THE EFFECTS OF FUNDING SOURCES ON AGENCY COSTS

IN NOT-FOR-PROFIT ORGANIZATIONS

by

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(Under the Direction of Jennifer J. Gaver)

ABSTRACT

I examine the relation between funding sources and agency costs in not-for-profit organizations (NFPs). Resource dependency theory suggests that NFP governance is determined by the demand for monitoring by fund providers. More restrictive funds are associated with greater monitoring and vice-versa. I predict that NFPs deriving a higher proportion of their revenue from government grants (a more restrictive funding source) will exhibit lower agency costs and NFPs deriving a higher proportion of their revenue from investment income (a less restrictive funding source) will exhibit higher agency costs. I analyze funding compositions of 93,409 NFP-year observations from 1992 to 2006, and find that NFPs that derive a greater proportion of their revenue from government grants pay lower CEO compensation and have higher efficiency ratios. In contrast, NFPs that derive a greater proportion of their revenue from investment income pay higher CEO compensation and have lower efficiency ratios.

INDEX WORDS: Not-for-profit organizations; Governance; Agency costs; CEO compensation; Organizational efficiency

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DEDICATION

To my husband Hongbum: Thank you for your constant love and companionship

AND

To my father Dongha Lim: Thank you for your endless support and belief

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CHAPTER 1

INTRODUCTION

Like for-profit firms, not-for-profit organizations (NFPs) can face significant agency problems. Agency problems in NFPs arise because external stakeholders provide funds to the organization and managers have incentives to expropriate these funds (Fama and Jensen 1983a, 1983b). Expropriation often takes the form of excessive managerial compensation and reduced organizational efficiency (Core et al. 2006). Compared to the for-profit arena, the relationship between agency problems and governance of NFPs has received limited study. The purpose of this paper is to examine whether agency costs in NFPs, as reflected in compensation and efficiency ratios, are associated with NFP governance. By using funding sources to assess governance, I am able to conduct my tests on a larger and more diverse sample of NFPs than has been used in prior work.

Extant research on the relationship between agency problems and governance in the non-profit sector focuses on the role of NFP boards. Some studies suggest that increased board oversight is associated with lower agency costs. Brickley et al. (2003) find that CEO pay in nonprofit hospitals is lower when managers are not voting members of the board. Callen et al. (2003) report that organizational efficiency increases with the proportion of major donors on the board. Other researchers question the effectiveness of NFP boards as a governance mechanism. Fama and Jensen (1983b) argue that NFP boards provide little assurance against collusion and expropriation of assets because they are often dominated by insiders. Supporting this, Gibelman

et al. (1997) find that in four of the five high-profile NFP scandals they examine, the board stood idly by as the chief executive misappropriated organizational funds for personal gain.[1] Glaeser (2003) notes that NFP boards are often self-perpetuating and not subject to takeovers.

Williamson (1983) observes that many NFPs do not have independent boards and even when they do, board members may not take their responsibilities seriously. The Grant Thornton National Board Governance Survey for Not-for-Profit Organizations reports that 35% of the 465 respondents did not have an audit committee, 65% did not have a compensation committee, and 58% did not have an investment committee (2009). NFP managers also tend to push boards toward fundraising activity rather than monitoring (O'Regan and Oster 2005). In the absence of stringent board oversight, NFP resource providers play an important role in monitoring organizations (Fisman and Hubbard 2003). The notion that different funding sources are associated with different levels of external oversight of NFP managers is formalized in *resource dependency theory* (Pfeffer and Salancik 1978). Resource dependency theory posits that the organizational structure and activities of a nonprofit entity vary with the type and composition of its funding (Vermeer et al. 2006). Internally generated funds, such as those from interest and dividends, are associated with fewer restrictions on the NFP, compared to funds provided by external grantors such as government agencies.

Prior work on resource dependency theory focuses on the differential demand for oversight created from alternative NFP funding sources, and identifies the monitoring mechanisms that meet this demand. For example, Olson (2000) finds a positive association between gifts to independent colleges and board size. Vermeer et al. (2006) find that NFPs that

[1] The NFPs examined by Gibelman et al. (1997) are the United Way of America, National Association for the Advancement of Colored People, Foundation for New Era Philanthropy, Jewish Community Center of Greater Washington, and Upsala College.

receive government grants are more likely to have audit committees that consist of independent directors. They are also more likely to have a financial expert on the audit committee. Tate (2007) reports that an increase in the proportion of revenue received from government grants increases the likelihood that an NFP will switch to a higher-quality external auditor.

The results of Olson (2000), Vermeer et al. (2006) and Tate (2007) suggest that the composition of an NFP's funding is an indicator of its governance environment. I build on these studies by examining the association between funding composition and empirical measures of agency costs. I characterize NFP funding composition as the percentages of revenue derived from government grants (which generate high monitoring demand) and investment income (which generate low monitoring demand). Following Core et al. (2006), I assess agency costs in terms of CEO compensation and the program expense ratio. The program expense ratio, defined as program expense to total expense, measures the efficiency with which the organization's resources are directed toward achieving the organizational mission, rather than being spent on fundraising or administration.[2] I predict that NFPs that receive more funding from government grants will exhibit lower agency costs (lower managerial compensation and higher program expense ratios) compared to NFPs that have more investment income.

Specifically, I investigate four hypotheses regarding agency costs and NFP funding sources. I posit that more restrictive funds are associated with higher monitoring and more stringent governance, which lead to lower agency problems in an NFP. I argue that government grants are more restrictive funds because they require NFPs to follow detailed regulations and impose restrictions on their activities (Rose-Ackerman 1981). Moreover, NFPs receiving

[2] The program expense ratio is widely used both by watchdog agencies (such as the Better Business Bureau Wise Giving Alliance, the American Institute of Philanthropy, and Charity Navigator) and in academic research (Baber et al. 2002; Callen et al. 2003; Desai and Yetman 2006; Krishnan et al. 2006; Trussel 2003) to gauge organizational efficiency of NFP organizations.

government grants may be subject to greater scrutiny from legislators, the media, and the public. Prior studies suggest that the receipt of government grants is associated with significant changes in the organizational structure, board composition, and formalization of NFPs (Chavesc et al. 2004; Froelich 1999, 2001; Gronbjerg 1993; Smith and Lipsky 1993). Therefore, I predict that NFPs that derive a greater proportion of their total revenue from government grants exhibit lower CEO compensation and have higher program expense ratios.

I also posit that more discretionary funds are associated with lower monitoring and less stringent governance, which leads to higher agency problems in an NFP. I view investment income as a more discretionary funding source because NFPs typically have autonomy on the use of the funds to satisfy the organization's needs (Bowman et al. 2007; Tuckman and Chang 1993). Accordingly, I predict that NFPs that derive a greater proportion of their total revenue from investment income exhibit higher CEO compensation and have lower program expense ratios.

To test these predictions, I analyze financial data from 1992 to 2006 from Internal Revenue Service (IRS) Form 990, which I obtain from the IRS Statistics of Income Sample Files (SOI).[3] My sample consists of 93,409 observations from 14,768 unique organizations. I find that NFP funding is reliably associated with the level of CEO compensation, after controlling for standard determinants of CEO pay such as size, industry, and managerial competence. Specifically, CEO compensation is lower when a nonprofit receives a higher proportion of its revenue from government grants and higher when a nonprofit generates a higher proportion of its revenue from investing activities. I find that the monitoring level is also significantly associated

[3] The SOI files are produced annually by the National Center for Charitable Statistics (NCCS) and include all 501(c)(3) organizations with $30 million or more in assets as well as a few thousand smaller organizations. This makes mine the most comprehensive study of the association between NFP governance and agency costs to date. For comparison, Brickley et al. (2003) analyze 308 NFP hospitals, and Callen et al. (2003) analyze 123 NFP organizations.

with the organizational efficiency of the NFP, as measured by the program expense ratio. Higher program expense ratios are observed when a greater proportion of nonprofit revenue comes from government grants; lower program expense ratios are associated with increased reliance on revenues from investing activities. Additionally, I conduct an analysis to investigate whether the audit requirement under the Single Audit Act, rather than monitoring effects of funding sources, drive the results because NFPs that receive government grants greater than $500,000 are required to submit an audit report. For this analysis, I merge my sample with the Federal Audit Clearinghouse data to control for the effect of having an audit. The results persist after controlling for the presence of an independent audit.

I perform several sensitivity tests to assess the robustness of my results. First, I re-estimate the results for subsamples stratified by size and industry membership. Next, I re-estimate the models with the subsample created after deleting observations where program expense ratios are more likely to be manipulated. Then, I investigate the effect on the results of including program service revenue and restricted net assets in the model. The main results are robust to each of these changes in research design. I also investigate the monitoring mechanisms adopted by NFPs in response to the demand associated with different funding sources and find that in general the demand associated with different funding sources determines governance mechanisms adopted by NFPs. Lastly, I re-estimate the models using fixed effects on the NFP level.

My study makes several contributions. Prior work using resource dependency theory focuses on the differential demand for monitoring created from alternative funding sources, and investigates the traditional governance measures associated with different funding profiles (Tate 2007; Vermeer et al. 2006). I use funding composition as a proxy for NFP governance and

examine the association between funding composition and empirical measures of agency problems. My finding – that the funding sources of NFPs can be used to assess the governance environment – should be of interest to many stakeholders, including potential donors, regulators, and tax authorities, particularly because it is based on a broader set of NFPs than has been previously studied. Ostrower and Stone (2006) argue that studies that include smaller NFPs are critical for producing an unbiased understanding of nonprofit governance. By using funding sources as my governance measure, I can include these smaller NFPs in my sample, and my results are therefore more generalizable to the nonprofit sector as a whole compared to prior work that is limited to larger NFPs for which traditional governance measures are available. My approach will allow future researchers to consider smaller NFPs which have not been examined due to the lack of traditional governance measures.

The remainder of this paper is organized as follows. Section 2 provides background on NFP organizations and research. Section 3 states the hypotheses. Section 4 describes my data sources and sample, and presents descriptive statistics. Section 5 explains my research method. Section 6 presents the results and Section 7 reports sensitivity analyses. Section 8 offers concluding remarks.

CHAPTER 2

LITERATURE REVIEW

2.1 Not-For-Profit Organizations

A not-for-profit organization is defined by the IRS as an entity whose income is not used for the benefit or private gain of stockholders, directors, or any other persons with an interest in the organization (2009). As described in Section 4.1, I limit my analysis to entities classified by the Internal Revenue Code as §501(c) (3) tax-exempt organizations.[4] Organizations are eligible for tax-exempt status under section 501 (c) (3) if their purpose includes assisting the poor and the underprivileged; advancing religion, education, health, science, art, or culture; protecting the environment; or other purposes beneficial to the community. These entities constitute by far the largest category of tax-exempt organizations. The National Taxonomy of Exempt Entities (NTEE) classifies NFPs into 26 industries. Following Core et al. (2006), I exclude NFPs from my analysis that are grant-making foundations, mutual organizations, or are of unknown industry.

The NFP sector is a significant and growing part of the U.S. economy. In 2005 approximately 1.4 million NFPs were registered with the IRS with combined total assets of $3.4 trillion (Urban Institute 2008). The NFP sector accounted for five percent of gross domestic product in 2005 and about ten percent of total U. S. employment. The 12.9 million Americans employed by nonprofit organizations in 2005 received $687.4 billion in wages and the sector's

[4] Additional types of nonprofit organizations include social welfare organizations (501(c)(4)), labor and agricultural associations (501(c)(5)), business leagues (501(c)(6)), and fraternal beneficiary societies (501(c)(8)).

average employment rate grew an average of 2.2 percent per year between 1998 and 2005. Total individual giving to NFP organizations more than doubled from 1996, reaching $283 billion in 2005. However, it is likely that the deepening recession that has taken place since 2005 has negatively impacted contributions to charitable organizations (Bolton and Mehran 2006).

2.2 Not-For-Profit Governance

The purpose of NFP governance mechanisms is to ensure that donations are used effectively and are not easily expropriated by managers (Fama and Jensen 1983b). Fisman and Hubbard (2003) argue that donors themselves serve an important monitoring role in minimizing agency costs. They find that the fraction of total NFP funds derived from donations is lower in states with poor oversight of NFPs. Tinkelman (1998) shows that large donors penalize NFPs that exhibit lower efficiency and poor governance. Large donors often sit on NFP boards and have control rights over the organization (Core et al. 2006; Fama and Jensen 1983b; Fisman and Hubbard 2003). However, Fama and Jensen (1983b) argue that NFP boards provide little assurance against collusion and expropriation of assets when they are dominated by insiders. O'Regan and Oster document that managers selectively direct board activities toward fundraising away from formal monitoring (2005). Further, NFP boards are often self-perpetuating and not subject to takeovers (Glaeser 2003).

Prior research on the association between board composition and NFP performance provides mixed results. Callen and Falk (1993) find no relation between organizational efficiency and the proportion of board insiders in Canadian NFPs. On the other hand, Callen et al. (2003) show a significant association between the presence of major donors on the board and

organizational efficiency, measured by the program expense ratio. Finally, Olson (2000) finds a positive association between gifts to independent colleges and board size.

A drawback of the studies described above is that they focus on larger NFPs and the results may not generalize to smaller organizations. A second stream of research includes a broader sample of NFPs by using regulatory oversight to proxy for the governance environment. Specifically, the IRS regulates NFPs on a federal level and the State Attorneys General have the power to monitor and prosecute NFPs on a state level. According to Kitching (2009), 25 states require NFPs that solicit donations in the state to submit audited financial statements when revenues exceed a minimum threshold. However, there is considerable variation across states in the intensity of NFP regulation (Fisman and Hubbard 2005).

Extant research suggests that regulatory oversight mitigates agency costs in NFPs. Sansing and Yetman (2006) find that changes in the federal tax code affect private foundations' conduct and governance. Fisman and Hubbard (2005) observe a higher sensitivity of managerial compensation to donations in states with weaker oversight by the State Attorney General. Similarly, Desai and Yetman (2006) show that stronger state-level monitoring is associated with greater charitable spending, increased foundation payouts, and lower insider compensation. Yetman and Yetman (2008) find that the governance provided by state regulators has positive effects on NFP reporting quality.

Finally, several studies examine the association between funding sources and NFP governance. This line of research is based on resource dependency theory (Pfeffer and Salancik 1978). According to resource dependency theory, an organization's need for resources determines its structure and activities. The theory suggests that governance will vary with the type and composition of NFP funding (Vermeer et al. 2006). Vermeer et al. argue that board

composition is associated with the varying demand for monitoring associated with the NFP's funding sources. They show that NFPs with government grants are more likely to have independent audit committees. Similarly, Tate (2007) finds that changes in funding sources affect NFPs' likelihood of changing auditors. Thus, prior research suggests that NFP funding composition is associated with traditional measures of governance, such as board composition and auditor change. I extend this line of research by investigating the association between NFP funding composition and agency costs.

2.3 Agency Costs in Not-For-Profit Organizations

NFPs do not have shareholders because they are prohibited from issuing equity. Instead, NFPs raise funds through contributions. NFPs can make profits, but cannot distribute profits to anyone who controls the organization (Fama and Jensen 1983a; Hansmann 1980, 1996). This "nondistribution constraint," however, does not preclude agency problems in NFPs. Fama and Jensen (1983b) contend that managerial incentives to expropriate donations still remain. Werner, Konopaske, and Gemeinhardt (2000) propose that both nonprofit and for-profit managers who are not effectively monitored by owners or stakeholders behave in their own self-interest, paying themselves higher salaries.

Agency problems in NFPs are exacerbated because they tend to have weaker governance mechanisms than for-profit firms (Glaeser 2003). In contrast to for-profit firms, NFPs are not subject to the market for corporate control. They are protected from hostile takeovers and proxy fights, and are not required to have independent directors (Bolton and Mehran 2006). Managers cannot receive stock-based compensation or other meaningful incentive contracts due to complex

objective functions and hard-to-observe outputs (Brickley and Van Horn 2002). Most important, there are no residual claimants in NFPs that have monitoring incentives (Core et al. 2006).

Prior research assumes that NFPs with higher agency costs pay higher managerial compensation and have lower program expense ratios. Brickley et al. (2003) study 308 not-for-profit hospitals and find that CEO compensation is 10 percent higher when the CEO is a voting member of the board. Krishnan, Yetman, and Yetman (2006) investigate NFPs that inaccurately record zero fundraising expense. NFP managers have incentives to understate fundraising expense (a non-program expense) when managerial compensation is based on the program expense ratio (Baber et al. 2002). Krishnan et al. document that an NFP is more likely to report zero fundraising expense as the sensitivity of managerial compensation to the program expense ratio increases. Core et al. (2006) examine the association between excess cash holdings by NFPs and both the program expense ratio and managerial compensation. Overall, they conclude that excess cash is associated with agency problems in NFPs, reflected in lower efficiency and higher compensation.

Several studies examine accounting manipulation by NFPs. Trussel (2003) identifies potential accounting manipulators as organizations that have higher than expected program expense ratio and analyzes the financial characteristics of these organizations. He argues that NFP managers have incentives to manipulate the ratio because donors use it to make contribution decisions. Jones and Roberts (2006) find that NFPs manage the program expense ratio by exercising discretion allocating expenses between educational and fundraising activities. Finally, Leone and Van Horn (2005) analyze the distribution of earnings of NFPs and find evidence that not-for-profit hospitals manage earnings to just above zero.

Collectively these findings suggest that NFP managers can diverge from their organizational mission. As a result, agency problems in the form of excessive managerial compensation, lower efficiency ratios, and manipulated accounting numbers are observed. However, prior researches do not address how NFP governance mitigates agency costs, which is the topic of my study.

CHAPTER 3

HYPOTHESES

I use resource dependency theory to develop hypotheses concerning the association between NFP funding and agency costs. Resource dependency theory posits that different funding sources are associated with different levels of monitoring demanded by fund providers. Most NFPs rely on a mix of funding sources. In my analysis, I focus on two types of funds with distinct monitoring profiles: government grants and investment income. In my sample, each comprises about 8.5 percent of total NFP revenue.[5] Although government grants and investment income are comparable in size as a proportion of revenue across organizations, these funding sources have distinctively different characteristics. Government grants require NFPs to follow detailed regulations and impose restrictions on their activities (Rose-Ackerman 1981).[6] Reporting and internal control requirements are imposed so NFPs can demonstrate to federal and state governments that they are fiscally responsible with government-provided resources (Vermeer et al. 2006). Government grants are associated with significant changes in NFPs' organizational structures, board composition, and procedures, resulting in government-driven systematization and loss of administrative autonomy (Chavesc et al. 2004; Froelich 1999, 2001;

[5] According to the Urban Institute, charities on average raise 70.3 percent of their revenue from commercial activities, 12.3 percent from private contributions, 9 percent from government grants, 5.4 percent from investment income, and 2.9 percent from other income (Urban Institute 2008).

[6] For example, NFPs with federal awards greater than $500,000 are required to have an audit (Office of Management and Budget 1997).

Gronbjerg 1993; Smith and Lipsky 1993). They also potentially subject NFPs to greater scrutiny from legislators, the media, and the public.

On the other hand, the monitoring demand associated with an NFP's income from investing activities is relatively low. Most NFPs earn investment income from donated stocks, bonds, or physical property. They also generate investment income by accumulating assets from many different sources. For example, the Catholic Church has long relied on rents from donated real property for a stable source of income (Gelles 2001), and many NFPs have large endowments (Core et al. 2006). Although stewardship of the donated assets is often highly scrutinized, in most cases NFPs only have to justify that they have expended investment income in the manner of a prudent decision maker (Fremont-Smith 2004).[7] Fisman and Hubbard (2002, p. 2236) posit "that donors have an incentive to provide managers with discretionary funds, rather than simply providing funding on an annual basis" so managers can take advantage of investment opportunities as they arise without incurring additional costs to solicit more funds. Thus, investment income provides managers with the discretion to meet the organization's needs with minimal restrictions (Bowman et al. 2007). Investment income also enables managers engage in autonomous decision making processes (Tuckman and Chang 1993).

Resource dependency theory suggests that that there is an association between funding source and level of NFP governance because fund providers demand different degrees of monitoring according to the characteristics of funding sources. Thus, government grants are associated with more stringent governance if government grant providers demand greater monitoring. I test the proposition that when fund providers demand more monitoring, NFPs exhibit lower agency costs. Prior research identifies NFPs with lower agency costs as those that

[7] In some cases, administration of the assets themselves is at managers' discretion. Wacht (1984) observes that donor restrictions are often avoidable by negotiating favorable terms with the donor at the time the gift is offered.

pay lower managerial compensation and have higher efficiency ratios (Brickley et al. 2003; Callen et al. 2003; Core et al. 2006; Desai and Yetman 2006; Krishnan et al. 2006). With greater monitoring, NFP managers are less likely to shirk or misappropriate the organization's assets for their personal benefit. Thus, hypothesis one predicts that organizations that rely more heavily on government grants will pay lower compensation.

H_1: NFPs that derive a greater proportion of their total revenue from government grants pay lower CEO compensation.

Similarly, greater monitoring assures that organizational efficiency is enhanced by allocating more expenses toward programs-related activities rather than to fundraising or administration. Thus, hypothesis two predicts that organizations that rely more heavily on government grants will have higher program expense ratios.

H_2: NFPs that derive a greater proportion of their total revenue from government grants have higher program expense ratios.

The reverse is assumed for investment income. That is, investment income is associated with looser governance because donors who provided endowments generally allow managers autonomy over the use of investment income and demand comparatively lower monitoring. In some cases, there is no direct fund provider to monitor the use of investment income because NFPs accumulate assets from various sources to generate their own discretionary income. Thus, I test the proposition that when fund providers demand less monitoring, NFPs exhibit higher agency costs. Prior research identifies NFPs with higher agency costs as those that pay higher managerial compensation and have lower program expense ratios (Brickley et al. 2003; Callen et al. 2003; Core et al. 2006; Desai and Yetman 2006; Krishnan et al. 2006). Therefore, hypothesis

three predicts that organizations that rely more heavily on investment income will pay higher compensation.

H_3: NFPs that derive a greater proportion of their total revenue from investment income pay higher CEO compensation.

Similarly, higher agency costs can take the form of lower program expense ratios. This could occur because lax governance fails to prevent inefficiencies, resulting in greater spending on fundraising or administration rather than programs. Thus, hypothesis four predicts that organizations that rely more heavily on investment income will have lower program expense ratios.

H_4: NFPs that derive a greater proportion of their total revenue from investment income have lower program expense ratios.

CHAPTER 4

DATA

4.1 Sample Selection

The data for my study are taken from the IRS Statistics of Income Sample Files (SOI) compiled by the National Center for Charitable Statistics (NCCS). The SOI files cover all 501(c) (3) organizations with $30 million or more in assets as well as a few thousand smaller organizations. My sample period begins in 1992, the first year that compensation data are available, and ends in 2006, the last year in the files. From an initial sample of 216,734 NFP-years of data, I exclude 12,953 observations where the NFP was classified as a grant-making foundation, a mutual organization, or is of unknown industry. I do so because NFPs that focus on these activities have different operating characteristics than other 501(c) (3) organizations. I also delete 17,236 observations with negative revenues or expenses, negative compensation data, or other values that indicate data errors. Finally, I drop 1,723 observations for which I cannot identify the state in which the NFP operates and 91,413 observations with insufficient data to conduct my analyses.[8] The data screens result in a sample of 93,409 NFP-year observations

[8] The 17,236 deleted observations with suspected data errors consist of 14,571 observations that report negative values for contributions, revenues, expenses, cash, total assets, total liabilities, compensation for officers and directors, or government grants and 2,665 observations that result in funding or efficiency ratios greater than one. The 91,413 deleted observations with missing data consist of 58,311 observations that are missing compensation data, and 33,102 observations that do not have the required lagged data.

from 14,768 unique NFPs during 1992-2006.[9] The sample selection procedure is summarized in table 4.1.

4.2 Variable Definitions and Descriptive Statistics

My hypotheses specify four key variables. All variables are defined in table 4.2 and discussed below. For each NFP-year, I must determine the percentage of revenue derived from government grants (Grant%) and investment income (InvInc%), as well as CEO compensation (CEOcomp) and the program expense ratio (ProgExp%). Table 4.3 presents the distribution of observations classified by NFP industry using National Taxonomy of Exempt Entities (NTEE) industry designations. Although my sample is most concentrated in health care (31.6%), education (22.4%), human services (15.7%) and the arts (7.0%), all 19 remaining NTEE industries are also represented. Panel A of table 4.3 reports median descriptive statistics by industry for the principal variables of interest (Grant%, InvInc%, CEOcomp, and ProgExp%) as well as for total revenue and expenses. My models for testing hypotheses about the association between NFP funding sources and agency costs, described in the following section, include five control variables intended to capture influences on agency costs that are unrelated to NFP funding sources. The variables are: Size, Contrib, ZeroCont, Cont%, and Debt. Although I defer discussion of the control variables until Section 5, their descriptive statistics are reported in panel B of table 4.3. Continuous variables are winsorized by year at the top and bottom one percent to mitigate the influence of extreme observations. Summary results for the full sample are also reported for comparison.

[9] The number of observations per year generally increases over the sample period, from a low of 3,854 in 1992 to a high of 8,656 in 2006. Although my models, described in section five, control for year effects, I also estimate my results for the subset of NFP organizations that remain in the sample throughout the 15 year period. The findings are qualitatively identical to those reported in table 4 for the full sample.

IRS Form 990 defines government grants as any payment from a governmental unit which is intended to enable the recipient to provide a service to, or maintain a facility for, the direct benefit of the public (2006b). On average, NFP organizations in my sample receive 8.58 percent of their funding from government grants, although the median percentage funding from government grants is zero and over half (55.8 percent, untabulated) of my observations receive no revenue from government grants. Based on median values, NFP organizations that focus on the arts exhibit the heaviest reliance on government grants, followed by those in education. NFPs with a health care focus and those in human services do not emphasize government grants in their funding portfolios.[10]

Form 990 classifies the following inflows as investment income: 1) interest on savings and temporary cash investments, 2) dividends and interest from securities, 3) net rental income (or loss), 4) other investment income, and 5) net gain (or loss) from sales of assets other than inventory (Internal Revenue Service 2006a). On average, my sample receives 8.39 percent of funding from investing activities, and almost all observations (97.6%, untabulated) have some investment income.[11] Based on median values, investment income is particularly important for NFPs in the arts and those in education.

CEO compensation is total compensation taken from Form 990, and includes salaries, benefits, and other expenses and allowances. Because the SOI files do not identify managerial titles, I assume that the highest compensation value reported by an NFP in each year was paid to the CEO, which is consistent with Core et al. (2006). The median pay received by CEOs in my

[10] Although the median Grant% for human service organizations is zero, the mean value, 14.43, is highest among arts (10.57), education (5.96), and health care (2.15). The standard deviation of Grant% is also higher in the human services segment than in other industries.

[11] Unlike government grants, investment income can be negative. Of the full sample of 93,409 observations, 4,773 had negative investment income. I checked the influence on my results of (1) recoding the observations to zero and (2) deleting these observations. The results, reported in table 4, were qualitatively unchanged.

sample is $154,970, although the mean of $218,280 indicates that the distribution is right skewed. Executives received the highest pay in the health care segment, followed by education, arts, and human services. Panel A of figure 4.1 shows the change in the median CEO compensation over the sample period for the four major industries in my sample. CEO compensation shows an upward trend in all cases. Executives in the health care industry are the highest paid in each of the sample years and experienced the greatest increase during the period. CEO compensation is lowest in NFPs specializing in human services throughout the period and shows the smallest increase over time.

The program expense ratio is computed by dividing programmatic expenses by total expenses. Total expenses are the sum of administrative expenses, fundraising expenses and programmatic expenses. Total expenses are largest for the health care industry and smallest for NFPs in the arts, reflecting the relative sizes of NFPs in these industries. A similar pattern is observed for total revenue. NFP organizations in my sample had a median program expense ratio of 84.15, meaning that over eighty percent of expenses were related to the organizational mission. The median program expense ratio ranges from a high of 86.05 in human services to a low of 75.60 in the arts. Panel B of figure 4.1 shows the change in the median program expense ratio over the sample period for the four major industries in my sample. The ratios are relatively stable across time.

The size and operating characteristics of NFPs differs considerably across industry segments. NFPs in health care most closely resemble for-profit firms because they raise most of their funds by rendering services to patients rather than relying on government grants or investment income. Of the major segments in my sample, health care entities offer the largest

pay packages, are among the most efficient, and are far and away the largest organizations.[12] In contrast, NFPs in the arts are the smallest, least efficient entities and offer relatively low pay to their executives. In contrast to health care organizations, NFPs in the arts do not emphasize commercial activities, and instead rely on government grants, investment income, and public contributions. More than half of total funding in the arts consists of outside contributions from government, corporations, and individuals (median of 52.29 percent, table 4.3 panel B). In contrast, the median ratio of contributions to total revenue for the health care industry is only 0.49 percent.

Although my main analysis combines NFPs from all industries, operating characteristics vary considerably across industries. Figure 4.2 illustrates revenue compositions for major industries.[13] Panel A of figure 4.2 shows that NFPs in the arts, culture, and humanities receive most of their funds from public contributions (35.8%) and program service revenue (24.1%), especially admission fees. They also depend on government grants (10.6%) more heavily than NFPs in education or in health care. Dependence on government grants is highest in human services with 16.5% of revenue from this source. Investment income (3.3%) is highest for NFPs in the arts. This suggests that these NFPs have larger endowments than NFPs in other industries.

Panel B of figure 4.2 shows that NFPs in education raise more than a half of their funds from program service revenue (54.3%), mainly in the form of tuition. Panel C of figure 4.2 shows the revenue composition for health care. The majority of revenue in the health care industry comes from program service revenue (77.5%), primarily payments for services from patients. Only 6.3 percent of total revenue comes from public contributions and less than 3

[12] In fact, several studies limit their samples to nonprofit hospitals because of the unique aspects of this industry (Ballou and Weisbrod 2003; Brickley and Van Horn 2002; Brickley et al. 2003; Leone and Van Horn 2005). My results, reported in table 4, are robust to excluding health care observations from my sample.

[13] The sample size for figure 4.2 and 4.3 drops to 52,503 because I require that information on all revenue sources is available. This restriction results in differences between some variable values in these figures and those in table 4.3.

percent comes from government grants. Finally, panel D of figure 4.2 shows that a little more than half of the funding of human services organizations comes from program service revenue (54.7%). Most of this comes from the government through performance contracts and fee-for-service agreements.

Panel A of figure 4.3 shows the percentage of total revenue from each major source (program service revenue, government grants, and public contributions) from 1992 to 2006 for NFPs from all industries. Program service revenue shows a downward trend until 1999 but remains stable afterwards. Public contributions increase gradually over the time period. Government grants peak in 2002 and show a downward trend afterwards. Investment income seems to substitute for funding lost from decreases in program service revenue. That is, when program service revenue is high, investment incomes is generally low and vice-versa.[14] Panels B through E of figure 4.3 show temporal changes in revenue compositions for four major industries. There is no dramatic difference in each industry compared to the sample as a whole except for the arts where the main revenue source is public contributions instead of program service revenue.

Table 4.4 presents univariate correlations among the key variables. I report Pearson correlations above the diagonal and Spearman correlations below the diagonal. To simplify the presentation, I only report correlations that are significant at the five percent level or better (two-tailed test). Consistent with hypotheses one and two, the percentage of revenue from government grants is negatively associated with CEO compensation and positively associated with the program expense ratio. Consistent with hypotheses three and four, the Spearman

[14] Prior studies provide mixed results on "crowding out effect" which explains that program service revenue crowds out other revenues from donations, bequests, and grants (Kingma 1995; Okten and Weisbrod 2000; Yetman and Yetman 2003). Panel A of figure 4.3 shows that my sample does not show a crowding out effect of program service revenue on government grants.

correlation coefficient indicates that reliance on investment income is positively associated with CEO compensation and negatively associated with the program expense ratio.[15]

[15] For the full sample, the Pearson correlation coefficient between CEO compensation and investment income is significantly negative, which is inconsistent with hypothesis three. However, when I limit the sample to observations with non-zero investment income and government grants, the Pearson and Spearman correlations are both significantly positive.

TABLE 4.1
Sample Selection Procedure

	Number of Observations	Number of Organizations
Beginning sample[a]	216,734	27,082
Less:		
NFP is a grant-making foundation, mutual organization, or of unknown industry	12,953	1,714
Data errors	17,236	1,472
State not identified	1,723	215
Missing data	91,413	8,913
Final sample	93,409	14,768

a. Data are taken from the IRS Statistics of Income Sample Files (SOI) compiled by the National Center for Charitable Statistics (NCCS). The SOI files cover all 501(c) (3) organizations with $30 million or more in assets as well as a few thousand smaller organizations. My sample period begins in 1992, the first year that compensation data are available, and ends in 2006, the last year in the files.

TABLE 4.2
Variable Definitions

Dependent Variables

CEOcomp = Highest compensation paid to any individual in an NPF organization in a given year, in thousands of dollars.

ProgExp% = Ratio of program expense to total expense, multiplied by 100.

Variables of Interest

Grant% = Ratio of government grants to total revenue, multiplied by 100.

InvInc% = Ratio of investment income to total revenue, multiplied by 100.

lnSize = Natural logarithm of total expenses.

lnContrib = Natural logarithm of total contributions.

ZeroContrib = 1 if total contributions equal zero, and zero otherwise.

Cont% = Ratio of total contributions to total revenue multiplied by 100.

Debt = Ratio of total liabilities to total assets.

State = 1 if NFP *i* is in state *j*, and zero otherwise.

Industry = 1 if NFP *i* is in year *k*, and zero otherwise.

Year = 1 if NFP *i* is in year *l*, and zero otherwise.

Audit = 1 if an organization is audited and filed with the Federal Audit Clearinghouse for the year, and zero otherwise.

VoluntaryAudit = 1 if an organization is audited and filed with the Federal Audit Clearinghouse although it is not required under A133 for the year, and zero otherwise.

ProgRev% = Ratio of program service revenue to total revenue, multiplied by 100.

RestrictedNetAssets = Ratio of the sum of permanently restricted net assets and temporarily restricted net assets to total revenue, multiplied by 100.

TABLE 4.3
Descriptive Statistics by Industry[a]

Panel A: Principal variables, revenue and expenses[b]

Industry median[c]	*% of Total Observations*	*Grant%*	*InvInc%*	*CEOcomp ($000)*	*ProgExp%*	*Revenue ($M)*	*Expenses ($M)*
Health Care	31.6	0.00	1.52	241.59	85.89	59.10	56.20
Education	22.4	0.84	5.28	168.01	82.71	20.20	17.40
Human Services	15.7	0.00	1.65	104.99	86.05	7.99	7.52
Arts	7.0	2.22	5.33	136.00	75.60	6.09	4.64
Other	23.3	0.00	2.25	114.83	83.40	5.35	4.46
Full sample							
Mean		8.58	8.39	218.28	81.32	59.60	55.40
Median		0.00	2.34	154.97	84.15	15.40	13.70
Std. Deviation		20.87	15.94	217.06	13.68	125.00	118.00

a. See table 4.2 for variable definitions.
b. The sample consists of 93,409 NFP-year observations from 1992 through 2006. Data are taken from the IRS Statistics of Income Sample Files (SOI) compiled by the National Center for Charitable Statistics (NCCS).
c. Industry designations are those used by the National Taxonomy of Exempt Entities (NTEE).

TABLE 4.3, *Continued*
Descriptive Statistics by Industry[a]

Panel B: Control variables for testing the relation between funding sources and agency costs[b]

	Size (Expenses)	*Contrib*	*ZeroCont*	*Cont%*	*Debt*
Industry median[c]					
Health Care	56.20	0.34	0.00	0.49	0.45
Education	17.40	3.93	0.00	17.96	0.24
Human Services	7.52	0.68	0.00	12.56	0.40
Arts	4.64	2.50	0.00	52.29	0.09
Other	4.46	1.08	0.00	44.19	0.22
Full sample[b]					
Mean	55.40	7.46	0.10	27.71	0.38
Median	13.70	1.09	0.00	11.86	0.32
Std. Deviation	118.00	22.20	0.30	33.07	0.32

a. See table 4.2 for variable definitions.
b. The sample consists of 93,409 NFP-year observations from 1992 through 2006. Data are taken from the IRS Statistics of Income Sample Files (SOI) compiled by the National Center for Charitable Statistics (NCCS).
c. Industry designations are those used by the National Taxonomy of Exempt Entities (NTEE).

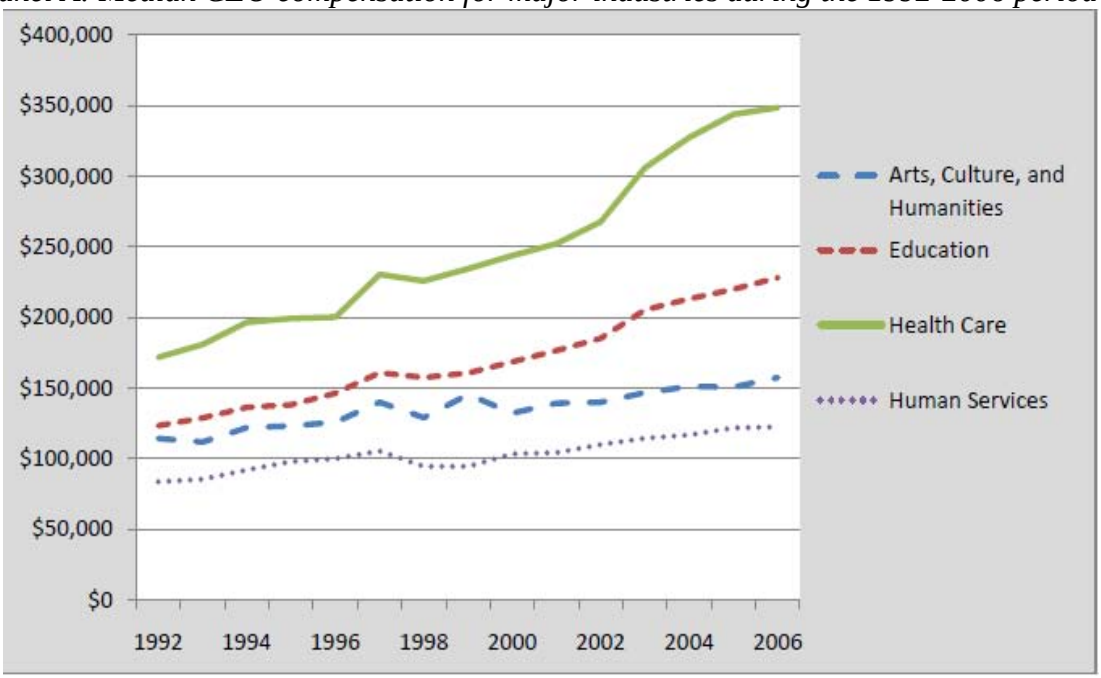
TABLE 4.4
Significant Correlations among Principal Variables[a,b,c]

	CEOcomp	*ProgExp%*	*Grant%*	*InvInc%*
CEOcomp		0.0613	-0.1141	-0.0821
ProgExp%	0.0385		0.0633	-0.1459
Grant%				-0.1106
InvInc%	0.0398	-0.1486	-0.0614	

a. See table 4.2 for variable definitions.
b. The sample consists of 93,409 NFP-year observations from 1992 through 2006. Data are taken from the IRS Statistics of Income Sample Files (SOI) compiled by the National Center for Charitable Statistics (NCCS).
c. Pearson (Spearman) correlations are above (below) the diagonal. All correlations in the table are significant $p < .05$ (two-tailed) significance levels.

FIGURE 4.1
Median CEO Compensation and Program Expense Ratios for Major Industries during the 1992-2006 Period[a]

Panel A: Median CEO compensation for major industries during the 1992-2006 period[b,c]



Panel B: Median program expense ratios for major industries during the 1992-2006 period[b,d]

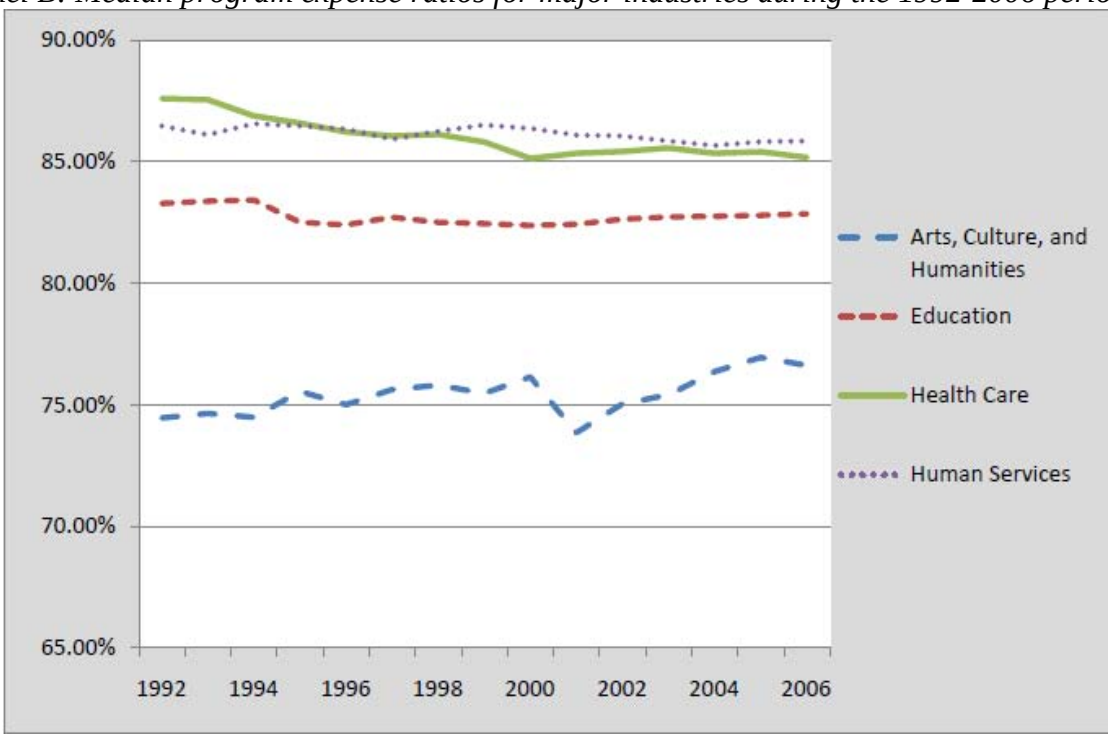
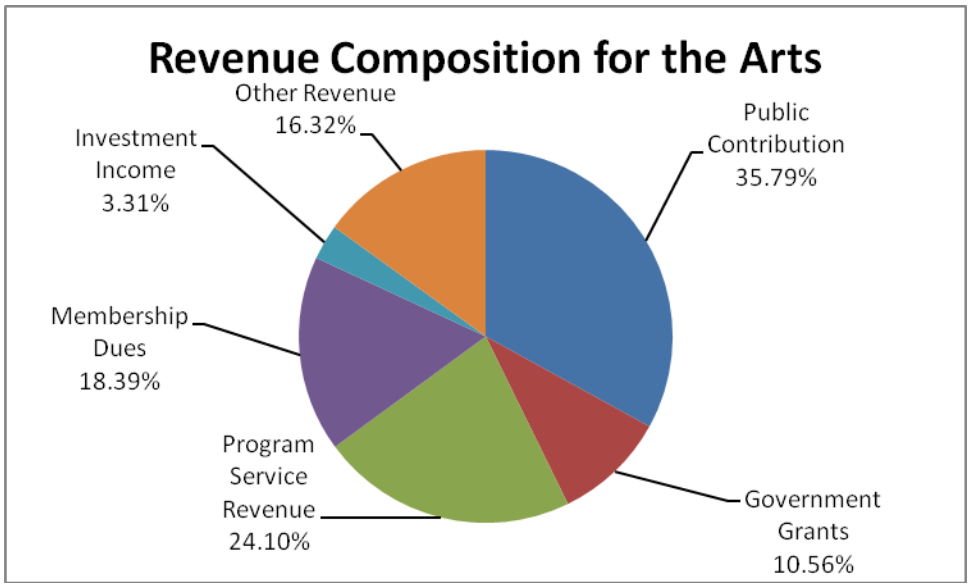


FIGURE 4.1, *Continued*
Median CEO Compensation and Program Expense Ratios for Major Industries during the 1992-2006 Period[a]

a. The sample consists of 93,409 NFP-year observations from 1992 through 2006. Data are taken from the IRS Statistics of Income Sample Files (SOI) compiled by the National Center for Charitable Statistics (NCCS).
b. Industry designations are those used by the National Taxonomy of Exempt Entities (NTEE).
c. CEO compensation is the highest compensation paid to any individual in an NFP organization in a given year, in thousands of dollars.
d. The program expense ratio is the ratio of program expense to total expense, multiplied by 100.

FIGURE 4.2
Revenue Compositions for Major Industries[a,b,c,d]

Panel A: Revenue Composition for Arts, Culture, and Humanities



Panel B: Revenue Composition for Education

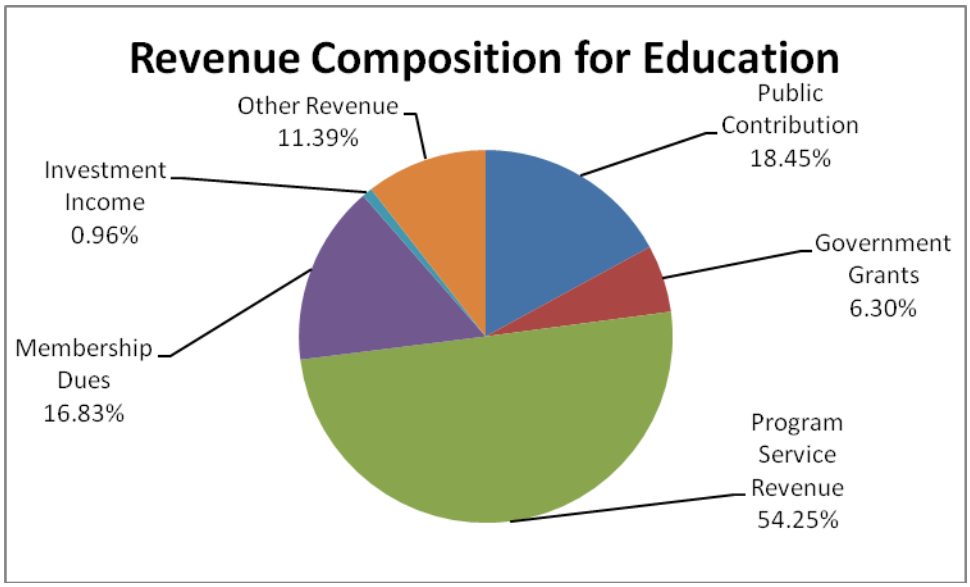
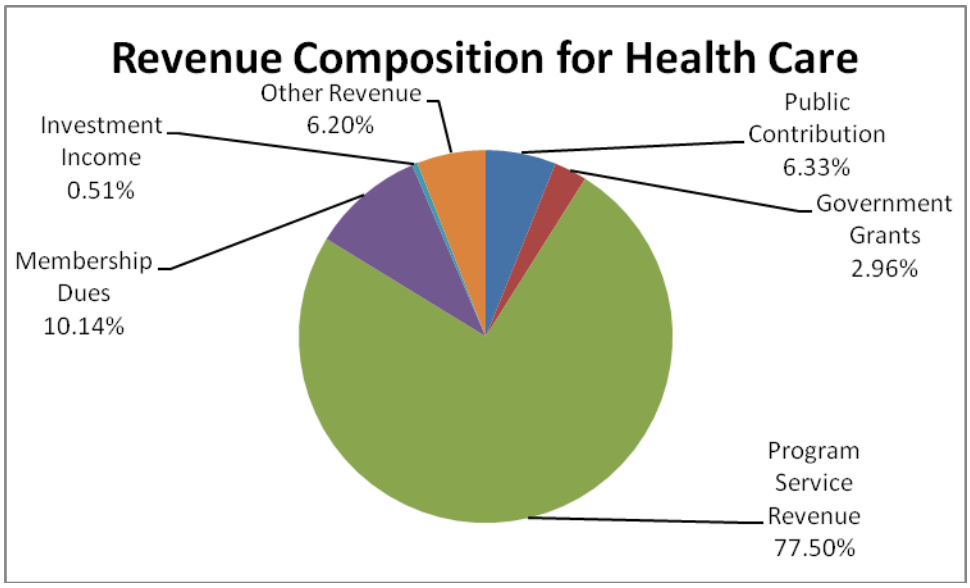


FIGURE 4.2, *Continued*
Revenue Compositions for Major Industries[a,b,c,d]

Panel C: Revenue Composition for Health Care



Panel D: Revenue Composition for Human Services

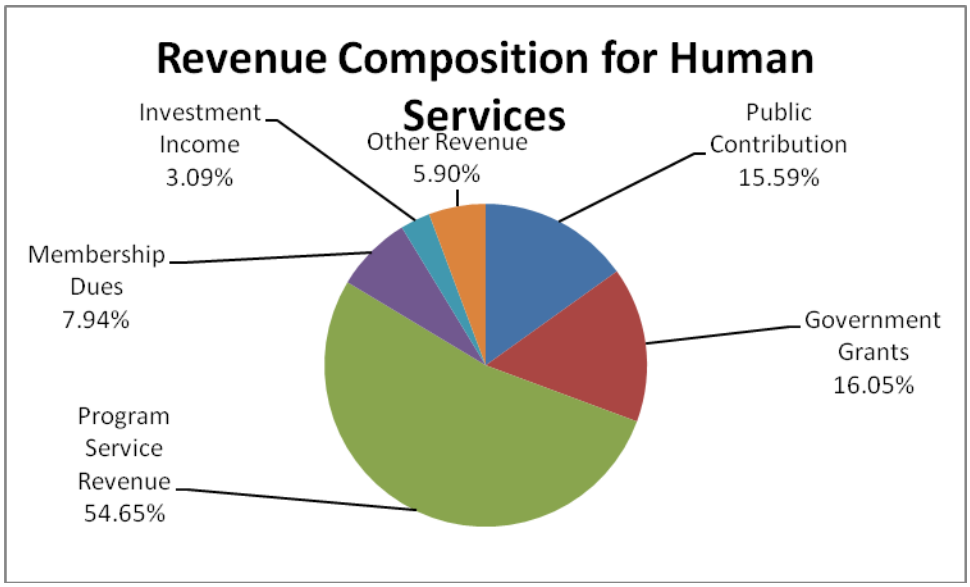
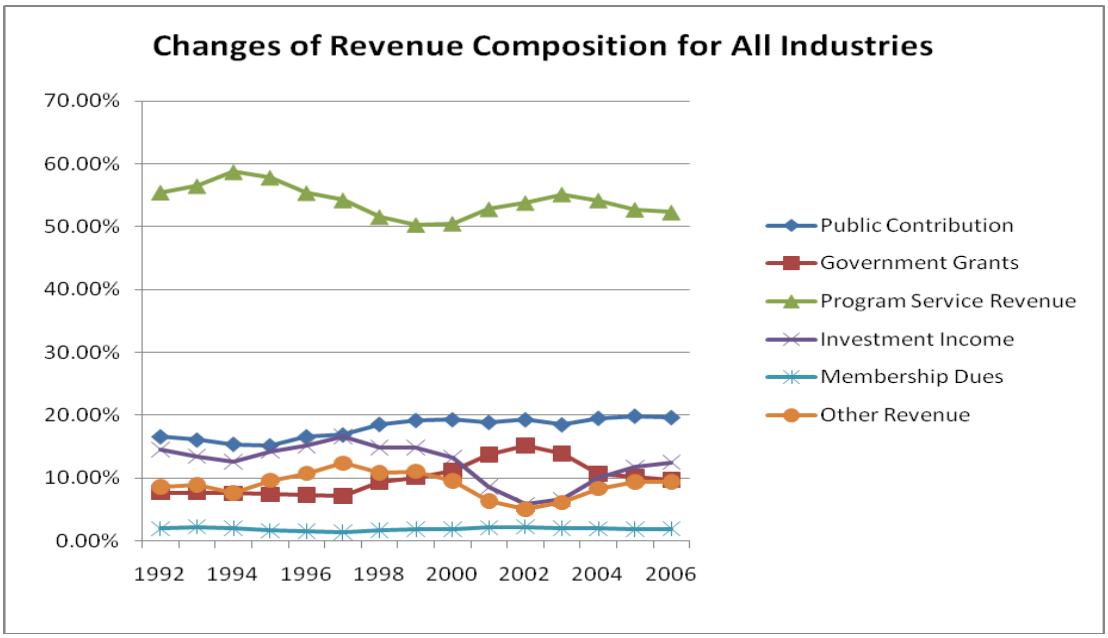


FIGURE 4.2, *Continued*
Revenue Compositions for Major Industries[a,b,c,d]

a. The sample consists of 52,503 NFP-year observations from 1992 through 2006. Data are taken from the IRS Statistics of Income Sample Files (SOI) compiled by the National Center for Charitable Statistics (NCCS).
b. Industry designations are those used by the National Taxonomy of Exempt Entities (NTEE).
c. Public contribution includes direct public support and indirect public support. Investment income includes interest on savings and temporary cash investments, dividends and interest from securities, net rental income (or loss), and other investment income.
d. Other revenue includes net gain (or loss) from sales of assets other than inventory, net income (or loss) from special events, gross profit (or loss) from sales of inventory less cost of goods sold and other revenue.

FIGURE 4.3
Changes of Revenue Compositions for Major Industries during 1992-2006[a,b,c,d]

Panel A: Changes of Revenue Composition for All Industries



Panel B: Changes of Revenue Composition for Arts, Culture, and Humanities

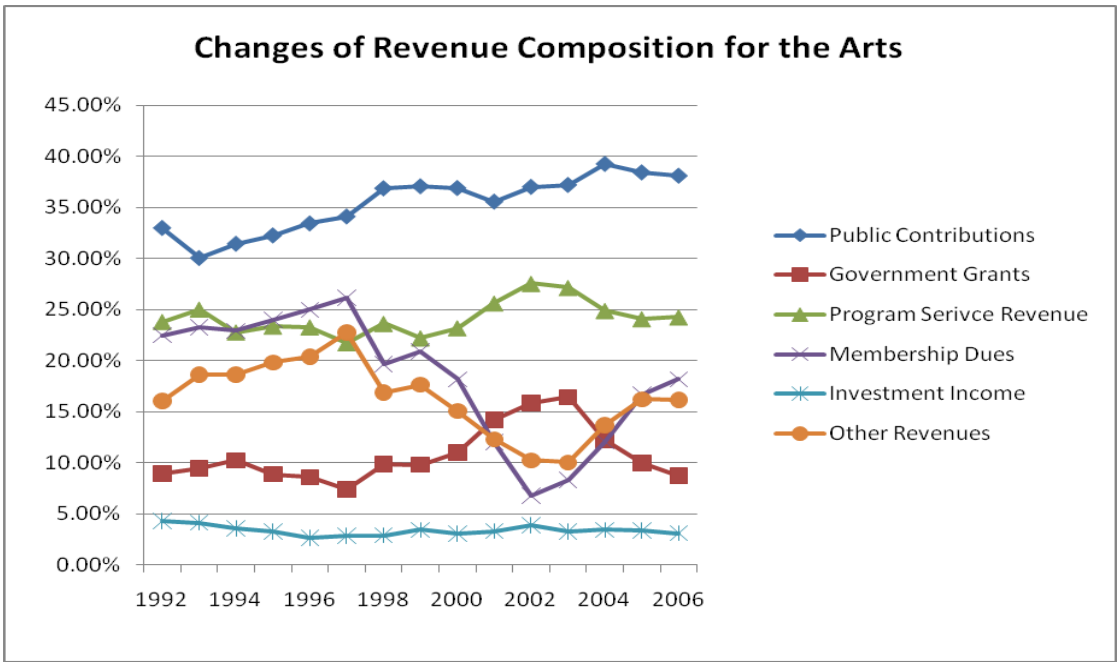
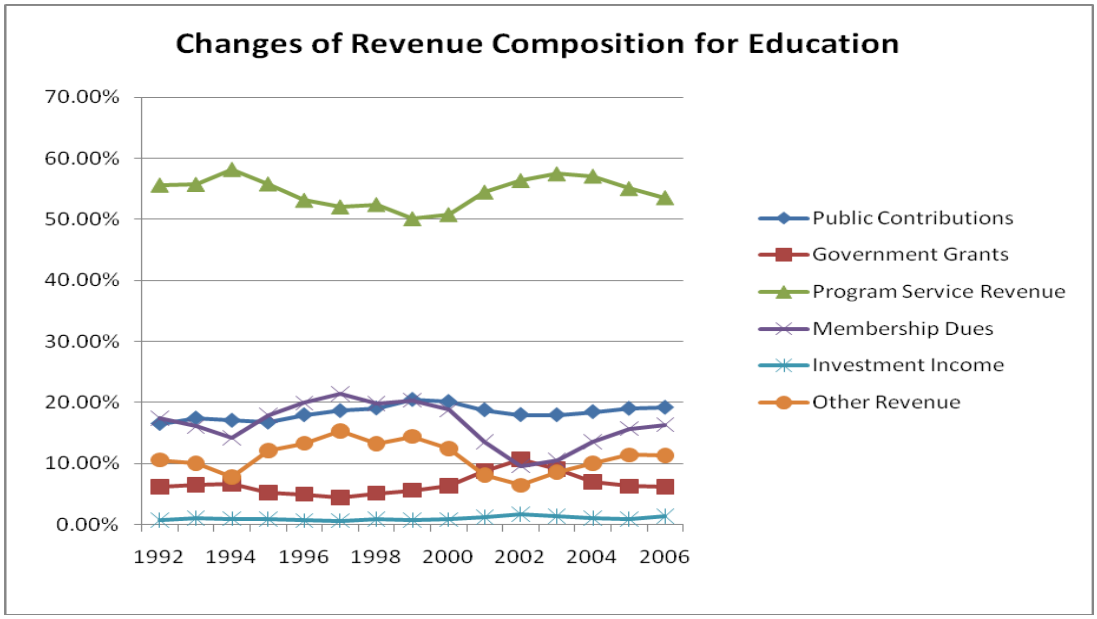


FIGURE 4.3, *Continued*
Changes of Revenue Compositions for Major Industries during 1992-2006[a,b,c,d]

Panel C: Changes of Revenue Composition for Education



Panel D: Changes of Revenue Composition for Health Care

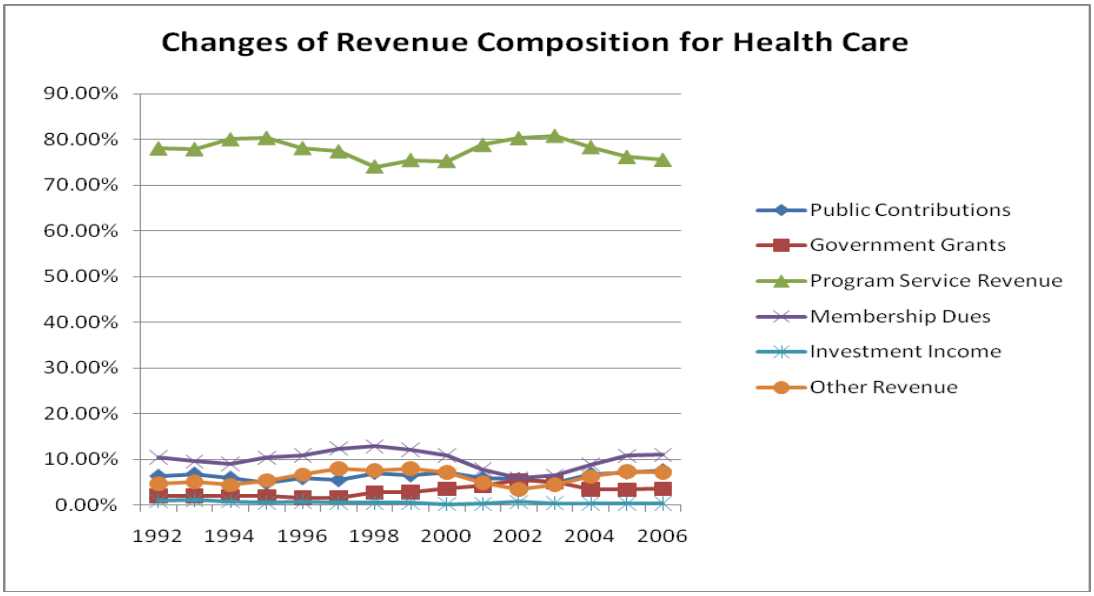
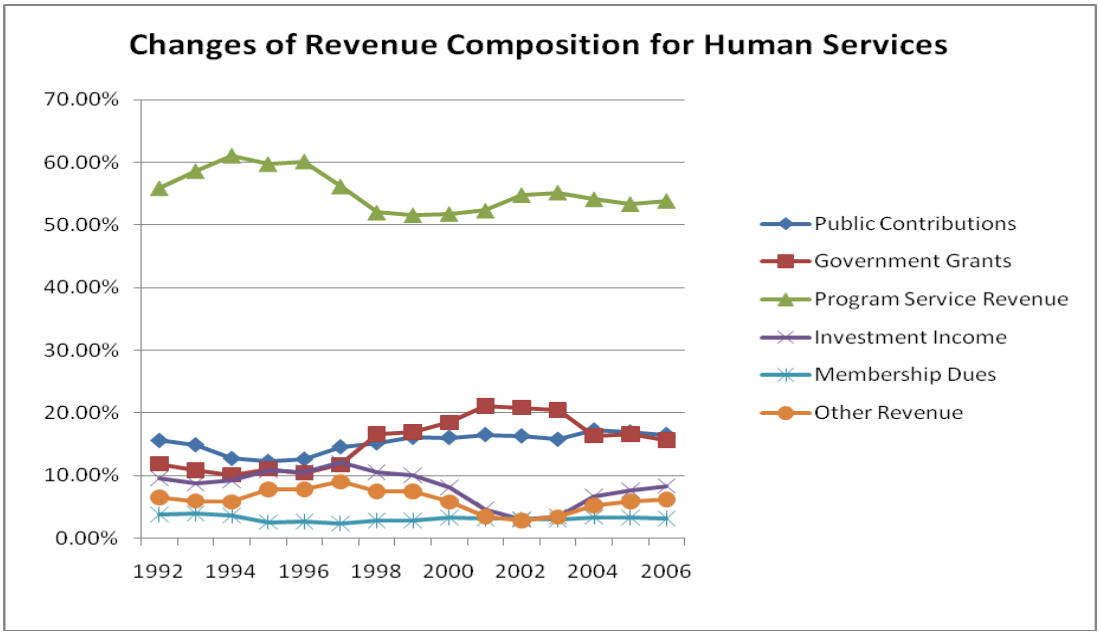


FIGURE 4.3, *Continued*
Changes of Revenue Compositions for Major Industries during 1992-2006[a,b,c,d]

Panel E: Changes of Revenue Composition for Human Services



a. The sample consists of 52,503 NFP-year observations from 1992 through 2006. Data are taken from the IRS Statistics of Income Sample Files (SOI) compiled by the National Center for Charitable Statistics (NCCS).
b. Industry designations are those used by the National Taxonomy of Exempt Entities (NTEE).
c. Public contribution includes direct public support and indirect public support. Investment income includes interest on savings and temporary cash investments, dividends and interest from securities, net rental income (or loss), and other investment income.
d. Other revenue includes net gain (or loss) from sales of assets other than inventory, net income (or loss) from special events, gross profit (or loss) from sales of inventory less cost of goods sold and other revenue.

CHAPTER 5

METHOD

I use the following models to test the association between funding sources and agency costs in not-for-profit organizations:

$$\ln CEOcomp_{i,t} = \alpha_0 + \alpha_1 Grant\%_{i,t-1} + \alpha_2 InvInc\%_{i,t-1} + \alpha_3 \ln Size_{i,t-1} + \alpha_4 \ln Contrib_{i,t} + \alpha_5 ZeroCont_{i,t} + \sum \alpha_j State_j + \sum \alpha_k Industry_k + \sum \alpha_l Year_l + \varepsilon_{1i,t} \quad (1)$$

$$ProgExp\%_{i,t} = \beta_0 + \beta_1 Grant\%_{i,t-1} + \beta_2 InvInc\%_{i,t-1} + \beta_3 \ln Size_{i,t-1} + \beta_4 Cont\%_{i,t-1} + \beta_5 Debt_{i,t-1} + \sum \beta_j State_j + \sum \beta_k Industry_k + \sum \beta_l Year_l + \varepsilon_{2i,t} \quad (2)$$

The variables of interest, Grant%, InvInc%, CEOcomp, and ProgExp%, are defined in Section 4.2. I take the natural logarithm of CEOcomp because the distribution is right skewed. I use lagged values of Grant% and InvInc% to explain current levels of CEO compensation and the program expense ratio. This is consistent with the approach taken by Core et al. (2006) who examine the association between lagged excess endowments and the compensation/efficiency levels of NFP organizations.[16] Tests of hypotheses one and two rest on α_1 and β_1, the coefficients on Grant%. If a greater reliance on government grants is associated with lower agency costs, then I expect α_1 to be negative and β_1 to be positive. A negative α_1 indicates that CEO compensation decreases as a greater proportion of revenue is from government grants, after controlling for the proportion of revenue from investment income and economic determinants of managerial pay. A positive β_1 indicates that the program expense ratio increases as a greater

[16] My choice between lagged and contemporaneous levels of the control variables also follows Core et al. (2006).

proportion of revenue is from government grants after controlling for the proportion of revenue from investment income and factors expected to affect the program expense ratio.

The tests of hypotheses three and four rely on α_2 and β_2, the coefficients on InvInc%. If greater investment income is associated with greater agency costs, then I expect α_2 to be positive and β_2 to be negative. A positive α_2 indicates that CEO compensation is higher in NFPs with more investment income, after controlling for the proportion of revenue from government grants and economic determinants of managerial pay. A negative β_2 indicates that the program expense ratio decreases as a greater proportion of revenue is from investment income after controlling for the proportion of government grants and factors expected to affect the program expense ratio.

Model (1), the compensation regression, controls for organizational size and the level of total contributions. Prior research finds that larger NFPs pay more to their managers than smaller NFPs (Carroll et al. 2005; Frumkin and Keating 2001; Hallock 2002; Oster 1998; Pink and Leatt 1991). I use total expenses to measure NFP size, taking the natural logarithmic transformation to control for skewness in the distribution. I refer to this variable simply as lnSize, and expect it to be positively related to compensation. Hallock (2002) finds that CEO compensation is also related to managers' abilities to raise funds from contributions. Contributions are amounts received by the NFP for which the donor (individual, corporation, or governmental unit) does not receive full fair value from the recipient organization (Internal Revenue Service 2006b). The distribution of total contributions is also skewed, so I use log-transformed values in my regression. I expect lnContrib to be positively associated with CEO compensation. The disadvantage of the logarithmic transformation is that it is undefined at zero. I therefore also include an indicator variable, ZeroCont, which takes on the value of one if the

NFP did not receive contributions in the sample year and is zero otherwise.[17] Ten percent of my observations meet this criterion (table 2, panel B). Most of these are in the health care industry.

Model (2), the program expense ratio regression, controls for organizational size (lnSize), the proportion of revenues from contributions (Cont%), and financial condition (Debt). Baber et al. (2001) find that larger organizations tend to be more efficient. Thus, I expect lnSize to be positively associated with the program expense ratio. The sign on Cont% depends on how contributions are obtained. One possibility is that NFPs attract donors by overstating the program expense ratio. This suggests that the coefficient for Cont% will be positive. Another possibility is that NFPs boost contributions through fundraising activities. This strategy would decrease the program expense ratio, resulting in a negative coefficient on Cont%. Accordingly, I make no prediction concerning the sign of the coefficient on Cont%. Both Core et al. (2006) and Krishnan et al. (2006) argue that NFPs with greater financial distress are more likely to overstate the program expense ratio. Thus, I expect that the coefficient on Debt (defined as the ratio of total liabilities to total assets) to be positive.

Both models include fixed effects for state, industry, and year. State is an important control variable because funding sources and governance mechanisms can differ depending on an NFP's location.[18] I include industry and year fixed effects to control for differences in managerial pay, efficiency, and governance mechanisms between types of NFPs and within NFPs across time.

[17] This approach is also used by Core et al. (2006).

[18] Kitching (2009) notes that twenty-five states require NFPs that solicit donations in the state to submit audited financial statements when revenues exceed a minimum threshold. However, there is considerable variation across states in the intensity of NFP regulation (Fisman and Hubbard 2005). Fisman and Hubbard (2003) report that the fraction of total NFP funds derived from donations is associated with the quality of state-level oversight. Similarly, Desai and Yetman (2006) show that stronger state-level monitoring is associated with greater charitable spending, increased foundation payouts, and lower insider compensation. Finally, Yetman and Yetman (2008) find that the state oversight has positive effects on NFP reporting quality.

CHAPTER 6

RESULTS

I regress lnCEOcomp in model (1) and ProgExp% in model (2) on Grant%, InvInc% and control variables. Year, state, and industry dummies are included in the regression models but are not reported in the tables. I report t-statistics based on Huber-White robust standard errors clustered by NFP to control for both serial correlation and heteroscedasticity (Rogers 1993; White 1980).

The first column of results in table 6.1 is for the compensation model. Consistent with hypothesis one, I find a negative and significant coefficient for Grant%. This means that NFPs that rely more heavily on government grants pay lower CEO compensation after controlling for the level of investment income and other determinants of managerial pay. The coefficient on Grant% indicates that CEO compensation decreases by 0.25 percent when the ratio of government grants to total revenue increases by one percent. When Grant% increases by one percent, CEO compensation decreases by 0.25 percent. Consistent with hypothesis three, I find a positive and significant coefficient for InvInc%.[19] This means that NFPs that rely more heavily on investment income pay higher CEO compensation after controlling for the level of government grants and the effects of other control variables. The coefficient on InvInc%

[19] SOI Files classify 'compensation for officer and directors' into program, fundraising, and administrative activities. This information is presented on Part II Statement of Functional Expenses of Form 990. On average, 75% of compensation for officers and directors is classified as program-related, 4% as fundraising, and 21% as administrative. Since compensation for officers and directors makes up about 67% of total program expense and 75% of compensation is classified as program expense, I exclude the overlapping portion of the two dependent variables by subtracting program expenses from total compensation and re-estimating the compensation model. The coefficient on Grant% is negative and significant but the coefficient on InvInc% is not significant.

indicates that CEO compensation increases by 0.21 percent when the ratio of investment income to total revenue increases by one percent. When InvInc% increases by one percent, CEO compensation increases by 0.21 percent. Consistent with prior studies (Carroll et al. 2005; Core et al. 2006; Hallock 2002; Oster 1998; Pink and Leatt 1991), I find that sample CEOs are paid more in larger organizations and when they raise greater contributions. However, the coefficient on ZeroCont is also reliably positive, a finding that is consistent with Core et al. (2006). This suggests that contributions are not a meaningful performance measure for CEOs of all nonprofit organizations in my sample.

The second column of results in table 6.1 is for the program expense ratio model. Consistent with hypothesis two, I find a positive and significant coefficient for Grant%. This means that NFPs that rely more heavily on government grants have a higher program expense ratio after controlling for the level of investment income and other determinants of the ratio. The coefficient on Grant% indicates that the efficiency ratio increases by 0.10 percent when the ratio of government grants to total revenue increases by one percent.

Consistent with hypothesis four, I find a negative and significant coefficient for InvInc%. This means that NFPs that rely more heavily on investment income have a lower efficiency ratio after controlling for the level of government grants and other control variables. The coefficient on InvInc% indicates that the efficiency ratio decreases by 0.06 percent when the ratio of investment income to total revenue increases by one percent.

Similar to Baber et al. (2001), I find that larger organizations have higher program expense ratios, indicating higher efficiency. I also observe a reliably negative coefficient for Cont% and a reliably positive coefficient for Debt. The negative coefficient on Cont% suggests that the efficiency ratio decreases as an NFP raises a greater proportion of total revenue from

contributions. This would occur if fundraising expenses incurred by NFPs to solicit contributions decrease the efficiency ratio (Krishnan et al. 2006). The positive coefficient on Debt suggests that NFPs facing financial distress tend to report higher efficiency ratios. An explanation is that struggling organizations have manipulated the efficiency ratio upward. Alternatively, higher debt loads could discipline NFP managers to run their organizations more efficiently.

Overall, the results reported in table 6.1 suggest that NFPs that rely more on government grants exhibit lower agency costs, reflected in lower CEO compensation and higher efficiency ratios. Conversely, NFPs that rely more on investment income exhibit higher agency costs, in the form of higher CEO compensation and lower efficiency ratios. I argue that the differing levels of monitoring associated with these alternative revenue sources is the source of these results.

My strongest result across all sample partitions is that NFP organizations that rely more heavily on government grants exhibit lower agency costs. The Office of Management and Budget requires NFPs that receive more than $500,000 in federal grants to have an independent audit (1997). Thus, one explanation for the results is simply that NFPs pay lower CEO compensation and spend more on programs when they are audited. To investigate this possibility, I re-estimate the models after controlling for the existence of an audit. I identify NFPs that are audited under the Single Audit Act (A-133) using the United States Federal Audit Clearinghouse (FAC) database which includes all A-133 audit reports submitted to the FAC since 1997.[20] In my sample, 19,069 NFP-years submitted audit reports to the FAC and the remaining 74,340 did not. Of the 19,069 observations that submitted audit reports, 5,566 were

[20] Data are available at http://harvester.census.gov/sac. I collected the information in September 2010.

not required to do so under A-133. This set of NFPs likely obtained an audit to comply with monitoring requirements set by state government or large private donors.

I re-estimate models (1) and (2) after adding a dummy variable, Audit, that is coded one if an audit report is submitted and is zero otherwise. The first column of results in table 6.2 is for the compensation model. After controlling for the effect of an audit, I find a negative and significant coefficient for Grant%, consistent with hypothesis one, and a positive and significant coefficient for InvInc%, consistent with hypothesis three. The coefficient on Audit is positive and significant. This means that NFPs that are audited tend to pay their CEOs more even after controlling for the NFP size. The second column of results in table 6.2 is for the program expense ratio model. After controlling for the effect of an audit, I find a positive and significant coefficient for Grant%, consistent with hypothesis two, and a negative and significant coefficient for InvInc%, consistent with hypothesis four. The coefficient on Audit is negative and significant. This means that NFPs that are audited tend to have lower efficiency ratios. This is probably due to the fact that audit fees are typically classified as administrative expenses. In general, however, the results in table 6.2 suggest that the monitoring demand associated with government grants goes beyond the A-133 requirements, and these additional constraints influence NFP agency costs.

Table 6.3 shows the results after controlling for NFPs that submitted audit reports although they are not required to do so under A-133. I define VoluntaryAudit as one if an NFP is audited and submitted the audit report to the Federal Audit Clearinghouse although it is not required to do so under A-133 for the year, and zero otherwise.[21] The first column of results in table 6.3 is for the compensation model. After controlling for the effect of having a voluntary

[21] I call these NFPs as Voluntary Audit organizations because they voluntarily submitted their audit reports to the FAC although they may have had to prepare audited financial statements to abide by other regulations set by some other agencies.

audit, I find a negative and significant coefficient for Grant%, consistent with hypothesis one, and a positive and significant coefficient for InvInc%, consistent with hypothesis three. The coefficient on Audit is positive and significant similar to the results in table 6.2. This means that NFPs that are audited voluntarily also tend to pay their CEOs more even after controlling for the NFP size. The second column of results in table 6.3 is for the program expense ratio model. After controlling for the effect of having a voluntary audit, I find a positive and significant coefficient for Grant%, consistent with hypothesis two, and a negative and significant coefficient for InvInc%, consistent with hypothesis four. However, the coefficient on Audit is not significant. In sum, the results are consistent with the main results even after controlling for NFPs that voluntarily choose to have an audit even though they are not required to do so under A-133. This suggests that alternative funding sources exert a monitoring effect beyond the influence of an audit.

TABLE 6.1
Estimated Coefficients and t-statistics from Regressions of CEO Compensation and the Program Expense Ratio on Revenue Sources and Control Variables[a,b]

$$\ln CEOcomp_{i,t} = \alpha_0 + \alpha_1 Grant\%_{i,t-1} + \alpha_2 InvInc\%_{i,t-1} + \alpha_3 \ln Size_{i,t-1} + \alpha_4 \ln Contrib_{i,t} + \alpha_5 ZeroCont_{i,t} + \sum \alpha_j State_j + \sum \alpha_k Industry_k + \sum \alpha_l Year_l + \varepsilon_{1i,t} \quad (1)$$

$$ProgExp\%_{i,t} = \beta_0 + \beta_1 Grant\%_{i,t-1} + \beta_2 InvInc\%_{i,t-1} + \beta_3 \ln Size_{i,t-1} + \beta_4 Cont\%_{i,t-1} + \beta_5 Debt_{i,t-1} + \sum \beta_j State_j + \sum \beta_k Industry_k + \sum \beta_l Year_l + \varepsilon_{2i,t} \quad (2)$$

Variable[c]	Predicted Sign Model 1/Model 2	Model (1)	Model (2)
Intercept	?	5.7145*** (53.87)	53.4837*** (18.55)
$Grant\%_{t-1}$	-/+	-0.0025*** (-11.42)	0.0953*** (15.56)
$InvInc\%_{t-1}$	+/-	0.0021*** (5.67)	-0.0627*** (-8.24)
$\ln Size_{t-1}$	+	0.3193*** (79.56)	1.4223*** (19.48)
$\ln Contrib_t$	+	0.0354*** (12.05)	
$ZeroCont_t$	+	0.4068*** (9.16)	
$Cont\%_{t-1}$	?		-0.0604*** (-11.57)
$Debt_{t-1}$	+		0.7591** (2.16)
Industry, state, and year dummies		Yes	Yes
R^2		.5477	.1221
N		93,409	93,409

a. See table 4.2 for variable definitions.
b. The sample consists of 93,409 NFP-year observations from 1992 through 2006. Data are taken from the IRS Statistics of Income Sample Files (SOI) compiled by the National Center for Charitable Statistics (NCCS).
c. T-statistics based on Huber-White robust standard errors clustered by NFP are presented in parentheses below coefficient estimates. *, **, and *** indicate two-tailed statistical significance at 10, 5, and 1 percent levels.

TABLE 6.2
Regressions of CEO Compensation and the Program Expense Ratio on Revenue Sources after Controlling for the A-133 Audit[a,b,c]

$$\ln CEOcomp_{i,t} = \alpha_0 + \alpha_1 Grant\%_{i,t-1} + \alpha_2 InvInc\%_{i,t-1} + \alpha_3 Audit_{i,t} + \alpha_4 \ln Size_{i,t-1} + \alpha_5 \ln Contrib_{i,t} + \alpha_6 ZeroCont_{i,t} + \sum \alpha_j State_j + \sum \alpha_k Industry_k + \sum \alpha_l Year_l + \varepsilon_{1i,t} \quad (1)$$

$$ProgExp\%_{i,t} = \beta_0 + \beta_1 Grant\%_{i,t-1} + \beta_2 InvInc\%_{i,t-1} + \beta_3 Audit_{i,t} + \beta_4 \ln Size_{i,t-1} + \beta_5 Cont\%_{i,t-1} + \beta_6 Debt_{i,t-1} + \sum \beta_j State_j + \sum \beta_k Industry_k + \sum \beta_l Year_l + \varepsilon_{2i,t} \quad (2)$$

Variable[c]	Predicted Sign Model 1/Model 2	Model (1)	Model (2)
Intercept	?	5.7428*** (53.27)	53.0129*** (18.26)
$Grant\%_{t-1}$	-/+	-0.0026*** (-11.64)	0.0973*** (15.69)
$InvInc\%_{t-1}$	+/-	0.0021*** (5.70)	-0.0628*** (-8.25)
$Audit_t$	?	0.0223** (2.10)	-0.4115* (-1.94)
$\ln Size_{t-1}$	+	0.3182*** (77.09)	1.4495*** (19.11)
$\ln Contrib_t$	+	0.0348*** (11.82)	
$ZeroCont_t$	+	0.3999*** (9.00)	
$Cont\%_{t-1}$	?		-0.0605*** (-11.60)
$Debt_{t-1}$	+		0.7464** (2.13)
Industry, state, and year dummies		Yes	Yes
	R^2	.5477	.1223
	N	93,409	93,409

a. See table 4.2 for variable definitions.

b. The sample consists of 93,409 NFP-year observations from 1992 through 2006. Data are taken from the IRS Statistics of Income Sample Files (SOI) compiled by the National Center for Charitable Statistics (NCCS) and from the United States Federal Audit Clearinghouse (FAC) database that include all A-133 audit reports and summary reports submitted to the FAC since 1997.

c. T-statistics based on Huber-White robust standard errors clustered by NFP are presented in parentheses below coefficient estimates. *, **, and *** indicate two-tailed statistical significance at 10, 5, and 1 percent levels.

TABLE 6.3
Regressions of CEO Compensation and the Program Expense Ratio on Revenue Sources after Controlling for Audits that are Not Required Under the A-133 Audit[a,b,c]

$$\ln CEOcomp_{i,t} = \alpha_0 + \alpha_1 Grant\%_{i,t-1} + \alpha_2 InvInc\%_{i,t-1} + \alpha_3 VoluntaryAudit_{i,t} + \alpha_4 lnSize_{i,t-1} + \alpha_5 lnContrib_{i,t} + \alpha_6 ZeroCont_{i,t} + \sum \alpha_j State_j + \sum \alpha_k Industry_k + \sum \alpha_l Year_l + \varepsilon_{1i,t} \quad (1)$$

$$ProgExp\%_{i,t} = \beta_0 + \beta_1 Grant\%_{i,t-1} + \beta_2 InvInc\%_{i,t-1} + \beta_3 VoluntaryAudit_{i,t} + \beta_4 lnSize_{i,t-1} + \beta_5 Cont\%_{i,t-1} + \beta_6 Debt_{i,t-1} + \sum \beta_j State_j + \sum \beta_k Industry_k + \sum \beta_l Year_l + \varepsilon_{2i,t} \quad (2)$$

Variable[c]	Predicted Sign Model 1/Model 2	Model (1)	Model (2)
Intercept	?	5.7281*** (53.86)	53.3886*** (18.51)
$Grant\%_{t-1}$	-/+	-0.0024*** (-11.06)	0.0949*** (15.48)
$InvInc\%_{t-1}$	+/-	0.0021*** (5.74)	-0.0629*** (-8.27)
$VoluntaryAudit_t$	?	0.0706*** (4.70)	-0.5462 (-1.62)
$lnSize_{t-1}$	+	0.3182*** (78.84)	1.4277*** (19.56)
$lnContrib_t$	+	0.0359*** (12.17)	
$ZeroCont_t$	+	0.4116*** (9.27)	
$Cont\%_{t-1}$	?		-0.0606*** (-11.61)
$Debt_{t-1}$	+		0.7612** (2.17)
Industry, state, and year dummies		Yes	Yes
	R^2	.5480	.1222
	N	93,409	93,409

a. See table 4.2 for variable definitions.
b. The sample consists of 93,409 NFP-year observations from 1992 through 2006. Data are taken from the IRS Statistics of Income Sample Files (SOI) compiled by the National Center for Charitable Statistics (NCCS) and from the United States Federal Audit Clearinghouse (FAC) database that include all A-133 audit reports and summary reports submitted to the FAC since 1997.
c. T-statistics based on Huber-White robust standard errors clustered by NFP are presented in parentheses below coefficient estimates. *, **, and *** indicate two-tailed statistical significance at 10, 5, and 1 percent levels.

CHAPTER 7

SENSITIVITY ANALYSIS

In this chapter, I present additional analyses to assess the robustness of my primary results. First, I examine whether the results hold across the size spectrum of NFPs and across the four major industries in my sample. Second, I examine whether my inferences change if I exclude NFPs that potentially manipulated program expense ratios. Third, I include program service revenue in my analysis to investigate the monitoring effects of this important revenue source. Fourth, I include ResrictedNetAssets an additional control variable in the models. Fifth, I investigate the monitoring mechanisms adopted by NFPs in response to the demand associated with different funding sources. Finally, I employ a fixed-effects model on the NFP level to control for unobserved heterogeneity which is constant over time and correlated with independent variables.

7.1 Robustness across the Size Spectrum and Major Industries

First, I examine whether the results hold across the size spectrum of NFPs in my sample. To do so, I re-estimate models (1) and (2) for each size quartile, where size is measured as total expense. Table 7.1, panel A, presents the estimated coefficients and t-statistics for the compensation regressions (model 1); panel B presents size-stratified results for the program expense ratio regressions (model 2). In both panels, the appropriate full-sample results from table 6.1 are presented for comparison. The compensation regressions in panel A yield

significantly negative coefficients on Grant% in all size quartiles and the coefficient on InvInc% is reliably positive in all but the smallest quartile. The program expense ratio regressions in panel B yield significantly positive coefficients on Grant% and reliably negative coefficients on InvInc% in all size quartiles. Thus, the results for the full sample are not attributable to a subset of large organizations; they also hold in subsets of smaller entities.[22]

Next, I examine whether the results hold across the four major industries in my sample: health care, education, human services, and the arts. Table 7.2, panel A, presents the estimated coefficients and t-statistics for the compensation regressions (model 1); panel B presents industry results for the program expense ratio regressions (model 2). As in table 7.5, the appropriate full-sample results from table 6.1 are presented for comparison. In the compensation regressions in panel A, I observe significant coefficients on Grant% in all four industries and significant coefficients on InvInc% in the health care and human services industries. Similar results are observed for the program expense ratio regressions in panel B: the coefficients on Grant% are uniformly significant, and the coefficients on InvInc% are significant ($p < 0.05$) in the health care and human services industries. In general, results for the industry subsets are consistent with the full sample and show that agency costs are lower in NFPs that rely on government grants and higher in NFPs that rely on investment income.[23]

7.2 Subsample Analysis for NFPs with More Reliable Program Expense Ratios

Krishnan et al. (2006) find that 37 percent of their sample observations report zero fundraising expense. In the broad population of NFPs, approximately 50 percent report zero fundraising expense (Krishnan et al. 2006). Krishnan et al. show that NFPs that report zero

[22] Median total expense is only $1.18 million for organizations in quartile one; the amount is $7.62 in quartile two.
[23] This is consistent with Callen et al. (2003), who also find no significant differences in efficiency metrics across NFP industry groups.

fundraising expense have often done this opportunistically in order to report higher program expense ratios. In my main analysis, I include Cont% and Debt to control for the potential manipulation of the program expense ratio. As a further check on the results, I re-estimate the results after deleting all NFP-years that report zero fundraising or zero administrative expenses. This reduces the sample size to 48,068.

Table 7.3 shows the results of estimating models (1) and (2) for the subsample of observations with non-zero fundraising and administrative expenses. Consistent with hypotheses one and three, I find a negative and significant coefficient for Grant% and a positive and significant coefficient for InvInc% in the CEO compensation model. Consistent with hypotheses two and four, I find a positive and significant coefficient for Grant% and a negative and significant coefficient for InvInc% in the program expense ratio model. In sum, I find lower agency problems with greater Grant% and higher agency problems with greater InvInc% when I restrict the sample to NFP-years where the likelihood of program expense ratio manipulation is minimized.[24]

7.3 Additional Control Variable - Program Service Revenue

NFPs raise revenues from three main sources: public contributions, government grants, and payments from providing program services (O'Neill 2002). Of these three, program service revenue is the largest and fastest-growing source of revenue for NFPs in the U.S. Commercial activities by NFPs are not new. For example, the Metropolitan Museum of Art opened its shop in 1908 and sold copies of photographs from its collections even before that (Weisbrod 1988). Although commercialization is not a new concept, the amount raised from commercial activities has grown significantly throughout the 1990s (Anheier 2005). Although the extent of

[24] NFP-years that report zero fundraising expense are less likely to have an audit (α=.01).

commercialization varies considerably by industry (as shown in figure 4.2), most NFPs make sales related to their programs.

The level of NFP discretion related to program service revenue is not as clear as that of government grants or investment income. On one hand, program service revenue is a discretionary source of income because revenues from commercial activities are internally generated funds that are not directly monitored by an authoritative agency or a major donor. For example, patrons who make purchases from the museum store do not have strong incentives to monitor the museum. Likewise, the majority of zoo visitors who pay admission fees have a low stake in the organization and correspondingly low monitoring incentives. If NFPs may face little monitoring when they raise more funds from program service revenue, this funding source is expected to be associated with greater agency costs.

On the other hand, NFPs that rely on program service revenue must compete for customers with for-profit firms as well as other NFPs. To produce a high quality and competitive service often necessitates large outlays for expenses, reducing the residual amount available for managers' discretion. Tuckman and Chang (1993) argue that NFPs that rely on program service revenues are as dependent on the buyers of their services as NFPs that rely on government grants are beholden to the government. Fisman and Hubbard (2005, p.2235-2236) posit that program service revenue is less discretionary than investment income arguing that "it is easier for managers to pursue personal interests with endowment funds rather than streams of revenue." If NFPs face greater monitoring when they raise more funds from program service revenue, this will result in lower agency costs.

Table 7.4 presents the results of estimating the models with ProgRev% in addition to Grant% and InvInc%. The coefficient for ProgRev% in the compensation model is negative and

significant. This suggests that NFPs that receive a greater proportion of their total revenue from program services pay less to their CEOs, exhibiting lower agency problems. The coefficient for ProgRev% in the program expense ratio model is positive and significant. This also suggests that NFPs that receive a greater proportion of their total revenue from program services have higher efficiency ratios, again exhibiting lower agency problems. Collectively, these results suggest that program service revenue has a similar monitoring effect to government grants, resulting in lower CEO compensation and greater efficiency ratios. Additionally, the results for Grant% and InvInc% are not affected by the inclusion of ProgRev% in the models.

Part VII of Form 990 requires a further classification of revenue sources. Program service revenue is broken down into payments from Medicare/Medicaid, fees and contracts from government agencies, and other program service revenue. This allows me to assess the monitoring effects of distinct components of program service revenue. NFPs have to follow more requirements and regulations to receive payments from Medicare/Medicaid or government agencies, so I expect that this portion of program service revenue to be associated with greater monitoring. To investigate this prediction, I re-estimate the models on a subsample of NFP observations where the breakdown of program service revenue is available. The first column of Table 7.5 shows the results of estimating the models when ProgRev% is limited to Medicare/Medicaid receipts and government fees. The second column of Table 7.5 shows the results of estimating the models when ProgRev% is based on program service revenues other than Medicare/Medicaid payments and government fees. Although the results in both columns indicate that ProgRev% is associated with lower agency costs, stronger results are found in the first column where program service revenue is measured only with Medicare/Medicaid payments

and government fees. This suggests that Medicare/Medicaid payments and government fees are the driving force of the monitoring effect of the program service revenue.

7.4 Additional Control Variable – Restricted Net Assets

SFAS No. 117 (FASB, 1993) requires that NFPs separately report the amounts for three classes of net assets – permanently restricted net assets, temporarily restricted net assets, and unrestricted net assets – based on the existence of donor-imposed restrictions. Permanently or temporarily restricted net assets are funds which are restricted to a particular purpose.[25] Unrestricted net assets are funds that are available for the NFP to use for any purpose. Donors who restrict the use of their donations demand monitoring to ensure that NFPs keep their promises and abide by their restrictions. The greater the restricted net assets held by an NFP the more monitoring it is likely to face. For example, Vermeer et al. (2006) posit that NFPs with a greater proportion of their funds in the form of restricted net assets are more likely to have more independent audit committees. I therefore re-estimate my results after controlling for the monitoring demand associated with NFPs' holdings of restricted net assets.

The results, present in table 7.6, are consistent with those reported in table 6.1.[26] The monitoring effects of government grants and investment income persist in the presence of restricted net assets in both models. Consistent with prediction, the coefficient for RestrictedNetAssets is negative and significant in the CEO compensation model. This suggests that NFPs with more restricted net assets pay less to their CEOs after controlling for other funding sources and the determinants of CEO pay. Thus, restricted net assets are associated with

[25] I combine permanently restricted and temporarily restricted net assets as restricted net assets because monitoring demands from donors do not differ much between these two restricted net assets other than time restriction.
[26] The sample size drops to 36,226 because data for unrestricted, temporarily restricted, and permanently restricted net assets are available from Digitized Data which are available only for years from 1998 to 2003.

lower agency problems. However, the coefficient for RestrictedNetAssets in the program expense ratio model is not significant after controlling for other funding sources. There seems to be no additional monitoring effect of restricted net assets on improving organizational efficiency beyond the monitoring imposed by government grants.

7.5 Governance Mechanisms Adopted by NFPs in Response to Monitoring Demands

Resource dependency theory (Pfeffer and Salancik 1978) suggests that an organization's need for resources determines its structure and activities. Based on this, Vermeer et al. (2006) posit that differences in types and composition of resources can lead to differences in the perceived demand for monitoring, which in turn can lead to differences in various governance mechanisms adopted by an NFP to respond to those monitoring demands. For example, Vermeer et al. document that NFPs that receive government grants are more likely to have audit committees with independent directors because the receipt of government grants creates higher demand for monitoring, which in turn leads to an adoption of better governance in the form of a more independent audit committee. A more independent audit committee results from a choice made by the NFP to meet the higher monitoring demands associated with government grants.

In my study, I argue that some sources of NFP revenue carry more restrictions and thus exert more monitoring pressure on the NFP while other sources of NFP revenue carry fewer restrictions and thus exert less monitoring pressure on the NFP. I find that NFPs with greater revenue from government grants tend to exhibit lower agency problems and those with greater revenue from investment income tend to exhibit higher agency problems. Although my study shows the association between funding sources and agency problems, it does not show the intermediary link which is the association between the funding source and the governance

mechanism adopted by an NFP in response to the monitoring demand associated with that funding source that has been shown in prior studies (Tate 2007; Vermeer et al. 2006). For example, Tate (2007) finds that changes in government grant percent is significantly associated with changes in auditors. Similarly, Vermeer et al. (2006) find that the receipt of government grants is significantly associated with having a more independent audit committee. Although these studies provide evidence on the association between funding sources and governance mechanisms based on resource dependency theory, I examine if this prediction holds within my sample and for investment income as well as government grants. To establish this link, I therefore investigate whether the types of governance mechanisms that are adopted by NFPs are associated with the composition of NFP funding sources.

I collect information on two types of governance mechanisms: whether an NFP is audited and how many board members sit on an NFP board.[27] An audit increases NFP monitoring if the audit process increases the quality of NFP financial reporting, thereby delivering a clearer financial position of the NFP to stakeholders. Greater board size increases NFP monitoring because larger boards have a greater capacity for monitoring (Murray 1989).

I conduct the analysis as follows. First, I identify four subsamples of NFP observations: those that received government grants (52,119 observations), those that did not receive government grants (41,290 observations), those in the highest InvInc% decile (9,340 observations), and those in the lowest InvInc% decile (9,341 observations). From each of these four groups, I randomly select 100 observations to minimize the hand collection effort. Within each set of 100 observations, I then determine the percent of NFP-years being audited and the

[27] I hand collect the number of board members from the GuideStar website (http://www2.guidestar.org). The website has information on 1.8 million IRS-recognized tax-exempt organizations. For each organization, it provides basic information on financials, people, mission, and programs and keeps on average fifteen years of Form 990s filed with the IRS.

number of board members. These serve as proxies for governance mechanisms adopted by NFPs in each group.

Table 7.7, panel A, reports mean values for two proxies for governance mechanisms adopted by NFPs that receive government grants and those that do not. The prior literature suggests that when an NFP receives government grants, it will adopt a governance mechanism to satisfy greater monitoring demands. Supporting this, I find that the proportion of NFPs audited under the Single Audit Act is significantly greater among grantees (35 percent) than among non-grantees (7 percent). The number of board members is also significantly greater among grantees (21 people) than among non-grantees (18 people). In sum, governance mechanisms adopted by grantees consistently reflect a response to higher monitoring demands than those adopted by non-grantees.

Table 7.7, panel B, reports mean values for the two proxies for governance mechanisms adopted by NFP-years in the lowest InvInc% decile and those in the highest InvInc% decile. NFPs with more investment income have more discretionary funds for which they are not generally monitored by outside stakeholders. Thus, NFPs in the highest InvInc% decile are less likely to adopt governance mechanisms that fulfill monitoring demands compared to NFPs in the lowest InvInc% decile. Consistent with this prediction, the proportion of NFPs audited under the Single Audit Act is significantly lower in the highest InvInc% decile than in the lowest InvInc% decile. However, I do not find consistent results for the other proxy. NFPs in the highest InvInc% decile have larger board of directors. The results for these variables indicate that NFPs with more investment income adopt governance mechanisms to satisfy higher monitoring demands. In sum, governance mechanisms adopted by NFPs in the lowest InvInc% decile do not

necessarily reflect a response to higher monitoring demands than those adopted by NFPs in the highest InvInc% decile.

7.6 NFP Fixed Effects Analysis

Although I control for industry, state, and year fixed effects in the main analysis, there still can be NFP-specific factors that are correlated across independent variables. I therefore employ a fixed-effects model to control for any unobserved time-invariant heterogeneity on the NFP level. In my sample, the average number of years per NFP is 6.3.

Table 7.8 shows the results of NFP fixed effects analysis. In the CEO compensation model, I do not find a consistent result for Grant%. After controlling for unobserved effects on the NFP level, government grants do not seem to have an effect on CEO compensation. However, I find a positive and significant coefficient for InvInc% at a ten percent significance level. This coefficient means that an increase in investment income by one percent is associated with 0.02 percent increase in CEO compensation. This magnitude does not differ much from the main results reported in table 6.1. CEOs are paid more when an organization is larger and when they raise more contributions. One dollar increase in total contributions is associated with one percent increase in CEO compensation.

In the program expense ratio model, I find a positive and significant coefficient for Grant%, consistent with hypothesis two. This means that one percent increase in government grants is associated with 0.02 percent increase in the program expense ratio. Consistent with hypothesis four, I also find a negative and significant coefficient for InvInc%. This means that one percent increase in investment income is associated with 0.02 percent decrease in the program expense ratio. Larger organizations seem to be more efficient. I find a negative and

significant coefficient for Cont%. This means that the program expense ratio decreases when an NFP needs to incur greater fundraising and administrative expenses to raise more from contributions. I find a negative and significant coefficient for Debt. This shows that an NFP with a higher level of debt has lower program expense ratios. In sum, results of the NFP fixed effects analysis are generally similar to those reported in table 6.1 and suggest that funding sources exhibit monitoring effects on NFPs which result in different agency problems.

TABLE 7.1
Size Quartile Regressions of CEO Compensation and the Program Expense Ratio on Revenue Sources and Control Variables[a,b]

Panel A: Compensation regressions by size quartile[c]

$$\ln CEOcomp_{i,t} = \alpha_0 + \alpha_1 Grant\%_{i,t-1} + \alpha_2 InvInc\%_{i,t-1} + \alpha_3 lnSize_{i,t-1} + \alpha_4 lnContrib_{i,t} + \alpha_5 ZeroCont_{i,t} + \sum \alpha_j State_j + \sum \alpha_k Industry_k + \sum \alpha_l Year_l + \varepsilon_{1i,t}$$

Variable[d]	Predicted Sign	Size Q1	Size Q2	Size Q3	Size Q4	Full Sample
Intercept	?	4.7190***	6.1766***	6.2476***	5.4293***	5.7145***
		(20.60)	(20.22)	(17.55)	(16.60)	(53.87)
$Grant\%_{t-1}$	-	-0.0014***	-0.0023***	-0.0043***	-0.0040***	-0.0025***
		(-4.51)	(-6.70)	(-9.88)	(-5.57)	(-11.42)
$InvInc\%_{t-1}$	+	-0.0005	0.0034***	0.0037***	0.0057***	0.0021***
		(-0.93)	(5.85)	(5.19)	(6.47)	(5.67)
$lnSize_{t-1}$	+	0.4089***	0.2944***	0.2995***	0.3255***	0.3193***
		(37.82)	(15.37)	(14.53)	(24.91)	(79.56)
$lnContrib_t$	+	0.0396***	0.0379***	0.0372***	0.0214***	0.0354***
		(6.11)	(7.18)	(6.38)	(4.21)	(12.05)
$ZeroCont_t$	+	0.3336***	0.5348***	0.4892***	0.2777***	0.4068***
		(3.81)	(6.26)	(5.85)	(3.68)	(9.16)
Industry, state, and year dummies		Yes	Yes	Yes	Yes	Yes
Median Size (in $M)		$1.18	$7.62	$24.60	$115.00	$13.70
R^2		.3442	.1633	.1981	.2878	.5477
N		23,353	23,453	23,274	23,329	93,409

a. See table 4.2 for variable definitions.
b. The sample consists of 93,409 NFP-year observations from 1992 through 2006. Data are taken from the IRS Statistics of Income Sample Files (SOI) compiled by the National Center for Charitable Statistics (NCCS).
c. T-statistics based on Huber-White robust standard errors clustered by NFP are presented in parentheses below coefficient estimates. *, **, and *** indicate two-tailed statistical significance at 10, 5, and 1 percent levels.
d. Size is total expenses, in millions of dollars.

TABLE 7.1, *Continued*
Size Quartile Regressions of CEO Compensation and the Program Expense Ratio on Revenue Sources and Control Variables[a,b]

Panel B: Program expense ratio regressions by size quartile[c]

$$ProgExp\%_{i,t} = \beta_0 + \beta_1 Grant\%_{i,t-1} + \beta_2 InvInc\%_{i,t-1} + \beta_3 lnSize_{i,t-1} + \beta_4 Cont\%_{i,t-1} + \beta_5 Debt_{i,t-1} + \sum \beta_j State_j + \sum \beta_k Industry_k + \sum \beta_l Year_l + \varepsilon_{2i,t}$$

Variable[d]	Predicted Sign	Size Q1	Size Q2	Size Q3	Size Q4	Full Sample
Intercept	?	66.0969***	50.3380***	44.9293***	51.1111***	53.4837***
		(14.02)	(6.61)	(6.19)	(9.34)	(18.55)
$Grant\%_{t-1}$	+	0.1012***	0.0843***	0.0893***	0.0648***	0.0953***
		(10.69)	(8.45)	(7.12)	(3.43)	(15.56)
$InvInc\%_{t-1}$	-	-0.0855***	-0.0554***	-0.0442***	-0.0312**	-0.0627***
		(-6.74)	(-4.63)	(-2.77)	(-2.02)	(-8.24)
$lnSize_{t-1}$	+	0.5884**	1.2519***	2.1803***	1.8562***	1.4223***
		(2.48)	(3.42)	(5.37)	(9.96)	(19.48)
$Cont\%_{t-1}$	?	-0.0823***	-0.0463***	-0.0412***	-0.0394**	-0.0604***
		(-10.28)	(-5.54)	(-3.50)	(-2.57)	(-11.57)
$Debt_{t-1}$	+	1.0047	0.9202*	0.7927	0.3204	0.7591**
		(1.37)	(1.69)	(1.28)	(0.52)	(2.16)
Industry, state, and year dummies		Yes	Yes	Yes	Yes	Yes
Median Size (in $M)		$1.18	$7.62	$24.60	$115.00	$13.70
R^2		.0945	.1132	.0822	.0730	.1221
N		23,353	23,453	23,274	23,329	93,409

a. See table 4.2 for variable definitions.
b. The sample consists of 93,409 NFP-year observations from 1992 through 2006. Data are taken from the IRS Statistics of Income Sample Files (SOI) compiled by the National Center for Charitable Statistics (NCCS).
c. T-statistics based on Huber-White robust standard errors clustered by NFP are presented in parentheses below coefficient estimates. *, **, and *** indicate two-tailed statistical significance at 10, 5, and 1 percent levels.
d. Size is total expenses, in millions of dollars.

TABLE 7.2
Industry Regressions of CEO Compensation and the Program Expense Ratio on Revenue Sources and Control Variables[a,b]

Panel A: Compensation regressions by industry[c]

$$\ln CEOcomp_{i,t} = \alpha_0 + \alpha_1 Grant\%_{i,t-1} + \alpha_2 InvInc\%_{i,t-1} + \alpha_3 \ln Size_{i,t-1} + \alpha_4 \ln Contrib_{i,t} + \alpha_5 ZeroCont_{i,t} + \sum \alpha_j State_j + \sum \alpha_k Industry_k + \sum \alpha_l Year_l + \varepsilon_{1i,t}$$

Variable[d]	Predicted Sign	Health Care	Education	Human Services	Arts	Full Sample
Intercept	?	5.1666***	6.0047***	5.4733***	4.5784***	5.7145***
		(21.44)	(52.59)	(29.73)	(14.35)	(53.87)
$Grant\%_{t-1}$	-	-0.0031***	-0.0041***	-0.0035***	-0.0019**	-0.0025***
		(-2.85)	(-6.65)	(-9.03)	(-2.01)	(-11.42)
$InvInc\%_{t-1}$	+	0.0083***	-0.0002	0.0022**	0.0001	0.0021***
		(9.52)	(-0.29)	(2.38)	(0.14)	(5.67)
$\ln Size_{t-1}$	+	0.3253***	0.3390***	0.2990***	0.3795***	0.3193***
		(43.25)	(30.94)	(31.35)	(21.75)	(79.56)
$\ln Contrib_t$	+	0.0423***	0.0002	0.0468***	0.0695***	0.0354***
		(9.76)	(0.02)	(6.27)	(5.07)	(12.05)
$ZeroCont_t$	+	0.6313***	-0.2340	0.3461***	0.6445***	0.4068***
		(9.73)	(-1.78)	(2.93)	(2.77)	(9.16)
State and year dummies		Yes	Yes	Yes	Yes	Yes
	R^2	.4036	.5779	.4611	.7007	.5477
	N	29,529	20,921	14,632	6,523	93,409

a. See table 4.2 for variable definitions.
b. The sample consists of 93,409 NFP-year observations from 1992 through 2006. Data are taken from the IRS Statistics of Income Sample Files (SOI) compiled by the National Center for Charitable Statistics (NCCS).
c. T-statistics based on Huber-White robust standard errors clustered by NFP are presented in parentheses below coefficient estimates. *, **, and *** indicate two-tailed statistical significance at 10, 5, and 1 percent levels.
d. Industry designations are those used by the National Taxonomy of Exempt Entities (NTEE).

TABLE 7.2, *Continued*
Industry Regressions of CEO Compensation and the Program Expense Ratio on Revenue Sources and Control Variables[a,b]

Panel B: Program expense ratio regressions by industry[c]

$$ProgExp\%_{i,t} = \beta_0 + \beta_1 Grant\%_{i,t-1} + \beta_2 InvInc\%_{i,t-1} + \beta_3 lnSize_{i,t-1} + \beta_5 Cont\%_{i,t-1} + \beta_4 Debt_{i,t-1} + \sum \beta_j State_j + \sum \beta_k Industry_k + \sum \beta_l Year_l + \varepsilon_{2i,t}$$

Variable[d]	Predicted Sign	Health Care	Education	Human Services	Arts	Full Sample
Intercept	?	62.0711***	37.1325***	65.4111***	54.4205***	53.4837***
		(14.49)	(3.73)	(18.04)	(9.95)	(18.55)
$Grant\%_{t-1}$	+	0.1069***	0.0965***	0.1494***	0.0886***	0.0953***
		(5.16)	(6.40)	(9.74)	(3.46)	(15.56)
$InvInc\%_{t-1}$	-	-0.1058***	-0.0101	-0.1759***	-0.0331*	-0.0627***
		(-5.37)	(-0.82)	(-7.46)	(-1.71)	(-8.24)
$lnSize_{t-1}$	+	1.3923***	1.3326***	1.3927***	1.3734***	1.4223***
		(9.18)	(9.05)	(7.05)	(5.36)	(19.48)
$Cont\%_{t-1}$	?	-0.0575***	-0.0327***	-0.0999***	-0.1523***	-0.0604***
		(-3.61)	(-3.16)	(-6.75)	(-8.72)	(-11.57)
$Debt_{t-1}$	+	0.8158	-0.8133	-0.7043	2.8989**	0.7591**
		(1.31)	(-0.76)	(-1.10)	(2.07)	(2.16)
State and year dummies		Yes	Yes	Yes	Yes	Yes
	R^2	.1035	.0733	.1708	.1536	.5477
	N	29,529	20,921	14,632	6,523	93,409

a. See table 4.2 for variable definitions.
b. The sample consists of 93,409 NFP-year observations from 1992 through 2006. Data are taken from the IRS Statistics of Income Sample Files (SOI) compiled by the National Center for Charitable Statistics (NCCS).
c. T-statistics based on Huber-White robust standard errors clustered by NFP are presented in parentheses below coefficient estimates. *, **, and *** indicate two-tailed statistical significance at 10, 5, and 1 percent levels.
d. Industry designations are those used by the National Taxonomy of Exempt Entities (NTEE).

TABLE 7.3
Subsample Analyses for NFPs that Report Non-Zero Fundraising and Non-Zero Administrative Expenses [a,b,c]

$$lnCEOcomp_{i,t} = \alpha_0 + \alpha_1 Grant\%_{i,t-1} + \alpha_2 InvInc\%_{i,t-1} + \alpha_3 lnSize_{i,t-1} + \alpha_4 lnContrib_{i,t} + \alpha_5 ZeroCont_{i,t} + \sum \alpha_j State_j + \sum \alpha_k Industry_k + \sum \alpha_l Year_l + \varepsilon_{1i,t} \quad (1)$$

$$ProgExp\%_{i,t} = \beta_0 + \beta_1 Grant\%_{i,t-1} + \beta_2 InvInc\%_{i,t-1} + \beta_3 lnSize_{i,t-1} + \beta_4 Cont\%_{i,t-1} + \beta_5 Debt_{i,t-1} + \sum \beta_j State_j + \sum \beta_k Industry_k + \sum \beta_l Year_l + \varepsilon_{2i,t} \quad (2)$$

Variable[c]	Predicted Sign Model 1/Model 2	Model (1)	Model (2)
Intercept	?	6.0868*** (49.54)	40.5258*** (6.74)
$Grant\%_{t-1}$	-/+	-0.0021*** (-8.37)	0.0841*** (11.55)
$InvInc\%_{t-1}$	+/-	0.0024*** (8.76)	-0.0729*** (-8.71)
$lnSize_{t-1}$	+	0.3078*** (74.94)	2.2052*** (23.80)
$lnContrib_t$	+	0.0337*** (8.64)	
$ZeroCont_t$	+	0.5972*** (7.16)	
$Cont\%_{t-1}$	?		-0.0425*** (-7.24)
$Debt_{t-1}$	+		0.0121 (0.02)
Industry, state, and year dummies		Yes	Yes
R^2		.6367	.1926
N		48,068	48,068

a. See table 4.2 for variable definitions.

b. The sample consists of 48,068 NFP-year observations from 1992 through 2006. Data restrictions for nonzero fundraising expenses and nonzero administrative expenses reduced the number of observations. Data are taken from the IRS Statistics of Income Sample Files (SOI) compiled by the National Center for Charitable Statistics (NCCS).

c. T-statistics based on Huber-White robust standard errors clustered by NFP are presented in parentheses below coefficient estimates. *, **, and *** indicate two-tailed statistical significance at 10, 5, and 1 percent levels.

TABLE 7.4
Regressions of CEO Compensation and the Program Expense Ratio on Grant%, InvInc%, and ProgRev%[a,b,c]

$$\ln CEOcomp_{i,t} = \alpha_0 + \alpha_1 Grant\%_{i,t-1} + \alpha_2 InvInc\%_{i,t-1} + \alpha_3 ProgRev\%_{i,t-1} + \alpha_4 \ln Size_{i,t-1} + \alpha_5 \ln Contrib_{i,t} + \alpha_6 ZeroCont_{i,t} + \sum \alpha_j State_j + \sum \alpha_k Industry_k + \sum \alpha_l Year_l + \varepsilon_{1i,t} \quad (1)$$

$$ProgExp\%_{i,t} = \beta_0 + \beta_1 Grant\%_{i,t-1} + \beta_2 InvInc\%_{i,t-1} + \beta_3 ProgRev\%_{i,t-1} + \beta_4 \ln Size_{i,t-1} + \beta_5 Cont\%_{i,t-1} + \beta_6 Debt_{i,t-1} + \sum \beta_j State_j + \sum \beta_k Industry_k + \sum \beta_l Year_l + \varepsilon_{2i,t} \quad (2)$$

Variable[c]	Predicted Sign Model 1/Model 2	Model (1)	Model (2)
Intercept	?	5.7084*** (53.35)	49.6475*** (17.01)
$Grant\%_{t-1}$	-/+	-0.0031*** (-12.48)	0.0989*** (16.12)
$InvInc\%_{t-1}$	+/-	0.0013*** (3.32)	0.0027 (0.30)
$ProgRev\%_{t-1}$	?	-0.0012*** (-5.02)	0.0831*** (9.96)
$\ln Size_{t-1}$	+	0.3312*** (69.04)	1.2573*** (17.58)
$\ln Contrib_t$	+	0.0270*** (8.04)	
$ZeroCont_t$	+	0.3121*** (6.56)	
$Cont\%_{t-1}$	?		0.0076 (0.85)
$Debt_{t-1}$	+		0.2047 (0.58)
Industry, state, and year dummies		Yes	Yes
	R^2	.5484	.1311
	N	93,409	93,409

a. See table 4.2 for variable definitions.
b. The sample consists of 93,409 NFP-year observations from 1992 through 2006. Data are taken from the IRS Statistics of Income Sample Files (SOI) compiled by the National Center for Charitable Statistics (NCCS).
c. T-statistics based on Huber-White robust standard errors clustered by NFP are presented in parentheses below coefficient estimates. *, **, and *** indicate two-tailed statistical significance at 10, 5, and 1 percent levels.

TABLE 7.5
Subsample Analyses for NFPs that Further Classify Program Service Revenue into Program Service Revenue from Medicare and Government Fees and Others [a,b,c]

$$lnCEOcomp_{i,t} = \alpha_0 + \alpha_1 Grant\%_{i,t-1} + \alpha_2 InvInc\%_{i,t-1} + \alpha_3 ProgRev\%_{i,t-1} + \alpha_4 lnSize_{i,t-1} + \alpha_5 lnContrib_{i,t} + \alpha_6 ZeroCont_{i,t} + \sum \alpha_j State_j + \sum \alpha_k Industry_k + \sum \alpha_l Year_l + \varepsilon_{1i,t} \quad (1)$$

$$ProgExp\%_{i,t} = \beta_0 + \beta_1 Grant\%_{i,t-1} + \beta_2 InvInc\%_{i,t-1} + \beta_3 ProgRev\%_{i,t-1} + \beta_4 lnSize_{i,t-1} + \beta_5 Cont\%_{i,t-1} + \beta_6 Debt_{i,t-1} + \sum \beta_j State_j + \sum \beta_k Industry_k + \sum \beta_l Year_l + \varepsilon_{2i,t} \quad (2)$$

Variable[c]	Predicted Signs		Program service revenue from Medicare and Government fees (Column 1)		Program service revenue from other sources (Column 2)	
	Column 1	Column 2				
	Model1/Model 2	Model1/Model 2	Model (1)	Model (2)	Model (1)	Model (2)
Intercept	?	?	5.9708***	60.1124***	5.9066***	59.4428***
			(42.98)	(18.84)	(45.58)	(19.85)
$Grant\%_{t-1}$	-/+	-/+	-0.0026***	0.1032***	-0.0024***	0.0897***
			(-9.61)	(12.98)	(-9.39)	(12.71)
$InvInc\%_{t-1}$	+/-	+/-	0.0041***	-0.0613***	0.0017***	-0.0464***
			(8.30)	(-5.75)	(3.34)	(-4.86)
$ProgRev\%_{t-1}$	?	?	-0.0015***	0.0164***	-0.0001	0.0188***
			(-6.40)	(4.24)	(-0.25)	(3.49)
$lnSize_{t-1}$	+	+	0.3344***	1.2550***	0.3396***	1.2661***
			(62.65)	(14.40)	(62.31)	(15.36)
$lnContrib_t$	+	+	0.0271***		0.0261***	
			(7.36)		(6.59)	
$ZeroCont_t$	+	+	0.3671***		0.2992***	
			(6.42)		(5.05)	
$Cont\%_{t-1}$	?	?		-0.0654***		-0.0422***
				(-9.70)		(-5.98)
$Debt_{t-1}$	+	+		0.6871*		0.4248
				(1.69)		(0.96)
	Industry, state, and year dummies		Yes	Yes	Yes	Yes
		R^2	.6085	.1335	.6121	.1236
		N	35,506	35,506	39,945	39,945

a. See table 4.2 for variable definitions.

b. The sample consists of 35,506 NFP-year observations for Column 1 and 39,945 NFP-year observations for Column 2 from 2001 through 2006 after deleting observations with missing information. Data for further classification of program service revenue is available from 2001. Data are taken from the IRS Statistics of Income Sample Files (SOI) compiled by the National Center for Charitable Statistics (NCCS).

c. T-statistics based on Huber-White robust standard errors clustered by NFP are presented in parentheses below coefficient estimates. *, **, and *** indicate two-tailed statistical significance at 10, 5, and 1 percent levels.

TABLE 7.6
Regressions of CEO Compensation and the Program Expense Ratio on Revenue Sources and Restricted Net Assets after Controlling Other Control Variables[a,b,c]

$$\ln CEOcomp_{i,t} = \alpha_0 + \alpha_1 Grant\%_{i,t-1} + \alpha_2 InvInc\%_{i,t-1} + \alpha_3 RestrictedNetAssets_{i,t-1} + \alpha_4 lnSize_{i,t-1} + \alpha_5 lnContrib_{i,t} + \alpha_6 ZeroCont_{i,t} + \sum \alpha_j State_j + \sum \alpha_k Industry_k + \sum \alpha_l Year_l + \varepsilon_{1i,t} \quad (1)$$

$$ProgExp\%_{i,t} = \beta_0 + \beta_1 Grant\%_{i,t-1} + \beta_2 InvInc\%_{i,t-1} + \beta_3 RestrictedNetAssets_{i,t-1} + \beta_4 lnSize_{i,t-1} + \beta_5 Cont\%_{i,t-1} + \beta_6 Debt_{i,t-1} + \sum \beta_j State_j + \sum \beta_k Industry_k + \sum \beta_l Year_l + \varepsilon_{2i,t} \quad (2)$$

Variable[c]	Predicted Sign Model 1/Model 2	Model (1)	Model (2)
Intercept	?	6.1751*** (43.91)	50.2745*** (16.01)
$Grant\%_{t-1}$	-/+	-0.0024*** (-9.71)	0.0929*** (12.62)
$InvInc\%_{t-1}$	+/-	0.0027*** (5.52)	-0.0708*** (-6.80)
$RestrictedNetAssets_{t-1}$	-/+	-0.0390* (-1.67)	0.0566 (0.11)
$lnSize_{t-1}$	+	0.3086*** (63.65)	1.6089*** (17.90)
$lnContrib_t$	+	0.0351*** (9.69)	
$ZeroCont_t$	+	0.4786*** (8.47)	
$Cont\%_{t-1}$	?		-0.0481*** (-7.45)
$Debt_{t-1}$	+		1.5692*** (3.36)
Industry, state, and year dummies		Yes	Yes
	R^2	.5554	.1507
	N	36,226	36,226

a. See table 4.2 for variable definitions.
b. The sample consists of 93,409 NFP-year observations from 1992 through 2006. Data are taken from the IRS Statistics of Income Sample Files (SOI) compiled by the National Center for Charitable Statistics (NCCS).
c. T-statistics based on Huber-White robust standard errors clustered by NFP are presented in parentheses below coefficient estimates. *, **, and *** indicate two-tailed statistical significance at 10, 5, and 1 percent levels.

TABLE 7.7
Mean Comparison of Governance Mechanisms Adopted by NFPs Classified by Funding Profile[a,b,c,d]

Panel A: Government Grants

Variable	Grantee [d]	Non-Grantee [d]	t-value (difference)
Audit [b]	0.35	0.07	5.15***
Number on Board of Directors [c]	21	18	1.62*
	(N=100)	(N=100)	

Panel B: Investment Income

Variable	Lowest InvInc% decile [d]	Highest InvInc% decile [d]	t-value (difference)
Audit [b]	23	11	2.28**
Number on Board of Directors [c]	15	23	-3.05***
	(N=100)	(N=100)	

a. The sample consists of 100 randomly generated NFP-year observations with government grants, 100 with no government grants, 100 from lowest InvInc% decile, and 100 from highest InvInc% decile. Data are taken from the Digitized Data compiled by the National Center for Charitable Statistics (NCCS).
b. Audit is coded one if an organization is audited and filed with the Federal Audit Clearinghouse for the year, and zero otherwise.
c. I hand-collect information on number of board members from GuideStar (http://www2.guidestar.org).
d. Grantees are NFPs that receive government grants and non-grantees are NFPs that don't. I classify Grantees vs. Non-grantees because more than a half of my sample does not receive government grant and thus this provides a more meaningful classification than deciles. NFP-years in the lowest (highest) InvInc% decile is the ones in the bottom (top) ten percent when I classify NFP-years into deciles based on InvInc%.
e. *, **, and *** indicate two-tailed statistical significance at 10, 5, and 1 percent levels.

TABLE 7.8
NFP Fixed Effects Analysis[a,b,c]

$$\ln CEOcomp_{i,t} = \alpha_0 + \alpha_1 Grant\%_{i,t-1} + \alpha_2 InvInc\%_{i,t-1} + \alpha_3 lnSize_{i,t-1} + \alpha_4 lnContrib_{i,t} + \alpha_5 ZeroCont_{i,t} + \sum \alpha_j State_j + \sum \alpha_k Industry_k + \sum \alpha_l Year_l + \varepsilon_{1i,t} \quad (1)$$

$$ProgExp\%_{i,t} = \beta_0 + \beta_1 Grant\%_{i,t-1} + \beta_2 InvInc\%_{i,t-1} + \beta_3 lnSize_{i,t-1} + \beta_4 Cont\%_{i,t-1} + \beta_5 Debt_{i,t-1} + \sum \beta_j State_j + \sum \beta_k Industry_k + \sum \beta_l Year_l + \varepsilon_{2i,t} \quad (2)$$

Variable[c]	Predicted Sign Model 1/Model 2	Model (1)	Model (2)
Intercept	?	9.6904*** (22.82)	28.3483*** (3.32)
$Grant\%_{t-1}$	-/+	-0.0002 (-0.95)	0.0223*** (5.52)
$InvInc\%_{t-1}$	+/-	0.0002* (1.68)	-0.0157*** (-5.38)
$lnSize_{t-1}$	+	0.1329*** (32.96)	2.7665*** (33.76)
$lnContrib_t$	+	0.0104*** (7.20)	
$ZeroCont_t$	+	0.0911*** (4.90)	
$Cont\%_{t-1}$	?		-0.0185*** (-6.57)
$Debt_{t-1}$	+		-1.2153*** (-5.51)
NFP fixed effects		Yes	Yes
Industry, state, and year dummies		Yes	Yes
	R^2	.2898	.0272
	N	93,409	93,409

a. See table 4.2 for variable definitions.
b. The sample consists of 3,020 NFP-year observations from 1998 through 2003. Data are taken from the Digitized Data compiled by the National Center for Charitable Statistics (NCCS).
c. T-statistics based on Huber-White robust standard errors clustered by NFP are presented in parentheses below coefficient estimates. *, **, and *** indicate two-tailed statistical significance at 10, 5, and 1 percent levels.

CHAPTER 8

CONCLUSION

This study investigates the association between governance and agency costs in not-for-profit organizations. I use resource dependency theory to argue that different funding sources are associated with different levels of monitoring. My analysis suggests that NFPs that derive a greater proportion of their revenue from government grants exhibit lower agency costs, measured as lower CEO compensation and a higher program expense ratio. In contrast, NFPs that derive a greater proportion of their revenue from investment income pay more to their CEO and have lower program expense ratios. The results persist even after controlling for the presence of an independent audit. In further sensitivity analyses, I detect an influence of NFP funding sources on agency costs across the size distribution of my sample and in all major industry segments. The results are also robust to restricting the sample to observations with more reliable program expense ratios. I find that the main results are robust to including two additional control variables, program service revenue and restricted net assets. I also find that NFPs adopt monitoring mechanisms in response to demands associated with funding sources. Finally, the results are robust to controlling for fixed effects on the NFP level.

This study makes several contributions. Understanding governance issues faced by not-for-profit organizations is important given the growing size and economic importance of this sector. Although prior studies provide important insights, they typically stop short of directly examining the association between governance mechanisms and agency costs. Those that do

tend to focus on the role of the board of directors, which limits the analysis to large, national charities, sometimes in a single industry (Brickley et al. 2003; Callen and Falk 1993; Olson 2000). To my knowledge, I test the association between governance and agency costs using the largest and most diversified (in terms of both size and industry representation) sample of NFPs to date, and therefore my inferences are more generalizable to the nonprofit segment as a whole.

I also introduce a new method of measuring NFP governance that is available for all entities that file a Form 990. This approach will allow future researchers to focus on the many smaller organizations which comprise a significant portion of the nonprofit sector, but have not been examined due to the lack of information on traditional governance measures, such as board structure. Such studies can contribute to the understanding of nonprofit governance answering a call by Ostrower and Stone (2006) to include smaller NFPs in research samples.

This study is subject to several limitations. First, although this study includes smaller NFPs compared to prior studies on NFP governance that focus on very large NFPs, the average size of NFPs included in my sample is still somewhat large because most NFPs included in the NCCS data have total assets greater than $30 million. Future research could investigate the generalizability of my results to smaller NFPs, although hand collection of data would be necessary. Second, although the program expense ratio is an efficiency measure that is frequently used for NFPs, it is often criticized for its simplicity. Although I control for potential manipulation of the program expense ratio, to the extent that my models do not capture the manipulated portion of this ratio, the results may be biased.

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