenge for research on finance. However, even without fully solving that problem, we can lay out relevant facts about nonprofit finances.

If the size of a nonprofit—as defined by its total asset or resource base—matters for its access to financing, then we might expect that larger charities are better able to weather short-term fluctuations in income while maintaining high expenditure. Table 10 reports a range of smoothing regressions of the form of Equation 4 for each of three size terciles of nonprofits. Column (1) restates our baseline full sample results from Table 6, while columns (2)-(4) report subsample estimates. Each regression includes estimates of both average smoothing and interactions with NBER recession indicators. Qualitatively, the full-sample patterns hold across all of the size categories. Expenditure directly comoves with revenue at nonprofits, with observed elasticities that are consistent with meaningful smoothing, i.e., substantially less than one and even lower during recessions. However, we see a tight pattern of higher smoothing at the largest organizations. Small nonprofits facing a one standard deviation drop in revenue in normal times cut their expenditure by an average of 0.390 $\times$

[22] Appendix Table B.11 provides a version of Table B.10, defining economic downturns with national personal income rather than NBER recessions, and finds similar results.

$60.1 \approx 24$ percentage points, while their larger peers see a far more muted drop of $0.141 \times 60.1 \approx 8$ percentage points on average. These differences across size categories are even more exaggerated during recessions. We conclude that expenditure smoothing is systematically stronger for larger nonprofits.

Table 10: Smoothing Regressions by Size Class

	(1)	(2)	(3)	(4)
		Δ Expenditure		
Δ Revenue	0.231***	0.390***	0.216***	0.141***
	(0.008)	(0.010)	(0.008)	(0.004)
Δ Revenue × NBER Recession	-0.041***	-0.027***	-0.041***	-0.027***
	(0.003)	(0.005)	(0.004)	(0.002)
Nonprofit Size Class	Any	Bottom tercile	Middle tercile	Top tercile
Fixed Effects	Firm, Year × State	Firm, Year × State	Firm, Year × State	Firm, Year × State
Observations	8,623,305	2,665,633	2,918,312	3,039,360

Note: This table reports coefficient estimates for Equation 4 by size class. Nonprofits are classified into size terciles based on asset holdings. Δ refers to robust growth rates as defined in Appendix A.2. Nonprofit revenue and expenditure include all accounting income and expenses, respectively. NBER Recession is an indicator for recession years as defined by the NBER. See main text and Appendix A for data construction details. All standard errors are clustered at the state level.

Standard Errors in Parentheses. Significance levels: * 10% , ** 5%, *** 1%.

4.5 Nonlinearities

Our baseline specification in Equation 1 assumes a constant linear link between CZ income growth and nonprofit outcomes. We relax this assumption in Appendix Table B.12 by allowing for heterogeneous slopes above and below the median CZ income growth rate. Our results indicate that charity revenue and assets are marginally more sensitive to economic conditions in (local) bad times, while we find a slight reduction in sensitivity for liabilities and no discernible difference for expenditure. For revenue, liabilities, and expenditure we cannot reject the null of identical slopes. Overall, we conclude that nonlinearities do not appear to be a driving factor in our results.

4.6 Functional Form

In our baseline empirical analysis throughout the paper we report specifications in first differences or growth rates. For example, we study the association between growth rates of nonprofit outcomes and growth rates of economic conditions in our cyclicality regressions. Since nonprofits vary widely and persistently in size, the use of growth rates in this context offers considerable advantages, immediately accounting for permanent unobserved heterogeneity across nonprofits in our outcomes of interest. Furthermore, by populating our most conservative specifications—in growth rates—with nonprofit fixed effects, we also transparently and nonparametrically control for unobserved heterogeneity in trends at the nonprofit level. By contrast, estimating such regressions in levels runs the risk of conflating fluctuations within individual charities, our object of interest, with heterogeneity in long-term nonprofit-level trends. Nevertheless, Appendix Tables B.14 and B.15 report estimates of our regressions for nonprofit cyclicality and smoothing, replacing growth rates with log levels. Consistent with our baseline analysis, we continue to estimate that nonprofit revenue, assets, liabilities, and expenditure are procyclical, rising during local economic booms and falling during local downturns. We also uncover evidence of substantial expenditure smoothing, with elasticities of nonprofit spending to revenue far less than one and lower during NBER recessions. These results offer further assurance that our baseline specifications uncover robust empirical patterns for nonprofits.

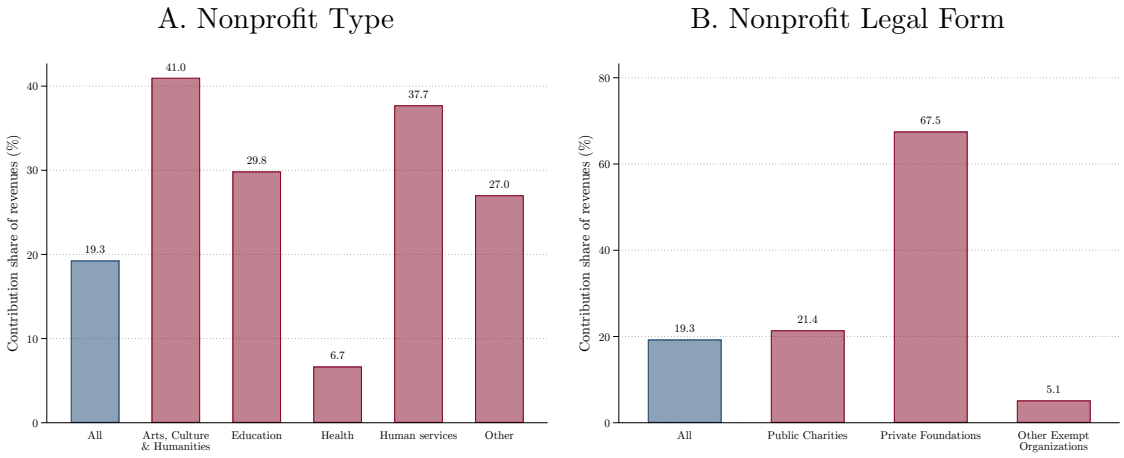
4.7 Contributions versus Total Revenue

Contributions to nonprofits account for around 20% of total revenue on average across all nonprofit types. The remainder of nonprofit revenue comes from the sale of goods or services and other sources. Figure 9 reports the contribution share of total revenue for all nonprofits, as well as within subsamples based upon nonprofit type and legal form. Although contributions are a meaningful portion of total revenue for all nonprofits, Figure 9 reveals that contributions do still vary in importance, representing particularly large sources of revenue for nonprofits such as human services organizations, e.g., food banks, and cultural institutions. Unsurprisingly, given their typical reliance on a single firm or family for funding, private foundations also rely heavily on contributions.

Given the varying importance of contributions for total revenue across nonprofit categories, one might naturally wonder if Fact 1 applies individually to the narrow categories of contribution-based revenue and non-contribution-based revenue as well as to revenue as a whole? Appendix Tables B.4 and B.5 attack this question directly, reporting cyclicality

regressions for contribution-based and non-contribution revenue individually. We estimate that both categories of revenue are robustly procyclical. We estimate a lower elasticity of contributions to income growth, at around 0.1, while non-contribution revenue dominated by sales of goods and services exhibit a higher cyclical elasticity of 0.3. These disaggregated patterns highlight the uniformity underlying our Fact 1. During economic downturns, nonprofits face pressure due to simultaneous weakness in multiple revenue streams.

Figure 9: Contribution Share of Revenue by Nonprofit Type and Legal Form in 2010



Note: This figure shows the share of revenue from contributions by nonprofit type and legal form in 2010. Organizations are categorized by the NCCS using their NTEE classification scheme. Nonprofit legal form is established by the NCCS based on nonprofits' tax returns. See main text and Appendix A for data construction details.

5 Conclusion

Policymakers and commentators have long expressed hopes that civil society, including the nonprofit sector, will expand to meet and alleviate need in US society. Using rich data from millions of nonprofits' tax returns, we lay out a series of facts about nonprofit behavior in the face of nationwide and local economic fluctuations. We find that—far from increasing their scope in the face of increased need during economic downturns—nonprofits exhibit robust procyclicality, with their revenue, assets, liabilities, and expenditure falling during bad times. However, we do find that charities smooth their expenditure substantially in the face of organization-level revenue fluctuations, smoothing which increases during recessions. Compared to the nonprofit sector, we also highlight that for-profit firms behave qualitatively differently, with far higher cyclicality and little evidence of expenditure smoothing.

By establishing a series of descriptive facts on outcomes in the nonprofit sector in good times and bad times, this paper seeks to improve our understanding of the nonprofit sector

and to motivate further work on it. Indeed, in light of our descriptive facts, at least two avenues for further research into the nonprofit sector immediately suggest themselves. As is often the case following the establishment of descriptive facts, these avenues are motivated by a desire to narrow in on a particular mechanism or a particular counterfactual question that requires different analyses than those in this paper, e.g., causal identification or structural modeling.

First, many interesting questions remain open around the counterfactual impact of policy on the nonprofit sector. The existing level of government subsidies to nonprofits during economic downturns is not sufficient to prevent their revenue from declining because our revenue measure includes government subsidies. But, one might reasonably speculate that—and future work could investigate whether—more government subsidies to nonprofits during bad times would promote sustained service provision.

Second, we note that cuts to nonprofit expenditure during bad times could in principle stem from multiple sources including but not limited to manager preferences or financial constraints. As one example, if the leaders of charities were biased on average towards organizational survival rather than maintenance of service provision, or if managers were averse to expansion, then the natural implication would be a failure of charities to expand during times of increased need. In the for-profit sector, evidence exists that such motives might be widespread (Bertrand and Mullainathan, 2003; Pugsley and Hurst, 2011). As another example, it is possible that nonprofit managers hold beliefs—which may or may not be accurate (see, for example, inaccurate beliefs about fundraising strategies documented in Samek and Longfield (2019))—about their optimal strategies during bad times.[23] Exploring the extent to which these alternative explanations contribute to the procyclicality of nonprofit expenditure is a natural avenue for future work.

[23] DellaVigna and Pope (2018) and DellaVigna and Pope (2018) also show that academics frequently hold inaccurate beliefs about the impact of leveraging social preferences.

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A Data

A.1 Data Sources

Our primary data source is the NCCS Core Trend Files, a longitudinal database of individual nonprofit tax returns compiled by the National Center for Charitable Statistics (NCCS).[24] The database harmonizes annual cross-sectional data covering essentially the universe of nonprofit Form 990 data in the US and constructs a set of core financial and non-financial variables that are available throughout the sample period. Charities are identified across years by a permanent enterprise identification number (EIN). We combine the databases for public charities, private foundations, and other exempt organizations to maximize our coverage of the nonprofit sector.

For our analysis we select key financial variables including total revenue, contributions, expenditure, assets, and liabilities, together with information on the charity purpose, legal form, and county of main address. For our subsample analysis, we harmonize charity purpose and legal form across years by assigning each nonprofit its mode of the respective category across all years. We impute missing county information using surrounding years as well as zip codes if necessary. Finally, we category firms into size terciles using their average relative assets, where the latter is defined as assets divided by their sample average for a given year.[25]

For our analysis we drop charities with missing geographic information or missing charity type. Furthermore, due to our focus on growth rates, charities with single observations are not part of our analysis. We restrict our sample to the 1990-2013 period, as the sample size is expanding rapidly before 1990. Furthermore, we drop observation with zeros for all financial variables.

We complement our data with additional information on expenditure composition derived from the Statistics of Income (SOI) sample files, which provide a detailed breakdown of income and expenses for a small, randomized subset of nonprofits. In particular, the SOI files for public charities and other exempt organizations provides a breakdown of expenditure into "program service expenses" and "management and general expenses", which we refer to as program and administrative expenditure respectively. We merge financial data from the SOI with geographic information based on the NCCS files to link nonprofits and geographies.

[24] See https://nccs-data.urban.org for a detailed description of the data as well as download links.

[25] In particular, we first calculate the relative size of a charity in a particular year dividing its asset holdings by the average asset holdings for all charities. In a second step we take the average across all active years for each charity, giving us a sense of its average relative size. Finally, we categorize charities into size classes using terciles of the average relative size distribution.

We follow our approach for the NCCS Core Trend Files selecting all available observations for the 1990-2013 period and restrict the sample to nonprofits reporting nonzero program expenditure, administrative expenditure, and revenue in at least one year.

Finally, we investigate the behavior of for-profit firms using the Compustat database, which collects balance sheets and income statements for all firms listed at public exchanges in the US.[26] We restrict our sample to US firms outside the utility and financial sector in the 1990 to 2013 period. We drop all observations with negative assets, capital, employees, investment, and sales. Revenue in the form of sales is readily available in the data and we construct a measure of expenditure as the difference between sales and operating cash flows.

In addition to organization-level data, we collect a set of economic indicators at the regional and national level to link charity outcomes to national and local economic conditions. We obtain personal income at the county level from the Bureau of Economic Analysis' Regional Economic Accounts, wages and employment at the county level from the Bureau of Labor Statistics' Quarterly Census of Employment and Wages, unemployment rates at the county level from the Bureau of Labor Statistics' Local Area Unemployment Statistics, and a NBER Recession indicator from the Federal Reserve Bank of St. Louis' FRED online database.

We link each county to a commuting zone using a mapping based on Autor and Dorn (2013) and aggregate all regional economic indicators to the CZ level.[27]

A.2 Variable Construction

Throughout we transform variables of interest into growth rates to safeguard against permanent differences across organizations and regions and connect to the wider literature on firm dynamics. A common challenge faced by researchers working with firm-level data is the treatment of outliers. This challenge is somewhat magnified for our data as the financial indicators are not strictly limited to positive values. Negative values arise as the reported data already nets out sub-accounts. For example, total revenue is partly composed of fundraising net revenue, which can be negative or positive. Changing data availability across years prevents us from manually disentangling these events to create, in an accounting sense, correct variables limited to strictly non-negative values.

We address this challenge by using a robust version of the growth rates proposed in Davis et al. (1996). In particular, we define the growth rate of variable $X_{i,t}$ for nonprofit or region

[26] See e.g. Davis et al. (2006) for a detailed description of the database and a discussion of how it compares to the US for-profit firms overall.

[27] See David Dorn's data page: https://www.ddorn.net/data.htm

i at time t as

$$\Delta X_{i,t} \equiv 2 \times \frac{X_{i,t} - X_{i,t-1}}{|X_{i,t}| + |X_{i,t-1}|}. \tag{5}$$

Note that the constructed growth rates are mechanically restricted to values between -2 and 2, which safeguards our analysis against undue sensitivity to outliers. We calculate growth rates for regional and national economic indicators using the same formula for consistency. Finally, for our local projection exercise we calculate long-run growth rates as

$$\Delta_{h+1} X_{i,t+h} \equiv 2 \times \frac{X_{i,t+h} - X_{i,t-1}}{|X_{i,t+h}| + |X_{i,t-1}|}. \tag{6}$$

A.3 Summary Statistics

Tables A.1, A.2 and A.3 report summary statistics for the NCCS Trend Files sample and the SOI subsample.

Table A.1: Summary Statistics

Variable	**Mean**	**Std. Dev.**	**Median**	**IQR**
Δ Revenue	0.019	0.601	0.026	0.335
Δ Expenditure	0.052	0.471	0.036	0.265
Δ Contributions	0.026	0.753	0.000	0.315
Δ EoY Assets	0.042	0.485	0.019	0.225
Δ EoY Liabilties	0.019	0.727	0.000	0.076
Δ CZ income	0.043	0.032	0.046	0.035
Δ Nat. income	0.044	0.025	0.050	0.024
Δ CZ employment	0.008	0.027	0.012	0.029
Δ CZ wages	0.031	0.022	0.031	0.025
CZ unemp. rate	0.062	0.023	0.057	0.031

Note: This table reports summary statistics for the main sample. Δ refers to robust growth rates as defined in Appendix A.2. IQR refers to the interquartile range. Variables are at the nonprofit level unless otherwise noted. Nonprofit revenue and expenditure include all accounting income and expenses, respectively. Contributions are a subset of revenue. Nonprofit assets and liabilities are measured at the end of the year and include all accounting assets and liabilities, respectively. National and CZ income refer to personal income of residents. Geographic assignment of employment and wages is based on the place of work, while unemployment rates are calculated on a residential basis. See main text and Appendix A for data construction details.

Table A.2: Summary Statistics for SOI Sample

Variable	Mean	Std. Dev.	Median	IQR
Δ Revenue	0.040	0.433	0.050	0.194
Δ Expenditure	0.066	0.309	0.055	0.131
Δ Program expenditure	0.069	0.374	0.053	0.147
Δ General expenditure	0.060	0.465	0.043	0.217
Δ Program exp. share (%)	0.002	0.050	0.000	0.028
Δ Nat. income	0.047	0.023	0.051	0.020
Δ CZ income	0.046	0.030	0.048	0.031

Note: This table reports summary statistics for the SOI sample. Δ refers to robust growth rates as defined in Appendix A.2. IQR refers to the interquartile range. Variables are at the nonprofit level if not otherwise noted. Nonprofit revenue and expenditure include all accounting income and expenses, respectively. Program and general expenditure refer to program service expenses and management and general expenses, respectively. National and CZ income refer to personal income of residents. See main text and Appendix A for data construction details.

Table A.3: Summary Statistics for Compustat Sample

Variable	Mean	Std. Dev.	Median	IQR
Δ Revenue	0.086	0.328	0.077	0.222
Δ Expenditure	0.080	0.309	0.074	0.236
Δ Assets	0.074	0.289	0.054	0.216
Δ Liabilities	0.092	0.368	0.049	0.307
Δ Nat. income	0.047	0.022	0.051	0.020
Δ CZ income	0.049	0.034	0.052	0.037

Note: This table reports summary statistics for the Compustat sample. Δ refers to robust growth rates as defined in Appendix A.2. IQR refers to the interquartile range. Variables are at the firm level if not otherwise noted. For-profit revenue includes all accounting revenues, while expenditure is constructed as the difference between revenue and operating cashflows. Assets and liabilities are directly reported by the firm and refer to the respective accounting concept. National and CZ income refer to personal income of residents. See main text and Appendix A for data construction details.

B Robustness Checks

B.1 Robustness Using Contributions Instead of Revenue

Table B.4: Cyclicality Regressions for Contributions

	(1)	(2)	(3)	(4)	(5)
			Δ Contributions		
Δ Nat. income	0.303***	0.109**			
	(0.031)	(0.041)			
Δ CZ income		0.204***	0.196***	0.169***	0.121***
		(0.023)	(0.020)	(0.020)	(0.030)
Fixed Effects			Year	Firm Year	Firm Year × State
Observations	8,623,305	8,623,305	8,623,305	8,623,305	8,623,305

Note: This table reports coefficient estimates for Equation 1 for received contributions. Δ refers to robust growth rates as defined in Appendix A.2. Nonprofit contributions include all contributions including grants, donations and individuals contributions. National and CZ income refer to personal income of residents. See main text and Appendix A for data construction details. All standard errors are clustered at the state level.

Standard Errors in Parentheses. Significance levels: * 10% , ** 5%, *** 1%.

Table B.5: Cyclicality Regressions for Non-Contribution Revenue

	(1)	(2)	(3)	(4)	(5)
			Δ Non-Contribution Revenue		
Δ Nat. income	2.106***	1.901***			
	(0.051)	(0.139)			
Δ CZ income		0.214*	0.269***	0.252***	0.301***
		(0.121)	(0.043)	(0.055)	(0.063)
Fixed Effects			Year	Firm Year	Firm Year × State
Observations	8,623,305	8,623,305	8,623,305	8,623,305	8,623,305

Note: This table reports coefficient estimates for Equation 1 for non-contribution revenue. Δ refers to robust growth rates as defined in Appendix A.2. Nonprofit non-contribution revenue includes all revenue except for contributions, e.g. sales and operating income. National and CZ income refer to personal income of residents. See main text and Appendix A for data construction details. All standard errors are clustered at the state level.

Standard Errors in Parentheses. Significance levels: * 10% , ** 5%, *** 1%.

B.2 Robustness by Nonprofit Type

Table B.6: Cyclicality Regressions by Nonprofit Type

	(1)	(2)	(3)	(4)	(5)	(6)
A. Revenue			**Δ Revenue**			
Δ CZ income	0.337***	0.078	0.134*	0.153**	0.151***	0.511***
	(0.067)	(0.069)	(0.072)	(0.066)	(0.024)	(0.100)
B. Assets			**Δ Assets**			
Δ CZ income	0.175***	0.135***	0.098**	0.089**	0.130***	0.230***
	(0.022)	(0.042)	(0.043)	(0.044)	(0.023)	(0.028)
C. Liabilities			**Δ Liabilities**			
Δ CZ income	0.101**	0.179**	0.064	0.037	0.012	0.118**
	(0.039)	(0.067)	(0.054)	(0.066)	(0.040)	(0.048)
D. Expenditure			**Δ Expenditure**			
Δ CZ income	0.143***	0.148***	0.099***	0.115**	0.091***	0.163***
	(0.016)	(0.044)	(0.026)	(0.047)	(0.020)	(0.025)
Nonprofit Type	Any	Arts, Culture, and Humanities	Education	Health	Human Services	Other
Fixed Effects	Firm, Year × State	Firm, Year × State	Firm, Year × State	Firm, Year × State	Firm, Year × State	Firm, Year × State
Observations	8,623,305	609,727	1,080,710	834,679	2,639,385	3,458,804

Note: This table reports coefficient estimates for Equation 1 for nonprofit revenue, expenditure, assets, and liabilities by organizational type. Nonprofits are classified into five categories based on the taxonomy provided by the NCCS. Δ refers to robust growth rates as defined in Appendix A.2. Nonprofit revenue and expenditure include all accounting income and expenses, respectively. Nonprofit assets and liabilities are defined in accounting terms and measured at the end of the year. CZ income refers to personal income of residents. See main text and Appendix A for data construction details. All standard errors are clustered at the state level.

Standard errors in parentheses. Significance levels: * 10% , ** 5%, *** 1%.

Table B.7: Smoothing Regressions by Nonprofit Type

	(1)	(2)	(3)	(4)	(5)	(6)
			Δ Expenditure			
Δ Revenue	0.231***	0.317***	0.257***	0.363***	0.375***	0.165***
	(0.008)	(0.009)	(0.013)	(0.005)	(0.007)	(0.006)
Δ Revenue × NBER Recession	-0.041***	-0.038***	-0.040***	-0.068***	-0.036***	-0.029***
	(0.003)	(0.007)	(0.006)	(0.007)	(0.004)	(0.003)
Nonprofit Type	Any	Arts, Culture, and Humanities	Education	Health	Human Services	Other
Fixed Effects	Firm, Year × State	Firm, Year × State	Firm, Year × State	Firm, Year × State	Firm, Year × State	Firm, Year × State
Observations	8,623,305	609,727	1,080,710	834,679	2,639,385	3,458,804

Note: This table reports coefficient estimates for Equation 4 by organizational type. Nonprofits are classified into five categories based on the taxonomy provided by the NCCS. Δ refers to robust growth rates as defined in Appendix A.2. Nonprofit revenue and expenditure include all accounting income and expenses, respectively. NBER Recession is an indicator for recession years as defined by the NBER. See main text and Appendix A for data construction details. All standard errors are clustered at the state level.

Standard Errors in Parentheses. Significance levels: * 10% , ** 5%, *** 1%.

Table B.8: Alternative Smoothing Regressions by Nonprofit Type

	(1)	(2)	(3)	(4)	(5)	(6)
			Δ Expenditure			
Δ Revenue	0.190***	0.279***	0.220***	0.286***	0.344***	0.134***
	(0.008)	(0.010)	(0.015)	(0.009)	(0.009)	(0.007)
Δ Revenue × Δ Nat. income	0.781***	0.739***	0.730***	1.539***	0.569***	0.619***
	(0.053)	(0.114)	(0.097)	(0.128)	(0.073)	(0.044)
Nonprofit Type	Any	Arts, Culture, and Humanities	Education	Health	Human Services	Other
Fixed Effects	Firm Year × State	Firm Year × State	Firm Year × State	Firm Year × State	Firm Year × State	Firm Year × State
Observations	8,623,305	609,727	1,080,710	834,679	2,639,385	3,458,804

Note: This table reports coefficient estimates for Equation 4 by organizational type. Nonprofits are classified into five categories based on the taxonomy provided by the NCCS. Δ refers to robust growth rates as defined in Appendix A.2. Nonprofit revenue and expenditure include all accounting income and expenses, respectively. See main text and Appendix A for data construction details. All standard errors are clustered at the state level.

Standard Errors in Parentheses. Significance levels: * 10% , ** 5%, *** 1%.

B.3 Robustness by Nonprofit Legal Form

Table B.9: Cyclicality Regressions by Legal Form

	(1)	(2)	(3)	(4)
A. Revenue		**Δ Revenue**		
Δ CZ income	0.337***	0.173***	0.188	0.147**
	(0.067)	(0.030)	(0.164)	(0.056)
B. Assets		**Δ Assets**		
Δ CZ income	0.175***	0.135***	0.163***	0.137***
	(0.022)	(0.026)	(0.029)	(0.025)
C. Liabilities		**Δ Liabilities**		
Δ CZ income	0.101**	0.063***	-0.001	0.043
	(0.039)	(0.021)	(0.050)	(0.043)
D. Expenditure		**Δ Expenditure**		
Δ CZ income	0.143***	0.107***	0.174**	0.057**
	(0.016)	(0.015)	(0.069)	(0.023)
Legal Form	All	Public Charities	Private Foundations	Other Exempt Organizations
Fixed Effects	Firm, Year × State	Firm, Year × State	Firm, Year × State	Firm, Year × State
Observations	8,623,305	4,887,023	1,304,173	2,432,108

Note: This table reports coefficient estimates for Equation 1 for nonprofit revenue and expenditure by legal form. Nonprofits' legal form is declared on their tax returns. Δ refers to robust growth rates as defined in Appendix A.2. Nonprofit revenue and expenditure include all accounting income and expenses, respectively. Nonprofit assets and liabilities are defined in accounting terms and measured at the end of the year. CZ income refers to personal income of residents. See main text and Appendix A for data construction details. All standard errors are clustered at the state level.

Standard errors in parentheses. Significance levels: * 10% , ** 5%, *** 1%.

Table B.10: Smoothing Regressions by Legal Form

	(1)	(2)	(3)	(4)
		Δ Expenditure		
Δ Revenue	0.231***	0.359***	0.089***	0.347***
	(0.008)	(0.008)	(0.005)	(0.010)
Δ Revenue × NBER Recession	-0.041***	-0.046***	-0.005**	-0.067***
	(0.003)	(0.004)	(0.002)	(0.009)
Legal Form	All	Public Charities	Private Foundations	Other Exempt Organizations
Fixed Effects	Firm, Year × State	Firm, Year × State	Firm, Year × State	Firm, Year × State
Observations	8,623,305	4,887,023	1,304,173	2,432,108

Note: This table reports coefficient estimates for Equation 4 by legal form. Nonprofits' legal form is declared on their tax returns. Δ refers to robust growth rates as defined in Appendix A.2. Nonprofit revenue and expenditure include all accounting income and expenses, respectively. NBER Recession is an indicator for recession years as defined by the NBER. See main text and Appendix A for data construction details. All standard errors are clustered at the state level.

Standard Errors in Parentheses. Significance levels: * 10% , ** 5%, *** 1%.

Table B.11: Alternative Smoothing Regressions by Legal Form

	(1)	(2)	(3)	(4)
		Δ Expenditure		
Δ Revenue	0.190***	0.313***	0.071***	0.294***
	(0.008)	(0.010)	(0.005)	(0.016)
Δ Revenue × Δ Nat. income	0.781***	0.919***	0.430***	0.939***
	(0.053)	(0.072)	(0.036)	(0.165)
Legal Form	All	Public Charities	Private Foundations	Other Exempt Organizations
Fixed Effects	Firm, Year × State	Firm, Year × State	Firm, Year × State	Firm, Year × State
Observations	8,623,305	4,887,023	1,304,173	2,432,108

Note: This table reports coefficient estimates for Equation 4 by legal form. Nonprofits' legal form is declared on their tax returns. Δ refers to robust growth rates as defined in Appendix A.2. Nonprofit revenue and expenditure include all accounting income and expenses, respectively. See main text and Appendix A for data construction details. All standard errors are clustered at the state level.

Standard Errors in Parentheses. Significance levels: * 10% , ** 5%, *** 1%.

B.4 Robustness for Nonlinearities

To test for nonlinearities, we estimate Equation 7, which is introduced below.

$$\Delta X_{j,t} = \alpha + \beta \Delta Y_{a,t} + \gamma \Delta Y_{a,t} \times \mathbb{I}\{Y_{a,t} \leq \text{Median}(Y_{a,t})\} + \varepsilon_{j,t}, \tag{7}$$

Results are reported in Table B.12.

Table B.12: Cyclicality Regressions Testing For Non-Linearities

	(1)	(2)	(3)	(4)
		Δ Revenue		
Δ CZ income	0.333***	0.171***	0.103***	0.142***
	(0.061)	(0.021)	(0.038)	(0.016)
Δ CZ income × Below Median	0.047	0.056**	-0.016	0.008
	(0.110)	(0.022)	(0.050)	(0.020)
Fixed Effects	Firm	Firm	Firm	Firm
	Year × State	Year × State	Year × State	Year × State
Observations	8,623,305	8,623,305	8,623,305	8,623,305

Note: This table reports coefficient estimates for Equation 7 for revenue, assets, liabilities, and expenditure. Δ refers to robust growth rates as defined in Appendix A.2. Nonprofit revenue and expenditure include all accounting income and expenses, respectively. Nonprofit assets and liabilities are measured at the end of the year and include all accounting assets and liabilities, respectively. CZ income refers to personal income of residents. Median CZ income growth is calculated over the entire sample. See main text and Appendix A for data construction details. All standard errors are clustered at the state level.

Standard errors in parentheses. Significance levels: * 10% , ** 5%, *** 1%.

B.5 Robustness using Levels Instead of Growth Rates

Table B.13: Summary Statistics in Levels

Variable	**Mean**	**Std. Dev.**	**Median**	**IQR**
Revenue	12.113	1.988	11.881	2.397
Expenditure	12.029	1.944	11.789	2.376
Assets	12.397	2.312	12.332	3.056
Liabilities	10.680	3.408	10.891	4.299
CZ Income	17.709	1.654	17.902	2.523
Nat. income	23.019	0.289	23.084	0.441

Note: This table reports summary statistics for the level sample with variables in levels. IQR refers to the interquartile range. Variables are at the nonprofit level if not otherwise noted. Nonprofit revenue and expenditure include all accounting income and expenses, respectively. Nonprofit assets and liabilities are measured at the end of the year and include all accounting assets and liabilities, respectively. All variables are in logs. National and CZ income refers to personal income of residents. See Appendix A for data construction details.

Table B.14: Cyclicality Regressions in Levels

	(1)	(2)	(3)	(4)	(5)
A. Revenue			**Revenue**		
Nat. income	2.128***	2.046***			
	(0.148)	(0.155)			
CZ Income		0.122***	0.122***	0.042***	0.025***
		(0.012)	(0.012)	(0.005)	(0.004)
B. Assets			**Assets**		
Nat. income	1.126***	1.072***			
	(0.116)	(0.118)			
CZ Income		0.080***	0.079***	0.033***	0.018***
		(0.011)	(0.011)	(0.004)	(0.004)
C. Liabilities			**Liabilities**		
Nat. income	5.071***	5.003***			
	(0.416)	(0.425)			
CZ Income		0.103***	0.103***	0.046***	0.027***
		(0.017)	(0.017)	(0.007)	(0.006)
D. Expenditure			**Expenditure**		
Nat. income	1.424***	1.338***			
	(0.117)	(0.123)			
CZ Income		0.129***	0.130***	0.035***	0.022***
		(0.012)	(0.012)	(0.004)	(0.004)
Fixed Effects	Linear Trend	Linear Trend	Year	Nonprofit Year	Nonprofit Year × State
Observations	4,709,355	4,709,355	4,709,355	4,709,355	4,709,355

Note: This table reports coefficient estimates for Equation 1 for nonprofit revenue, assets, liabilities, and expenditure. Nonprofit revenue and expenditure include all accounting income and expenses, respectively. Nonprofit assets and liabilities are measured at the end of the year and include all accounting assets and liabilities, respectively. All variables are in logs. CZ income refer to personal income of residents. See Appendix A for data construction details. All standard errors are clustered at the state level.

Standard errors in parentheses. Significance levels: * 10% , ** 5%, *** 1%.

Table B.15: Smoothing Regressions in Levels

	(1)	(2)	(3)	(4)	(5)
			Expenditure		
Revenue	0.919***	0.920***	0.507***	0.507***	0.507***
	(0.004)	(0.004)	(0.008)	(0.008)	(0.008)
Revenue × NBER Recession					-0.004***
					(0.001)
Fixed Effects		Year	Firm Year	Firm Year × State	Firm Year × State
Observations	8,414,389	8,414,389	8,335,550	8,335,550	8,335,550

Note: This table reports coefficient estimates for Equations 3 and 4. Nonprofit revenue and expenditure include all accounting income and expenses, respectively. All variables are in logs. NBER Recession is an indicator for recession years as defined by the NBER. See Appendix A for data construction details. All standard errors are clustered at the state level.

Standard Errors in Parentheses. Significance levels: * 10% , ** 5%, *** 1%.

B.6 Robustness by Expenditure Subcategories

Table B.16: Cyclicality Regressions for Program and Administrative Expenditure

	(1)	(2)	(3)	(4)	(5)
A. Program Expenses			**Δ Prog. Exp.**		
Δ Nat. income	0.608***	0.380***			
	(0.030)	(0.046)			
Δ CZ income		0.240***	0.240***	0.169***	0.182***
		(0.042)	(0.036)	(0.036)	(0.043)
B. Admin. Expenses			**Δ Adm. Exp.**		
Δ Nat. income	0.591***	0.412***			
	(0.044)	(0.053)			
Δ CZ income		0.188***	0.187***	0.141**	0.208**
		(0.038)	(0.038)	(0.053)	(0.080)
Fixed Effects			Year	Firm Year	Firm Year × State
Observations	275,256	275,256	275,256	275,256	275,256

Note: This table reports coefficient estimates for Equation 1 for program and administrative expenditure in the SOI sample. Δ refers to robust growth rates as defined in Appendix A.2. Program and general expenditure refer to program service expenses and management and general expenses, respectively. National and CZ income refer to personal income of residents. See main text and Appendix A for data construction details and summary statistics. All standard errors are clustered at the state level.

Standard errors in parentheses. Significance levels: * 10% , ** 5%, *** 1%.