

**Why Do Nonprofits Retain Unrestricted Net Assets? Evidence from Panel Data, and Policy Implications**

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## **1. Introduction**

Despite large public investment in the nonprofit sector, no public policy exists regarding how much surplus a nonprofit organization (“NPOs”) may earn in any given year, or how long these accumulated surpluses (net assets) may be retained by a nonprofit. Even though these surpluses are themselves tax-exempt (from corporate or income taxes) and possibly acquired with tax-deductible donations, the Internal Revenue Service has no regulations regarding these nonprofit net asset accumulation. While investors or owners may influence how much earnings a company retains or distributes, the “nondistribution constraint” of the nonprofit sector – in which there is “the absence of stock or other indicia of ownership that give their owners a simultaneous share in both profits and control” (Hansmann 1980) – leaves this choice primarily in the hands of nonprofit decision makers.

Existing literature has focused little on nonprofit net asset accumulation. To date, no analysis has examined why NPOs choose to retain unrestricted net assets, the only class of net assets controllable by nonprofit decision makers rather than donors. This paper adds to the existing literature by testing several competing hypotheses that might motivate a nonprofit to retain unrestricted net assets rather than increase current output (operating expenses). The empirical strategy used in this analysis also adds to the literature by suggesting a method for overcoming several significant statistical estimation issues, namely endogeneity in regressors, omitted variable bias, and persistence in the dependent variable. These estimation issues are common when modeling organizational financial characteristics. Further, the dynamic panel data estimation employed in this analysis is the first empirical examination of NPO unrestricted net asset accumulation over time.

The results suggest that NPOs do seek to increase unrestricted net assets over time, and that some nonprofits retain unrestricted net assets primarily to hedge against fiscal shocks. Rather than simply accumulating unrestricted net assets for their own sake, these nonprofits do appear to act rationally and in manners consistent with sound business practices. However, certain subsectors (notably Arts and Higher Education) do not seem to accumulate unrestricted net assets as a response to potential risk; rather, these organizations simply retain more as they increase in size.

The rest of the paper proceeds as follows: section 2 defines nonprofit net assets, discusses why they are important to nonprofit organizations, differentiates nonprofit net assets from other organizations' retained earnings, and describes the policy relevance of nonprofit unrestricted net assets; section 3 summarizes the existing literature as well as hypotheses regarding nonprofit net asset accumulation; section 4 defines the variables used in the analysis, outlines the empirical strategy employed, and describes the data used; section 5 discusses the results of the empirical estimation; section 6 outlines several policy implications to the empirical findings; while section 7 concludes.

## **2.1 Defining Nonprofit Net Assets, and the Importance of Net Assets to Nonprofits**

Just as with a for-profit entity, any annual excess of revenues over expenses results in an operating surplus (referred to as “change in net assets” in the nonprofit sector). NPOs that earn an operating surplus in any period essentially have three options: 1) increase operating expenses so that the operating surplus is used up in current operations; 2) invest in fixed assets which presumably are used in providing mission-oriented services;<sup>1</sup> or 3) retain these operating surpluses. These retained annual operating profits accumulate on an organization's balance sheet and are reflected as “Net Assets.” These net assets are comparable to the equity portion of a for-

profit entity's balance sheet and are stock financial measures (that is, measures at one point in time, typically the last day of fiscal year); profits (or change in net assets), on the other hand, appear on organizations' operating statements and are flow financial measures (that is, measures over a range of time, typically a whole fiscal year).

Net assets on the nonprofit balance sheet must equal Total Assets less Total Liabilities, or:

$$\text{Total Assets} - \text{Total Liabilities} = \text{Total Net Assets} \quad (1)$$

Therefore, net assets do not represent cash balances of the organization; rather, net assets represent a claim of ownership on assets owned by the organization.<sup>2</sup> In effect, net assets represent those assets reinvested within the NPO (since the nonprofit is unable to distribute profits, due to the "nondistribution constraint") rather than used up.

Net assets also comprise part of a nonprofit's capital structure, since:

$$\text{Total Assets} = \text{Total Liabilities} + \text{Total Net Assets} \quad (2)$$

Equation 2 indicates that an organization must finance its assets using borrowing (Total Liabilities), accumulated surpluses (Total Net Assets), or some combination of the two. Assets – such as cash, inventory, property, equipment, etc. – are necessary for any organization to provide services to its clients. Without accumulated net assets, a nonprofit would have to finance its assets with debt only (Total Liabilities, in equation 2); yet debt itself is difficult to obtain without some collateral (assets) that protects the lender in the case of financial bankruptcy or insolvency by the borrower. Tuckman (1993) suggests that other sources of capital (such as debt or donations, as examples) might be easier to obtain if a NPO can use accumulated net assets as

evidence of fiscal strength and prudence. Net assets, then, are essential for NPOs to finance assets and provide mission-oriented services.

Net assets can also be viewed as one definition of organizational fiscal slack since it represents all resources on which the nonprofit may draw before becoming insolvent. Net assets serve as an operating reserve so that operating deficits (when operating expenses exceed operating revenues) do not threaten organizational viability. While different from working capital reserves (which tend to be cash), net assets serve to protect nonprofits by helping preserve core mission services during times of deficit-financing (Bowman 2007).

## **2.2 Unique Feature of Nonprofit Net Assets**

Nonprofit net assets are differentiated from for-profit equity by the ability of donors to restrict certain assets, a feature that is nonexistent in the corporate sector with equity investments. Generally Accepted Accounting Principles (GAAP) require nonprofit organizations to report on three classes of net assets – unrestricted, temporarily restricted, and permanently restricted net assets. These classes are based on whether or not a donor has imposed such a restriction upon the gift (FASB 1993). Reporting on these donor-imposed restrictions is one of the central characteristics of nonprofit financial accounting.

There is no financial account termed “Restricted Retained Earnings” in corporate accounting; retained earnings can be reinvested in the firm or distributed to shareholders as dividends. NPOs may have net assets that functionally appear synonymous with corporate retained earnings, but the resources may be unavailable to the nonprofit due to a donor-imposed restriction as to use or timing.<sup>3</sup> For example, a donor may dictate that resources provided to the nonprofit must be used for a specific purpose (for example, a certain program operated by the nonprofit); further, a donor may even forbid the nonprofit from spending the donated resources

at all (for example, an endowment), giving the organization access only to the earnings from the endowment. While “net assets” might represent a form of fiscal slack, “unrestricted net assets” might be a better definition since assets financed by donor-restricted resources cannot be disposed of as the nonprofit desires in the case of fiscal need. Releasing restrictions requires either the involvement of the donor or the State Attorney General (assuming that the Attorney General has the power to change such restrictions – called the *cy pres* doctrine).

Restrictions on donation usage, then, may limit a NPO’s options in regard to surplus accumulation. In fact, the three options facing the nonprofit (increase operating expenses, investment in fixed assets, or retention) may be decided by an external party: the donor may require that the organization spend the money in a specific way (a temporarily restricted net asset) or may forbid spending the donation at all, thereby requiring the nonprofit to retain it (a permanently restricted net asset). This paper analyzes why nonprofits themselves choose to retain net assets that they do have control over (unrestricted net assets) rather than simply using up all available resources in operations (implying breakeven operations).

### **2.3 Policy Relevancy of Nonprofit Net Assets**

Recently, public confidence in nonprofit performance, efficiency, and financial management has eroded (Light 2008), focusing attention in part on net asset accumulations by certain segments of the nonprofit sector. In 2001, the American Red Cross came under fire for choosing to retain a portion of the donations it had collected in the aftermath of the 9/11 terrorist attacks. Although such retention is organizational policy to ensure available funds for future disasters, the negative publicity led some to criticize public charities that appeared more interested in retaining money rather than spending it on programmatic output.<sup>4</sup> Criticism culminated in a November 2001 special House of Representative hearing on the matter. In 2006,

the Senate Finance Committee held hearings focusing on the increase in college tuition despite the accumulation of reserves by universities. One recommendation from the hearing was that universities be subject to a minimum payout requirement similar to the law governing private foundations. In February 2008, the Higher Education Act reauthorization passed in the House of Representatives required universities to spend at least five percent of their accumulated net assets annually in ways that would reduce students' costs of attending universities. In September 2008, the Senate Finance Committee again held hearings focused on college endowment levels and the affordability of higher education. As noted by Irvin (2007), the well-publicized growth in university and foundation endowments may make the public even more distrustful of the nonprofit sector as a whole. This distrust may manifest itself in fewer donations from the public or even additional regulatory requirements.

With the onset of the 2008 economic recession, NPOs saw operating revenues decline while demand for services increased. In one survey, over three-quarters of nonprofits indicated they expected increased demand for their services in 2009, while 93 percent of "lifeline" nonprofits (that is, those that primarily serve low-income populations) anticipated increased service demand from clients. At the same time, only 12 percent of respondents expected to operate better than breakeven during 2009. Over 60 percent of nonprofits lacked reserves in excess of three months operating expenses, and nearly 40 percent of organizations were contemplating terminating mission-related programs (all statistics derived from Nonprofit Finance Fund 2009).

Governments rarely provide direct social services to individuals; rather, these services – perhaps even more critical during a recession - are often contracted out, and nonprofits receive many of these contracts (DeVita 1999). Yet, just as NPOs were needed for providing services

(including additional publicly financed ones), the sector seemed financially vulnerable and was struggling for financial survival, let alone able to increase program output. The effectiveness of government social policy in addressing the effects of the economic downturn depends in part on the financial capacity of the nonprofit sector. Within one year the public discourse went from whether certain elite NPOs held too large an accumulation of net assets to whether the nonprofit sector overall held too little as hedge against economic downturns. Since nonprofit financial vulnerability or strength may affect the implementation of public policies, the issue of nonprofit net asset accumulation is an important policy concern.

### **3.1 Existing Literature and Theories about Nonprofit Net Asset Accumulation**

Limited existing research explores nonprofit net assets, and none empirically addresses unrestricted net asset accumulation. To maintain client and public trust, Hansmann (1980) reasons that NPOs are expected to devote any excess earnings (termed “endowments”) to additional output, either in the current time period or in the future. He also notes that “endowments” may be valuable due to the imperfection of nonprofit capital markets (in which financing is limited since NPOs cannot raise money by selling ownership interests in itself). Thus, these “endowments” may serve operating and capital needs of NPOs.

Hansmann (1990) broadens his analysis of “endowments” to include the ability of such accumulations to smooth consumption over business cycles as well. The investment income derived from such “endowments” reduces the natural fluctuations of other operating revenues. Therefore, Hansmann (1980) might best be thought of describing expendable resources (that is, unrestricted and temporarily restricted net assets), while Hansmann (1990) might best be understood as describing resources that are not expendable but generate additional revenue for the nonprofit (that is, permanently restricted net assets). Bowman (2007) expands upon



Hansmann (1990) to discuss the limitations of endowments from donor-imposed restrictions.

Chang and Tuckman (1990) contend that net assets (which they term “equity”) may be valuable to nonprofit managers as an end in itself. Nonprofit managers value net asset intrinsically, and establish such accumulations as a goal of operations (above and beyond charitable outputs alone). The authors do not distinguish between restricted and unrestricted net assets, however.

Tuckman and Chang (1992) expand on their prior work and provide the first empirical analysis concerning nonprofit net asset accumulation. The authors hypothesize that net assets allow the nonprofit manager to attain satisfaction through specific behaviors:

- 1) A NPO may wish to subsidize certain clients who would be unable to cover the full costs of receiving services from the nonprofit.<sup>5</sup> Because a NPO subsidizes certain clients, it may set aside certain net assets to ensure these populations have access to program services, especially in the future.
- 2) Net assets serve as an internal (rather than external) capital source for nonprofits.
- 3) Net assets provide a rainy day fund for temporary downturns in revenues. Thus, net assets help reduce the financial vulnerability of NPOs.
- 4) Net assets provide nonprofit managers with independence from donors’ expectations. Investment income helps generate operating surpluses (and net assets), providing NPOs with independence from market output (since investment income does not depend on donor or client satisfaction);
- 5) Finally, net assets may be a measure of success in the sector – similar to equity accumulation in the for-profit sector. This might be because nonprofit boards are populated with members from the business community, or even because nonprofit

managers are enthusiastic fund-raisers.

Their analysis derives a nonprofit demand function for net assets constrained by total revenues and total expenses, and their cross-sectional results suggest that nonprofit decision makers do deliberately and methodically increase total net assets.

Recently, Fisman and Hubbard (2005) analyze whether public oversight of NPOs through State Attorneys General might help overcome potential agency problems when nonprofits accumulate large levels of “endowments” (net assets). They find that increased oversight does have an effect on donations and retention levels. Although they do not explicitly tie their results to the nonprofit behavioral theories of Tuckman and Chang (1992), the results are suggestive that public oversight of NPOs may help alleviate the possible hoarding behavior by nonprofits as outlined in the fifth behavioral theory above.

Given that NPOs may not have access to all their retained net assets, the link to total net assets in existing theories is problematic: “net assets” is viewed as a choice variable of the nonprofit decision maker (that is, the manager can choose to use or retain a particular resource); yet, donors have the ability to remove this choice as a requirement of giving to the NPO. Hence, “net assets” is not what nonprofit managers are choosing to retain; rather, the manager is choosing to retain “unrestricted net assets” or not. In other words, “unrestricted net assets” ought to be the choice variable, not “total net assets.” Except for theory 5 above, the implicit assumption of the outlined nonprofit behavioral theory and the exiting literature is that the nonprofit manager is able to utilize all retained net assets for a specific purpose (that is, a rainy day fund, for investment, etc.). Net assets restricted by donors, however, may not be utilized as the nonprofit manager desires.

Since donors can restrict certain net assets, the extant literature has not empirically

examined whether nonprofits themselves choose to accumulate unrestricted net assets. Nor has the existing literature empirically analyzed whether the theories of how and why NPOs retain unrestricted assets are valid. Tuckman and Chang (1992) provide empirical support that a goal of NPOs is to increase total net assets, but not necessarily unrestricted net assets. Data limitations limit their analysis to a single year of data, making conclusions about net asset accumulations over time difficult to ascertain: the data is unable to shed light on how NPOs might change net asset balances over time. Further, Fisman and Hubbard (2005) provide empirical support for the role of government in overcoming potential agency problems within NPOs in regards to total net assets, but do not explore the determinants of nonprofit net assets (total or unrestricted).

The analysis presented here fills these gaps in the literature by examining whether NPOs actually do seek to accumulate unrestricted net assets, examining reasons why NPOs would derive satisfaction from these retained resources rather than maximizing programmatic output annually (implying no unrestricted net assets retained), as well as examining how unrestricted net assets might grow or be acquired over time.

### **3.2 Hypotheses Development**

The following testable hypotheses emerge from the existing literature when applied specifically to nonprofit retention of unrestricted net assets:

- 1) NPOs seek to accumulate unrestricted net assets over time;
- 2) NPOs increase unrestricted net assets as the need to subsidize clients increases, thereby increasing the likelihood that these (and future) clients will receive services;
- 3) NPOs decrease unrestricted net assets as long-term borrowing increases, since long-term debt reduces the need for an internal financing source;
- 4) NPOs increase unrestricted net assets to hedge against fiscal shocks as financial risk

increases;

- 5) NPOs increase unrestricted net assets as investment returns increase, since there are no client or donor demands on this revenue.

#### **4. Explanatory Model of Unrestricted Net Asset Accumulation**

The strategy devised to test the preceding hypotheses is described fully in this section. The variables used in the analysis are first defined, followed by the statistical specification.

##### **4.2 The Variables and the Expected Relationships**

The dependent variable in this analysis is the unrestricted net assets balance of nonprofit  $i$  at the end of year  $t$ , or  $UNA_{it}$ . To account for size differences between organizations,  $UNA_{it}$  is transformed by taking the natural logarithm of the variable.<sup>6</sup>

To evaluate whether unrestricted net assets increase as the need to subsidize clients increases (Hypothesis 2), the variable  $SUBSIDIZE_{it}$  is included. Since data are not available on direct subsidies to particular clients served by particular nonprofits, a proxy is developed.  $SUBSIDIZE_{it}$  is defined as the ratio of revenues earned by providing goods and services (that is, program service revenues plus membership and dues revenue) to total program expenses. The variable captures the degree to which a nonprofit can cover program expenses for output with program revenue directly tied to this output. A higher ratio implies that a NPO's programmatic output (measured using expenses) generates the revenues associated with incurring these expenses – for example, patient expenses at a hospital being offset by patient revenues earned by providing the output. A lower ratio implies the opposite, that a NPO may need to seek other revenue (such as donations, investment income, government grants, etc.) to subsidize programmatic output.

To test the hypothesis that unrestricted net assets decrease as long-term borrowing increases (Hypothesis 3), a debt ratio variable is included. The variable  $LEVERAGE_{it}$  is defined as the ratio between ending-year balances in total long-term liabilities (tax-exempt debt, mortgages, and other notes payable) and total assets.

To test whether nonprofits increase unrestricted net assets to hedge against potential fiscal shocks (Hypothesis 4), a variable is included to measure revenue diversity.<sup>7</sup> Chang and Tuckman (1991), Greenlee and Trussel (2000), Greenlee and Tuckman (2007), and Li, et al (2009) suggest that revenue diversification is a risk-reducing strategy employed by NPOs.  $CONCENTRATION_{it}$  is defined using a Herfindahl index of revenue sources, as in Chang and Tuckman (1991), defined as the sum of  $(Revenue_j/Total\ Revenues)^2$ . Revenue values less than zero confound this measure, and so, following Hager (2001), annual losses for a particular revenue source are set to \$0.<sup>8</sup> A measure approaching one would indicate extreme revenue concentration, whereas a measure approaching zero would indicate revenue diversity.<sup>9</sup>

NPOs may address fiscal shocks by shedding expenses (programmatic, overhead, or both). Fixed costs cannot be reduced in such instances since the nonprofit is obligated for these expenses. The variable  $FIXED\_COSTS_{it}$  is defined as the ratio of fixed costs (occupancy, interest, and depreciation) to total expenses.

To test the hypothesis that unrestricted net assets increase as investment return increases (Hypothesis 5), a measure of the nonprofit's return on investments,  $ROI_{it}$ , defined as all investment income for the year divided by the average annual balance of invested assets, is included. This hypothesis implies that the NPO is invested in certain assets that are producing additional income – such as interest, dividends, or rents – allowing the nonprofit to free itself from market output (Bowman, et al 2007). Since investment income for the year can be negative

(such as a realized investment loss), this definition includes negative as well as positive returns.<sup>10</sup>

An additional control variable,  $SIZE_{it}$ , is included, which is defined as the natural logarithm of total revenues, as in Core et al (2006). Larger organizations might have a different ability to retain unrestricted net assets as compared to smaller organizations. Further, Krishnan et al (2006) find that smaller organizations have a higher probability of misreporting program expense ratios (specifically, they tend to overstate program expenses), to appear more “efficient” to existing and potential donors. A concern might be that since program expenses is part of the  $SUBSIDIZE_{it}$  variable, the ratio will be understated (since the denominator may be larger than it ought to be); in this case, the expected negative coefficient might actually represent expense manipulation by smaller organizations. Since the direction of the bias is known and consistent,  $SIZE_{it}$  is included in part to address this concern.

All variables are winsorized at the 1 percent and 99 percent level to reduce the effect of extreme outliers. Appendix A summarizes all variables used in the empirical analysis.

### 4.3 Specification of the Model

Based on the previous discussion in section 4.2, the following regression model can be expressed:

$$UNA_{it} = \beta_1 SUBSIDIZE_{it} + \beta_2 LEVERAGE_{it} + \beta_3 CONCENTRATION_{it} + \beta_4 FIXED\_COSTS_{it} + \beta_5 ROI_{it} + \beta_6 SIZE_{it} + \eta_i + \delta_t + \mu_{it} \quad (3)$$

where  $\eta_i$  are organizational fixed effects,  $\delta_t$  are year effects, and  $\mu_{it}$  is the error term. Equation 3, however, does not account for the persistence in the dependent variable. More specifically, unrestricted net assets are balance sheet measures that are dependent upon prior values. The

relationship is clear when expressed as:

$$UNA_{it} = UNA_{it-1} + \Delta UNA_{it} \quad (4)$$

Equation 4 indicates that the current unrestricted net asset balance is equal to the prior year's balance plus any annual surplus or deficit (the change in net assets) during the current year.

Unrestricted net assets, then, are highly correlated from one period to the next by definition.

Equation 3 can be expanded, then, to include a lagged dependent variable on the right-hand side of the equation to address this persistence:

$$UNA_{it} = \beta_1 UNA_{it-1} + \beta_2 SUBSIDIZE_{it} + \beta_3 LEVERAGE_{it} + \beta_4 CONCENTRATION_{it} + \beta_5 FIXED\_COSTS_{it} + \beta_6 ROI_{it} + \beta_7 SIZE_{it} + \eta_i + \delta_t + \mu_{it} \quad (5)$$

Including the lagged dependent variable addresses a specification issue, but, as Nickell (1981) demonstrates, it is correlated with the individual NPO fixed effect. Further, Nickell (1981) shows that this correlation results in sizable estimate bias in panel data structure that is “small T, large N” (that is few years, but many cross-sections), as the current analysis uses.

An additional issue with the specification is that the model may have issues of endogeneity with respect to the regressors, potentially biasing the estimated results. The variables used in this regression may be determined simultaneously with the amount of unrestricted net assets retained by the NPO. For example, the variable  $LEVERAGE_{it}$  may be endogenous – an organization might decide simultaneously to either assume long-term debt or to retain unrestricted net assets to finance some asset purchase. All regressors except for the time effects are therefore treated as endogenous.

I use the general method of moments (GMM) difference estimator proposed by Arellano

and Bond (1991) to address these specification issues (that is, potential endogeneity in the regressors, as well as a correlation between the individual effect and the lagged dependent variable). This method first differences the equation, which removes the constant and the organizational fixed effect – as well as any associated omitted variable bias (Baum 2006). However, this results in correlation between regressors (including the lagged dependent variable) and the error term. The Arellano-Bond (1991) estimator uses lags of all endogenous variables as instrumental variables to overcome this correlation. In this case, the lags begin with the second period ( $t-2$ ), since the second lag is, by definition, not correlated with the current error term ( $\mu_{it}$ ); all additional available lags are also used. The use of lags as instruments addresses the potential endogeneity issue of the independent variables since lagged regressors are predetermined (and not endogenous). The coefficients on the independent variables and the lagged dependent variable are interpreted in dynamic panel modeling as the rate of adjustment of each variable, since they are first differenced. In the case of the lagged dependent variable, it captures whether NPOs do in fact seek to accumulate unrestricted net assets over time (Hypothesis 1).

Finally, due to potential heteroskedasticity in panel data, robust standard errors are calculated. More specifically, I use Roodman's (2006) two-step Arellano-Bond estimator with the Windmeijer finite-sample correction to adjust the reported standard errors.

#### **4.4 Data**

The data used in this paper comes from the “The National Center on Charitable Statistics (NCCS)-GuideStar National Nonprofit Research Database” (hereafter called the “digitized data”) for fiscal years 1998 through 2003. The digitized data cover all public charities required to file the Form 990,<sup>11</sup> a standardized report that must be submitted by public charities with gross receipts in excess of \$25,000 annually with the IRS. The digitized data contain financial



variables on each organization, specifically all revenue, functional expenses, and balance sheet items. The digitized data is verified by the NCCS, thereby increasing the quality of the reported data.

The digitized database contains 1,388,480 observations for 338,863 organizations. Approximately 20 percent of the sample (283,814 observations for 75,583 organizations) filed the Form 990EZ, which does not contain data on unrestricted net assets, the dependent variable for estimation. These observations are not included in the final analysis.

The theory developed in section 3 is relevant for nonprofits that are formed to provide voluntary services for various segments of society for the public's benefit. Many nonprofits, however, are formed to provide benefits to their members primarily (that is, private goods). This includes professional associations, societies, sororities and fraternities, fund-raising organizations, political parties, religious organizations, social and country clubs, labor unions, research organizations, block associations, professional sports leagues, among others. Fischer, et al (2007) hypothesize that the public or private nature of a nonprofit is intrinsically linked to how it finances itself (and, by extension, how it chooses to retain unrestricted net assets or not); further, Bowman (2002), in his analysis of capital structure, excludes NPOs with excessive levels of unrelated business income since these organizations' finances are more likely similar to for-profits than other NPOs. Therefore, NPOs that exist for the provision of private goods and services were eliminated from the sample.<sup>12</sup> This eliminated 398,241 observations covering 99,275 organizations.

An additional 165,327 observations for 37,172 organizations were dropped because the organizations did not report their financial information in accordance with GAAP, requiring restricted and unrestricted net assets to be segregated. Further, 124,802 observations covering

43,073 organizations were eliminated because they report their financial information on the cash or modified cash basis of accounting, and not on the accrual basis of accounting (as required by GAAP). Since the measurement of net assets in general is influenced by the accounting basis used by an organization (see Chapter 2 of Finkler 2005 for an illustration), only those NPOs that measured their financial information consistent with GAAP were included. The final sample for analysis is 416,296 observations covering 83,760 organizations.

The dynamic panel modeling estimation requires the use of lags and differencing. Using second lags (and beyond) as instruments reduces the number of years in the data from six to four years, and also eliminates organizations with insufficient and missing data for estimation. Further, the use of the difference GMM estimator reduces an additional year of data. The final sample, once accounting for the statistical estimation needs, is 174,069 observations covering 56,669 organizations. The reduction in sample size is comparable to Fisman and Hubbard (2002 and 2005), and Core et al (2006). These other studies do not employ dynamic panel models, which necessarily reduces sample size by definition, nor do these other studies ensure measurement consistency across organizations by only including GAAP-compliant financial reporters, as this study does.

## **5. Results**

### **5.1 Summary Statistics for Whole Sample**

Table 1 shows the descriptive statistics for the variables used in the empirical analysis. Importantly, the average size of NPOs included in the sample is \$1.3 million (the antilog of \$14.08) in total revenues, which is much smaller than the average size of other recent nonprofit analyses. The average Total Revenue in Fisman and Hubbard (2002) is nearly \$35 million, while the average Total Revenue in Core et al (2006) is over \$63 million. This reflects the digitized

database's inclusion of all Form 990 filers rather than large filers only, as in the Statistics of Income (used in both mentioned studies). To the extent that the nonprofit sector is populated with small organizations, the sample used in the current analysis may be more representative of the sector as a whole than prior studies that use the Statistics of Income database.

<Insert Table 1 about here>

Further, the average balance of unrestricted net assets retained by NPOs is slightly under \$500,000 (the antilog of \$13.10). While elected officials and public concern have focused on large accumulations of "endowments" by certain institutions (especially colleges and universities), the average NPO chooses to retain a relatively low level of unrestricted net assets.

On average, nonprofits in the sample are able to pay for almost 60 percent of their program spending (a proxy for output) with self-generated revenues. The level of subsidy needed to maintain such output seems significant. The importance of donations, government contracts, foundation support, and investment earnings for the maintenance of program output is clear, since such revenues pay for nearly 40 percent of the programmatic spending for organizations within the sample.

The average leverage ratio implies that nonprofits within the sample have financed nearly 28 percent of total assets using long-term debt. This is consistent with leverage variables found in other studies (such as Yetman 2007).

Average revenue concentration of 0.5 is middling. This is nearly identical to revenue concentration measures in Chang and Tuckman (1996) and Li et al (2009).

Only about 12 percent of costs, on average, are fixed, indicating a relatively high degree of flexibility with respect to changing costs in the face of revenue shocks. This may indicate that the sector is more labor intensive than capital intensive (as noted by Weisbrod 1988), since

capital intensity would likely result in higher levels of fixed costs (from depreciation, interest costs from financing, etc.).

The return on investment variable is relatively high at 14 percent. This is likely due to the strong returns from financial investments during a portion of the data's time period (1998-2003), as well as strong returns to property investments during the sample period. The time period also experienced a decline in the financial markets, as evidenced by the wide range and standard deviation of the variable. The return variable also reflects gains from property sales during the time period.

## **5.2 Summary Statistics for Specific Subsectors**

Prior authors (such as Tuckman and Chang 1992, Okten and Weisbrod 2000, Marudas 2004, and Fischer et al 2007, among others) have analyzed individual nonprofit subsectors, due to significant differences in financial characteristics, missions, revenue diversity, etc. Table 2 presents the summary statistics by several major subsectors: Education (excluding Higher Education), Higher Education, Health and Mental Health, Human Services, and Arts. Nonprofits in other subsectors are reported under "All Others." Colleges and universities (Higher Education) are broken out from Education since they have largely been the cause of much public concern about net asset accumulation.

<Insert Table 2 about here>

Colleges and universities report the highest levels of unrestricted net assets, while the All Others category the lowest levels. Not surprisingly, Health and Education organizations have the highest levels of self-generated revenues with respect to program expenses (SUBSIDIZE), while Human Services organizations have the lowest level. Again, this shows the importance of donations and investment revenue for providing such outputs in the Human Services subsector. It

is also interesting that Higher Education has the highest rate of self-generated revenues to program spending given the extent of public investment in the subsector. For example, Waldeck (2008) estimates that the foregone federal tax revenue from exempting endowment income just in higher education institutions alone is approximately \$18 billion in 2007.

The Health and Mental Health subsector has the highest level of revenue concentration, likely from its dependence on program revenues (derived primarily from patient service revenues). The Housing and Shelter subsector also has a higher than average revenue concentration, with revenues also largely dependent on program revenues. The arts subsector has the highest level of revenue diversity, similar to Yi et al (2009).

The Housing and Shelter subsector has the highest level of fixed costs. This is unsurprising given its high level of leverage, relative to the rest of the sample. This subsector is more invested in property, and has financed its asset acquisitions through debt. Both financial aspects result in fixed costs far in excess of other subsectors.

Finally, the return on investment variable is surprisingly lowest for colleges and universities (although it is still a healthy 9.3 percent on average). Despite the focus on higher education as a policy concern, this indicates the importance of investment income for the entire nonprofit sector, not just for large wealthy schools. Housing and Shelter organizations report the highest return on investment, at nearly 23 percent; this high average return likely reflects gains from property sales during the time period.

### **5.3 Estimation Results**

The results of the estimation for individual subsectors based on the strategy outlined in section 3 appear in Table 3. The results include two Wald tests: one that tests the joint

significance of the reported coefficients, and the other is a test of the joint significance of the time dummies. To check for potential misspecification of the estimated model, the  $z_1$  and  $z_2$  statistics test for the existence of first and second-order autocorrelation in the error term. First-order serial correlation is expected in Arellano-Bond estimations (Baum 2006). To test for correlation between the instruments (that is, the lagged endogenous variables) and the error term in the first-differenced equation, the Hansen  $J$  statistic is reported.<sup>13</sup>

<Insert Table 3 about here>

Columns 1 through 7 report the results for nonprofit subsectors. In all cases except for the Human Services subsector, the results indicate that second-order serial correlation is not biasing the reported errors. Further, the Hansen test indicates that the instruments are valid for the subsectors reported, except for the All Others subsector. The results for Human Services and All Others subsectors should be interpreted with caution due to these concerns. The overall results suggest that, as found by prior research, different subsectors tend to financially behave differently. Given the breadth of the nonprofit sector, it is unsurprising that different types of nonprofits finance their operations, retain resources, spend resources, etc. differently. This finding is no more surprising than discovering that banks and manufacturing firms – operating in different for-profit subsectors – finance themselves and behave differently.

The results in Table 3 indicate that NPOs in general do in fact seek net asset accumulation over time (Hypothesis 1), evidenced by the positive and significant coefficient on the lagged UNA variable. The results indicate that NPOs positively adjust their unrestricted net asset balances over time; in other words, nonprofits add operating surpluses to their existing unrestricted net asset balances over time. This finding lends longitudinal support to Tuckman and Chang's (1992) cross-sectional finding (although their focus was on total net asset

accumulation). The coefficient on the lagged UNA variable shows variation across the various subsectors, indicating that nonprofits with different missions (defined by activities) are able to retain unrestricted net assets differently.

The results do not lend empirical support to Hypothesis 2, that NPOs increase unrestricted net assets as client subsidy increases, *ceteris paribus*. Only Arts organizations show a significant coefficient on SUBSIDIZE. The positive coefficient, however, indicates that as Art nonprofits' program revenues increase as a ratio of program expenses (indicating less need for subsidies), unrestricted net assets increase. Despite the results being contrary to expectations, they do support a finding of Tuckman and Chang (1992) that organizations with increased profit margins on program output (defined using program revenues and program expenses, similar to the definition in this analysis) report higher total net asset balances. One explanation might be that organizations that rely on subsidies for operations do not wish to appear too wealthy. Marudas (2004), for example, finds that increased total net asset levels result in lower donations for nonprofits; it is likely that these findings can be extended to unrestricted net assets as well. Another explanation might be that donors provide such subsidies to NPOs through restricted giving, ensuring client subsidy but removing the organization's choice in the matter.<sup>14</sup> The overall implication of this finding, however, is that nonprofits requiring comparatively higher levels of subsidies have less unrestricted net assets to draw upon should these subsidies fail to materialize.

LEVERAGE is only significant for NPOs in the "All Others" subsector. These results indicate that as leverage increases, NPOs in general do not offset the increased leverage with lower unrestricted net assets. In other words, leverage does not appear to induce NPOs to reduce their retained unrestricted net assets. Perhaps as leverage increases, NPOs maintain unrestricted

net assets to avoid potential default on the debt. In the “All Others” subsector (the only significant subsector), the coefficient indicates that a one percent increase in leverage (from, for example, 49 to 50 percent) decreases unrestricted net assets approximately 0.28 percent.

Leverage, therefore, does not seem to be a complete substitute for unrestricted net assets even for these NPOs, since the increase in leverage is not fully offset by an equal amount of unrestricted net assets.

The coefficients on CONCENTRATION and FIXED\_COSTS provide mixed support for Hypothesis 4, that unrestricted net assets increase as financial risk increases. Health, Human Services, and Housing NPOs do seem to retain increased levels of unrestricted net assets as revenue concentration increases. This is a rational response, especially for Health organizations that may see delays from third-party insurance payers – the bulk of their revenue source – for various reasons (for example, a Health organization with a high degree of Medicaid patients could see Medicaid revenue temporarily cease during a State budget negotiation or crisis, as happened in California during 2007). Recall, Health and Housing organizations within the sample have a relatively high degree of revenue concentration. Human Services organizations, meanwhile, have high levels of needed subsidy to maintain output. Disruptions in such subsidies appear to be hedged partially through the retention of unrestricted net assets. Since Arts organizations have the highest level of revenue diversity, these NPOs may not view the risk from revenue concentration with the same level of concern as Health, Human Services, or Housing nonprofits.

The coefficient on FIXED\_COSTS is significant and positive for the Human Services and Housing subsectors. The coefficient on FIXED\_COSTS for the Housing subsector indicates that a one percent increase in fixed costs (for example, an increase from 15 to 16 percent) is



associated with a nearly 2.4 percent increase in unrestricted net assets, *ceteris paribus*. The coefficient on FIXED\_COSTS may indicate that Housing NPOs are very risk averse since they over-retain relative to changes in fixed costs; further, both risk variables are positive and significant for Housing. Similarly, Human Services also report positive and significant results for both risk variables.

The Education and Higher Education subsectors, on the other hand, do not report significant risk variables at all. A possible explanation for this result is that the Education and Higher Education subsectors cover a large proportion of their program expenses with program revenues (such as tuition, user fees, etc.) and these revenues are relatively stable and knowable in advance; therefore, revenue risk may be relatively low for these subsectors as a whole. Further, Higher Education NPOs may operate in a countercyclical industry, where a worsening macroeconomy – which leads to reductions in donor support (and an increase in revenue concentration) – may be offset by increasing enrollments (and, therefore, increasing program revenues).

The overall results for Hypothesis 3, then, are mixed. Several large and important nonprofit subsectors do seem to retain unrestricted net assets as a form of rainy day fund. Yet, Arts and Education NPOs do not appear to engage in such risk hedging behavior, which may indicate that these subsectors are on average more risk neutral than other NPOs.

The coefficient on ROI is not significant, indicating that NPOs do not appear to increase unrestricted net assets as investment returns increase (Hypothesis 5). The ROI results suggest that investment returns are not retained, but instead may be used for current operating expenses (programmatic and overhead). As mentioned, since program revenues only cover between 50 and 80 percent of program expenses on average, investment income may be providing nonprofits

with at least a portion of their spending needs. This extends the findings of Hughes and Luksetich (2004) who find that increased investment revenue among Arts NPOs lead primarily to increased program output (expenses). In fact, this behavior appears across all nonprofit subsectors.

Finally, the control variable SIZE is significant in all subsectors except Education (minus Higher Education), indicating that as most NPOs grow, unrestricted net assets increase as well. The coefficient indicates that a one percent increase in total revenues results in unrestricted net assets increasing between 0.3 percent (for colleges and universities) and 0.8 percent for Health, *ceteris paribus*.

Overall, the results are indicative of three important findings: 1) NPOs in general choose to increase unrestricted net assets over time; 2) NPOs within specific subsectors – such as Health, Human Services, and Housing – do seem to increase unrestricted net assets as financial risk increases; and 3) in general, NPOs increase retention of unrestricted net assets as they increase in size.

## **6. Discussion and Policy Implications**

Public unease with NPO net asset accumulation over the past decade has diminished trust in the entire sector, even though the data here show average accumulations are quite small. This erosion of trust, however, is problematic for the sector and needs to be addressed. One important economic theory that explains the existence of NPOs within certain sectors is the “contract failure” theory. This theory, as articulated by Arrow (1963) and Hansmann (1980) rests on the notion that NPOs are more trustworthy economic actors than for-profits. If this theory accurately describes the economic rationale for NPOs, then nonprofits must inform donors and other

stakeholders that unrestricted net assets are a reasonable and necessary financing method to ensure program continuity across business cycles and during uncertain times. If donors, clients, or society at large lose confidence in the sector – expecting NPOs to behave no differently than for-profits - then the rationale for the sector itself is eroded. Failing to address the public's concerns may lead to a lack of public confidence in the sector and a questioning of the benefits received by nonprofits from the public at large. As suggested by Irvin (2007), a loss of confidence in the sector as a whole could lead to increased public regulation that is not necessarily appropriate for the entire sector.

Secondly, attempts to urge nonprofits to use their net assets for current spending, as recent Congressional actions suggest, should take into account the realities of the sector, the motivations for holding net assets, and the findings presented here. Retaining unrestricted net assets as a hedge against risk (as the results suggest for some NPOs) is sound business practice that ought not be discouraged necessarily; hoarding net assets – the focus of Congressional action – should be the focus. Yet, the results here suggest that such hoarding may not be a sectorwide issue, despite popular perceptions to the contrary. Recent public scrutiny of wealthy universities can distract from this reality, that the bulk of the sector does not have large endowments, does not maintain excessive levels of unrestricted net assets, and appears to be hedging primarily against potential revenue losses.

The results do suggest that organizational size (when measured by total revenues) is an important determinant of unrestricted net assets. Recent proposals to induce wealthy nonprofits to spend their net assets – such as requiring wealthy universities to spend five percent of net assets annually as foundations are required – perhaps are more appropriately focused. In other words, policies ought not to dampen net assets sectorwide since net assets can aid nonprofits in

continuity of service provision; rather, policies should be progressive and tilted towards inducing larger and wealthier nonprofits into spending down their net assets.

The results presented here also suggest that the recent economic recession coupled with impaired credit markets have potentially serious consequences for the nonprofit sector. Anecdotal accounts have emerged that “certain and safe” government funding has recently been delayed and even cut, while donations have fallen (Strom 2009). Since some nonprofits do not appear to hedge against fiscal shocks despite their reliance on subsidies to maintain output, it is unsurprising that nonprofits are reporting service reductions in a time of increasing need (Nonprofit Finance Fund 2009). Further, given that small nonprofits have smaller levels of unrestricted net assets relative to larger organizations, fiscal shocks seem more likely to affect the financial health of small nonprofits since they are more likely to have inadequate reserves to absorb any change in the financial environment.

## **7. Conclusion**

Nonprofits in the United States face no regulation regarding net asset accumulation, unlike in other Western nations (for example, see Fisman and Hubbard 2003 and Feenstra and van Helden 2003 for illustrations of regulation regarding net asset accumulation in Canada and the Netherlands, respectively). Public scrutiny of nonprofit net asset accumulation has primarily questioned whether or not nonprofits retain “too much” relative to current spending. Yet, the answer to this question is inherently a subjective one, dependent upon whether one believes nonprofits ought to devote more or less resources to current usage.

The analysis presented here takes a different approach. First, it recognizes that nonprofits are limited by donor choice in what resources it may or may not retain. The idea that nonprofits

retain “too much” ignores that the choice may not be at the behest of the nonprofit. Secondly, it reviews the motivations for nonprofit unrestricted net asset accumulation. These motivations have been articulated in prior research, yet no formal empirical test of these motivations has been undertaken. Further, the estimation strategy used in this analysis overcomes serious statistical issues, such as endogenous regressors, serial correlation of the error term, and potential omitted variable bias.

The results presented here are mixed. They do confirm that NPOs do increase unrestricted net assets over time, as prior research has claimed. And certain subsectors do retain unrestricted net assets as a hedge against risk, as articulated in Hypothesis 3. Yet several important and large subsectors, such as Education, Higher Education, and Arts, appear to increase unrestricted net assets holdings for none of the reasons articulated. Instead, some NPOs appear to increase unrestricted net assets levels as a function of size only. If unrestricted net assets – which are public resources - become concentrated within larger (and fewer) elite NPOs, then the decision as to how these resources will ultimately be used will be based on the NPO’s interest, not necessarily the public’s best interest.

Further research on nonprofit unrestricted net asset accumulation is still warranted. For example, future research ought to examine how a NPO’s revenue portfolio influences unrestricted net asset accumulation. It is plausible that NPOs with significant public revenues (from government contracts and grants) retain unrestricted net assets differently than NPOs that rely instead on private donations or self-generated revenues. Additional research should explore the role of governance on unrestricted net asset accumulation: board attitudes towards unrestricted net asset accumulation, how board composition affects such retention patterns, whether increased organizational financial oversight (through finance and audit committees)

influence unrestricted net asset accumulations, among others. Such questions have yet to be explored in any detail in existing literature, and yet seem essential to understanding and predicting nonprofit unrestricted net asset retention patterns.

## References

- Arellano, M. and S. Bond, 1991. Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *Review of Economics Studies* 58, 277-297.
- Arrow, K., 1963. Uncertainty and the Welfare Economics of Medical Care. *The American Economic Review* 53 (5), 941-973.
- Baum, C. F., 2006. *An Introduction to Modern Econometrics Using Stata*. Stata Press, College Station, TX.
- Bowman, W. 2002. The Uniqueness of Nonprofit Finance and the Decision to Borrow. *Nonprofit Management and Leadership* 12 (3), 293-311.
- Bowman, W., 2007. Managing Endowment and Other Assets. In *Financing Nonprofits: Putting Theory Into Practice*, D. R. Young (Ed.), Rowman-Altamira Publishing, Lenham, MD pp. 271-290.
- Bowman, W., E. Keating, and M. Hager, 2007. Investment Income. In *Financing Nonprofits: Putting Theory Into Practice*, D. R. Young (Ed.), Rowman-Altamira Publishing, Lenham, MD pp. 157-182.
- Chang, C. F. and H. P. Tuckman, 1990. Why Do Nonprofit Managers Accumulate Surpluses, and How Much Do They Accumulate? *Nonprofit Management and Leadership* 1 (2), 117-135.
- Chang, C. F. and H. P. Tuckman, 1991. A Methodology for Measuring the Financial Vulnerability of Charitable Nonprofit Organizations. *Nonprofit and Voluntary Sector Quarterly* 20, 445 - 460.
- Chang, C. F. and H. P. Tuckman, 1996. The Goods Produced by Nonprofit Organizations. *Public Finance Quarterly* 24 (1), 25-43.
- Core, J. E., W. R. Guay, and R. S. Verdi, 2006. Agency Problems of Excess Endowment Holdings in Not-For-Profit Firms. *Journal of Accounting and Economics* 41, 307-333.

- Denison, D. V. and A. Beard, 2003. Financial Vulnerability of Charitable Organizations: Lessons from Research. *Journal for Nonprofit Management* 23-31.
- DeVita, C. J., 1999. Nonprofits and Devolution: What Do We Know? In *Nonprofits and Government: Collaboration and Conflict*, E. T. Boris and C. E. Steuerle (Eds.), The Urban Institute Press, Washington, DC pp. 213 -233.
- Feenstra, D. W. and G. J. van Helden, 2003. Policy Making on Reserves of Dutch University Hospitals: A Case Study. *Financial Accountability and Management* 19 (1), 1-20.
- Financial Accounting Standards Board (FASB), 1993. Financial Statements of Not-for-Profit Organizations. Statement of Financial Accounting Standards no. 117. Financial Accounting Standards Board, Stanford, CT.
- Finkler, S., 2005. *Financial Management for Public, Health, and Not-for-Profit Organizations*, 2<sup>nd</sup> Edition. Pearson Prentice Hall, Upper Saddle River, NJ.
- Fischer, R. L., A. L. Wilsker, and D. R. Young, 2007. Exploring the Revenue Mix of Nonprofit Organizations – Does It Relate to Publicness? Andrew Young School of Policy Studies, working paper 07-32.
- Fisman, R. and R. G. Hubbard, 2002. Endowments, Governance, and the Nonprofit Form. Columbia University, working paper.
- Fisman, R. and R. G. Hubbard, 2003. The Role of Nonprofit Endowments. In *The Governance of Not-for-Profit Organizations*, E. Glaeser (Ed.), University of Chicago, Chicago, IL pp. 217-232.
- Fisman, R. and R. G. Hubbard, 2005. Precautionary Savings and the Governance of Nonprofit Organizations. *Journal of Public Economics* 89, 2231-2243.
- Froelich, K. A. and T. W. Knoepfle, 1996. Internal Revenue Service 990 Data: Fact of Fiction? *Nonprofit and Voluntary Sector Quarterly* 25 (1), 40-52.
- Froelich, K. A., T. W. Knoepfle, and T. H. Pollak, 2000. Financial Measures in Nonprofit Organization Research: Comparing IRS 990 Return and Audited Financial Statement Data. *Nonprofit and Voluntary Sector Quarterly* 29 (2), 232 -254.
- Greenlee, J. S. and J. M. Trussel, 2000. Predicting the Financial Vulnerability of Charitable Organizations. *Nonprofit Management & Leadership* 11 (2), 199-210.
- Greenlee, J. S. and H. Tuckman, 2007. Financial Health. In *Financing Nonprofits: Putting Theory Into Practice*, D. R. Young (Ed.), Rowman-Altamira Publishing, Lenham, MD pp. 315-336.

- Hager, M. A., 2001. Financial Vulnerability among Arts Organizations: A Test of the Tuckman-Chang Measures. *Nonprofit and Voluntary Sector Quarterly* 30 (2), 376-392.
- Hansmann, H., 1980. The Role of Nonprofit Enterprise. *The Yale Law Journal* 89 (5), 835-901.
- Hansmann, H., 1990. Why Do Universities Have Endowments? *Journal of Legal Studies* 19, 3-42.
- Hughes, P. and W. Luksetich, 2004. Nonprofit Arts Organizations: Do Funding Sources Influence Spending Patterns? *Nonprofit and Voluntary Sector Quarterly* 33 (2), 203-220.
- Irvin, R. A., 2007. Endowments: Stable Largesse or Distortion of the Polity? *Public Administration Review* 67 (3), 445-457.
- Krishnan, R., M. H. Yetman, and R. J. Yetman, 2006. Expense Misreporting in Nonprofit Organizations. *The Accounting Review* 81 (2), 399-420.
- Lampkin, L. M. and E. T. Boris, 2002. Nonprofit Organization Data. *American Behavioral Scientist* 45 (11), 1675-1715.
- Light, P. C., 2008. How Americans View Charities: A Report on Charitable Confidence, 2008. *Governance Studies at the Brookings Institution*.
- Marudas, N. P., 2004. Effects of Nonprofit Organization Wealth and Efficiency on Private Donations to Large Nonprofit Organizations. *Research in Governmental and Nonprofit Accounting* 11, 71-91.
- Nickell, S., 1981. Biases in Dynamic Models with Fixed Effects. *Econometrica* 49 (6), 1417-1426.
- Nonprofit Finance Fund, 2009. Nonprofit Finance Fund Survey: America's Nonprofits in Danger. Available at <http://www.nonprofitfinancefund.org/content.php?autoID=166>.
- Okten, C. and B. A. Weisbrod, 2000. Determinants of Donations in Private Nonprofit Markets. *Journal of Public Economics* 75 (2), 255-272.
- Roodman, D., 2006. How to Do xtabond2: An Introduction to Difference and System GMM in Stata. Washington, DC: Center for Global Development working paper No. 103.
- Strom, S. March 4, 2009. Charities Say Government Is Ignoring Them in Crisis, *The New York Times*.
- Tuckman, H. P., 1993. How and Why Nonprofit Organizations Obtain Capital. In *Nonprofit Organizations in a Market Economy*, D. C. Hammack and D. R. Young (Eds.), Jossey-Bass Publishers, San Francisco, CA pp 203-252.



Tuckman, H. P. and C. F. Chang, 1992. Nonprofit Equity: A Behavioral Model and Its Policy Implications. *Journal of Policy Analysis and Management* 11 (1), 76 - 87.

Waldeck, S. E., 2008. The Coming Showdown Over University Endowments: Enlisting the Donors. Available at: [http://works.bepress.com/sarah\\_waldeck/1](http://works.bepress.com/sarah_waldeck/1).

Weisbrod, B. A., 1988. *The Nonprofit Economy*. Harvard University Press, Cambridge, MA.

Yan, W., D. V. Denison, and J.S. Butler, 2009. Revenue Structure and Nonprofit Borrowing. *Public Finance Review* 37 (1), 47-67.

Yetman, R. J., 2007. Borrowing and Debt. In *Financing Nonprofits: Putting Theory Into Practice*, D. R. Young (Ed.), Rowman-Altamira Publishing, Lenham, MD pp. 315-336.

## Appendix A: Variable Definitions

<u>Variable Name</u>	<u>Definition (line numbers refer to Form 990 fields)</u>
$UNA_{it}$	Natural logarithm of End-of-Year Unrestricted Net Assets of organization $i$ in year $t$ (line 67B)
$SUBSIDIZE_{it}$	Ratio of Program Service Revenue (line 2) + Membership Dues and Assessments (line 3) to Program Service Expenses (line 13) of organization $i$ in year $t$
$LEVERAGE_{it}$	Ratio of End-of-Year Tax-Exempt Bond Liabilities (line 64aB) + Mortgages and Other Notes Payable (line 64bB) to End-of-Year Total Assets (line 59B) of organization $i$ in year $t$
$CONCENTRATION_{it}$	Sum of $(Revenue_j / \text{Total Revenues})^2$ of organization $i$ in year $t$ ; individual revenue streams are Total Contributions (line 1d), Program Service Revenue (line 2), Membership Dues and Assessments (line 3), Interest (line 4), Dividends (line 5), Net Rental Income (line 6c), Other Investment Income (line 7), Investment Gains (line 8d), Net Income from Special Events (line 9c), Profit or Loss from Sale of Inventory (line 10c), and Other Revenue (line 11); Total Revenues was manually added from these revenue streams
$FIXED\_COSTS_{it}$	Ratio of Depreciation (line 42a) + Total Interest (line 41a) + Occupancy Expenses (line 36a) to Total Expenses (line 44a) of organization $i$ in year $t$
$ROI_{it}$	Investment income/average balance of invested financial assets. Investment income is defined as the sum of: Interest (line 4), Dividends (line 5), Net Rental Income (line 6c), Other Investment Income (line 7), and Investment Gains (line 8d); the average balance of invested financial assets is defined as the sum of the average annual balances of: cash (line 45), savings (line 46), investments – securities (line 54), investments – land, buildings, and equipment (line 55c), and investments – other (line 56)
$SIZE_{it}$	Natural logarithm of total revenues of organization $i$ in year $t$ , (line 12)

<b>Table 1: Summary Statistics of All Variables, 1998 - 2003</b>				
	Mean	Standard Deviation	Minimum	Maximum
UNA	13.104	2.177	0	18.560
SUBSIDIZE	0.584	0.515	0	2.062
LEVERAGE	0.275	0.372	0	1.00
CONCENTRATION	0.495	0.337	0.023	1.000
FIXED_COSTS	0.124	0.154	0	0.765
ROI	0.141	0.582	-0.114	4.823
SIZE	14.078	1.771	10.474	19.017

	(1) Entire Sample	(2) Education, Excluding Higher Education	(3) Higher Education	(4) Health & Mental Health	(5) Human Services	(6) Arts	(7) Housing & Shelter	(8) All Others
UNA	13.104 (2.177)	13.135 (2.173)	15.595 (2.375)	14.005 (2.364)	12.743 (1.906)	12.693 (2.145)	12.923 (1.789)	12.559 (2.028)
SUBSIDIZE	0.584 (0.515)	0.721 (0.536)	0.813 (0.455)	0.762 (0.517)	0.481 (0.500)	0.503 (0.443)	0.675 (0.476)	0.351 (0.459)
LEVERAGE	0.275 (0.372)	0.217 (0.333)	0.407 (0.342)	0.285 (0.349)	0.231 (0.344)	0.156 (0.299)	0.589 (0.435)	0.201 (0.345)
CONCENTRATION	0.495 (0.337)	0.519 (0.301)	0.459 (0.245)	0.618 (0.338)	0.434 (0.324)	0.320 (0.243)	0.608 (0.353)	0.358 (0.282)
FIXED_COSTS	0.124 (0.154)	0.093 (0.093)	0.095 (0.346)	0.095 (0.117)	0.104 (0.122)	0.105 (0.115)	0.314 (0.224)	0.089 (0.123)
ROI	0.141 (0.582)	0.108 (0.479)	0.093 (0.346)	0.147 (0.589)	0.130 (0.544)	0.153 (0.605)	0.229 (0.794)	0.125 (0.550)
SIZE	14.078 (1.771)	14.107 (1.600)	16.109 (2.025)	15.003 (2.009)	14.019 (1.535)	13.502 (1.540)	13.147 (1.364)	13.546 (1.523)

*Notes:* Table 2 reports the mean of all variables used in estimation by subsector from 1998 through 2003. The standard deviation is reported in the parentheses. The category “All Others” includes Environmental, Animal-Related, Community Improvement, and Capacity Building.

	(1) Education, Excluding Higher Education	(2) Higher Education	(3) Health & Mental Health	(4) Human Services	(5) Arts	(6) Housing & Shelter	(7) All Others
UNA <sub>t-1</sub>	0.422*** (0.043)	0.520*** (0.085)	0.353*** (0.027)	0.442*** (0.019)	0.289*** (0.030)	0.348*** (0.037)	0.271*** (0.039)
SUBSIDIZE	0.126 (0.160)	0.097 (0.222)	0.115 (0.097)	0.079 (0.071)	0.274** (0.114)	-0.079 (0.111)	0.111 (0.140)
LEVERAGE	-0.151 (0.108)	0.111 (0.176)	-0.066 (0.078)	-0.005 (0.051)	-0.078 (0.091)	0.117 (0.152)	-0.275** (0.135)
CONCENTRATION	0.248 (0.257)	0.262 (0.284)	1.057*** (0.173)	0.364** (0.149)	0.318 (0.251)	0.792*** (0.237)	0.224 (0.226)
FIXED_COSTS	0.790 (0.697)	-0.096 (0.593)	0.322 (0.423)	0.856** (0.352)	-0.054 (0.389)	2.354*** (0.436)	-0.328 (0.559)
ROI	-0.014 (0.048)	-0.001 (0.045)	0.027 (0.030)	0.028 (0.023)	-0.004 (0.044)	-0.031 (0.032)	0.008 (0.054)
SIZE	0.242 (0.164)	0.295** (0.120)	0.756*** (0.125)	0.351** (0.1381)	0.333*** (0.010)	0.267** (0.112)	0.499*** (0.153)
Wald test ( $\chi^2$ ) (13)	572.72***	137.18***	620.72***	1,678.55***	234.72***	223.78***	246.27***
Year (4)	6.46	12.24**	28.62***	21.03***	5.19	11.31**	5.26
$z_1$	-7.31***	-3.85***	-11.85***	-16.91***	-8.80***	-7.30***	-7.86***
$z_2$	-0.26	0.31	-0.87	3.51***	1.93*	1.68*	-1.36
Hansen test (81)	83.59	90.28	63.62	87.61	93.23	97.93*	106.79**
Observations	13,716	5,282	39,596	70,636	18,600	13,968	12,271
Organizations	4,462	1,603	12,661	22,641	6,294	4,748	4,260

Notes: Table 3 reports the results of estimating the determinants of nonprofit unrestricted net assets with the Arellano-Bond (1991) dynamic panel data estimator. Robust standard errors are in parentheses. \*\*\* indicates significance at the 1% level, \*\* at the 5% level, and \* at the 10% level. The Wald test statistic's null hypothesis is that all coefficients on the determinants of unrestricted net assets are jointly equal to zero. Year is the Wald test of the significance of the year indicator variables. Degrees of freedom are reported in parentheses.  $z_1$  reports the Arellano-Bond test for AR(1) serial correlation in the error term, and  $z_2$  reports the Arellano-Bond test for AR(2) serial correlation in the error term; the null hypothesis in each test is that no serial correlation exists. Hansen is a test of the over-identifying restrictions, under the null that the 94 instruments are valid (exogenous).

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<sup>1</sup> When a nonprofit invests in fixed assets, these are depreciated over time. Therefore, the surplus is transitory since depreciation expenses will reduce any accumulated net assets resulting from fixed asset investment over time.

<sup>2</sup> This assumes that the nonprofit reports its financial operations on the accrual basis of accounting, as required by Generally Accepted Accounting Principles. If the organization reports on a cash basis of accounting, net assets are synonymous with a cash balance; however, this cash balance provides no information about outstanding claims (liabilities) or assets of the organization. Hence, it provides no information about the organization's net worth as net assets do under the accrual basis.

<sup>3</sup> A Board-designated restriction does not qualify as a donor-imposed restriction. Hence, if a nonprofit Board establishes a reserve – a “quasi-endowment” – these net assets would be accounted for as unrestricted net assets.

<sup>4</sup> Critics included New York State Attorney General Elliot Spitzer, and television personality Bill O'Reilly, among others. See <http://archives.cnn.com/2001/US/11/06/rec.charity.hearing/>.

<sup>5</sup> The most obvious examples of such behavior include hospitals that provide charity care to the indigent and educational institutions that provide financial aid or scholarships to needy students.

<sup>6</sup> Using natural logarithms eliminates nonprofits with negative or \$0 of unrestricted net assets. Chang and Tuckman (1991) show that inadequate net asset balances is a characteristic of financially unstable organizations. This instability often leads to change in their organizational behavior and ultimately may result in program elimination or closure (Denison and Beard 2003). Nonprofits with negative or no unrestricted net assets are thus believed to behave differently than nonprofits with positive levels.

<sup>7</sup> In finance, two forms of risk have been identified – systematic and unsystematic. Systematic risks are those that affect all organizations, and unsystematic are idiosyncratic to specific organizations. Systematic effects are captured in year fixed effects in the statistical model.

<sup>8</sup> From the perspective of revenue concentration, this is a logical step. Suppose an organization has \$50 in donations and \$50 in investment income in year 1, for a revenue concentration index of 0.5. The next year, donations remain at \$50 and investment losses are (\$50). Not adjusting the concentration index would show that the organization had no change in revenue concentration. In reality, the organization's concentration of revenues increased to 1.0 since it had no investment revenue with which to operate. A dummy variable was included in the regressions for organizations in which specific revenue streams were set to \$0, although the variable is not included in the reported results.

<sup>9</sup> Another option for measuring revenue risk might be to include a variance measure, such as the coefficient of variation of unrestricted revenues. Given the limited years of the data, there is a serious data limitation, however. A two-year coefficient of variation was the only value I could calculate and use the statistical techniques outlined in the strategy section. Measuring risk as a two-year variance is problematic, since such measures usually require additional years to establish actual trends and not just simple aberrations. However, even including such a variable in the specification does not change the results, and the variable itself is not statistically significant.

<sup>10</sup> Because of the real possibility of investment income being negative from investment losses, the ROI measure was chosen over a logarithmic transformation of investment income.

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<sup>11</sup> Concerns about the data in the Form 990 have been raised (see Lampkin and Boris 2002 for a cataloging of potential limitations). Despite the limitations, Froelich and Knoepfle (1996) and Froelich, Knoepfle, and Pollack (2000) find that Form 990 data are generally accurate. Further, the Form 990 databases are widely used by academic researchers. Tuckman and Chang (1992) utilize Form 990 data to test their hypotheses regarding nonprofit “equity.” Further, Fisman and Hubbard (2002, 2003, and 2005) utilize Form 990 data to test their hypotheses regarding the effects of oversight on “endowments.”

<sup>12</sup> The National Taxonomy of Exempt Entities (NTEE) codes that were retained for the sample were the Arts, Education, Environment/Animals, Health, Mental Health and Crisis Intervention, Crime and Legal Related, Employment, Food/Agriculture/Nutrition, Housing and Shelter, Youth Development, Human Services, and Community Improvement. Within these retained subsamples, any organization coded as Alliance & Advocacy, Management & Technical Assistance, Professional Societies & Associations, Research Institutes, Single Organization Support, Fund Raising & Fund Distribution, or Support (nteec codes 01 – 19) were excluded.

<sup>13</sup> Measures of goodness-of-fit such as the *R-squared* or *Adjusted R-squared* statistics are not available with the Arellano-Bond estimator.

<sup>14</sup> For example, a donor might give a university a permanently restricted donation and require the school to use the earnings for a specific purpose, such as scholarships.