Does Overhead Spending Affect Fiscal Performance of Nonprofits?

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Executive summary

Overhead spending has been used to view nonprofits for decades. Donors consider overhead cost as extra "price" of a donation's impact and would like to apply limits on overhead costs, thus improving impact ratios. However, nonprofit practitioners and researchers claim that constraints on overhead spending may hinder organizational development. This paper aims to analyze whether overhead spending affects positive fiscal performance.

The research employs the NCCS (National Center for Charitable Statistics) database containing all the data reported on IRS 990 Forms from 1,397 arts, culture and humanities organizations from 2000 to 2003. This paper uses two regression models to evaluate the lagged effect of overhead spending on the change of net assets and the lagged effect of net assets on overhead spending, based on selective samples from the initial database.

The results show a complex relationship between overhead spending and the change of net assets. The first model detects that less overhead spending leads to greater change of net assets in the following year, but the second model suggests more net assets leads to more overhead spending in the next year. It's a feedback loop rather than a one direction relationship. In addition, results from the first model show that the overhead ratio, (not spending) doesn't matter for any change of net assets in the following year, which is consistent with the argument by nonprofit managers. Total revenue and total assets are positively related to the change of net assets, which means the growth and size of the organization relates to fiscal performance as well. Sample selection has effect, but not a lot, on finding significant results.

The author recommends that nonprofits need to strike a balance between reducing overhead and spending for growth, and that donors not look at the overhead ratio in terms of fiscal performance.

Keywords: nonprofit, overhead, fiscal performance, arts organizations

Background

The nonprofit sector in U.S. relies highly on donations and grants. According to 2009 data from the National Center for Charitable Statistics (NCCS), grants and contracts from government cover 32.1 percent of the total revenue of registered nonprofits reporting to the IRS, while 13.6 percent of total revenue is generated from private sources including private foundations. In addition to grants and donations, 52.4 percent of total revenue was fee-for-services from private sources. But health organizations and education nonprofits accounted for a large portion of fee-for-service revenue, such as health insurance and tuition. Therefore, for other types of nonprofits, the reliance on grant and donations is more than what the percentage actually shows.

The above funding pattern has been shaped in the past three decades. The need of evaluating nonprofit performance is a product of the change in the funding pattern. Most of the modern-type nonprofits in the U.S. started to grow from the early 1970s with increasing government spending on social programs, known as the Great Society Programs (Salamon, 2002). However, beginning in the 1980s, federal spending for many social programs was sharply reduced or changed into individual voucher-type subsidies instead of direct support. The shift of the funding pattern has forced nonprofits to compete for customer dollars and revenue sources with other organizations. With less support from government, nonprofits sought more private contributions including foundation grants and individual donations. However, the current recession has exacerbated the severe competition among nonprofits on getting grants and donations.

According to the survey from Johns Hopkins Nonprofit Listening Post Project (Salamon, et al, 2009), during the target period of September 2008 to March 2009, 51 percent of responding organizations reported declining revenue and 83 percent reported some level of fiscal stress. Facing to the increasing needs of nonprofits, donors have been seeking means to decide which organization they would like to support. Therefore performance of nonprofit has become a meaningful topic for both researchers and practitioners.

Performance of nonprofits has two faces, mission performance and fiscal performance, coming from the dual objectives of nonprofits: mission accomplishment and financial sustainability. Donors and other stakeholders outside nonprofit organizations always focus more on mission performance and that nonprofits should make every effort they can to achieve the expected impact. But nonprofits also need to maintain financial sustainability which will keep the organization continually available to provide services. Better fiscal performance would demonstrate the growth of the organization and its management capacity. Even from donor's perspective, donations will be more likely to go to organizations without deficits.

Problem

Overhead spending and the overhead ratio have been controversial with regards to nonprofit performance. For nonprofits, overhead refers to the indirect cost coming from administration or fundraising rather than direct program costs. Donors always view overhead cost negatively because it seems mission unrelated. They consider overhead as

the extra "price" of donations for the anticipated impact (Weisbrod and Dominguez, 1986). It is the prevailing psychology that donors want to see every penny of their donations go directly to the program rather than advertisements or salary for an accountant. As a result, donors will be less likely to support nonprofits with higher overhead rates. Currently most foundations set a maximum overhead rate at 20%, of donations as described in Bridgespan's report (2008).

However, nonprofits are struggling with having less resource for overhead. To keep the organization functioning well and to grow, a nonprofit has to invest in administration and infrastructure. Nonprofits argue that overhead spending ensures the competency and the capability of the organization to support its service. Maintaining low overhead rate would discourage nonprofits from spending on administrative organizational improvement which is critical to long-term development. In addition, to generating more revenue, nonprofits need to hire grant writers or purchase donor databases and these enhancements will all go to overhead costs. Other than that, recently there are legislature efforts to apply internal control provisions in the Sarbanes-Oxley Act to nonprofits. If these regulations are made applicable to nonprofits, the overhead spending for nonprofits will have to be increased to meet the law's requirement and the needs of management.

The pressure from donors on overhead would also create an unexpected effect. To maintain lower overhead rates, nonprofits would either have to stay with current infrastructure and current productivity or allocate money from overhead to program

spending and "hide" the true cost. These approaches would give donors the misperception that nonprofits can "really" function with a low overhead rate and consequently, few donors would think to alleviate the overhead funding pressure. An article from Stanford Social Innovation review (Goggins and Howard, 2009) has described this effect as a "Nonprofit Starvation Cycle": misleading measurement gives donors unrealistic expectations about real costs, which will lead nonprofits to misrepresent overhead costs. This Misrepresentation would then bias donors' expectations and result in smaller donations, leaving more nonprofit struggling or starving for overhead funds.

Research Question

This paper will examine whether overhead spending has an effect on fiscal performance, a critical part of overall performance of nonprofit. Here fiscal performance is presented as the change in net assets from year to year. Net assets refers to the net resource generated from continuing operations. The mission of nonprofits is not to generate revenue, so net assets have less focus. However, the change of net assets comes from total revenue minus total expense and it means surplus or deficit in a given current year. Therefore, the change of net assets would largely reflect fiscal performance by definition. It's very likely that a nonprofit under effective management will receive more and spend more wisely, which will be shown by a positive change in net assets. Therefore, the specific research question is: does overhead spending affect the change of net assets in the

following year? This question will be analyzed in Model I, to test the lagged effect from overhead spending on the change of next year's assets.

This paper will also answer a sub-question: whether net assets have an effect on overhead spending in the following year. This question will be analyzed in Model II, to test the lagged effect of net assets on overhead spending. Now the two things are in opposition to the above question. There is no endogenous issue for the two research questions, because both models are using lagged independent variables. What happened in the past will affect future, but the future cannot affect past. Also, because the values of the two variables are not from the same year, the equations are not a numbers game. The effects I want to analyze are about management decisions, the decisions that will be reflected in the financial figures.

Literature Review

The use of financial ratios, especially the overhead ratio, on nonprofits

Financial ratio analysis has now come to the nonprofit sector (Chabotar, 1989). The incentive was mostly attributed to the decline in government assistance and unfavorable economic circumstances. Nonprofits need to understand their financial status to overcome deficits. The overhead ratio (or program cost ratio, which equals to 1 minus overhead ratio, has been used for revealing how many supportive activities are needed for the organization to function. However, during the past decade, the use of financial ratios for nonprofits has become more than an internal analysis tool. Governments and

watchdogs have widely adopted ratio analysis as tools to measure nonprofit performance (Ritchie and Kolodinsky, 2003). It should be noted that although researchers have worked on defining nonprofit effectiveness, efficiency and performance, these three terms always have overlapped, meaning the and improvement of each one will consequently increase the credit of the other two. In both the research and practice area, a low overhead rate can be declared as improvement of effectiveness, efficiency and performance (Rojas, 2000). A study by the Urban Institute and Harvard's Hauser Institute (Fremont-Smith & Cordes, 2004) looked at 10 watchdog organizations that use financial ratios to monitor nonprofits and found the overhead rate is one of the five main ratios. Currently the overhead ratio has been widely used by charities to select grant recipients. A 2008 report published by Bridgespan shows that a wide expectation of the overhead rate among donors and government grant approvers is less than 20%.

The pro and cos of using overhead ratio

The advantages of using overhead indicators are similar to using other financial analyses: the data are objective, readily available, and easily compared. Early studies that introduced financial analysis into the nonprofit sector also stated the relevance of financial ratios on measuring performance (Mayston, 1985). Lower overhead rates attract donors as the organization can make greater use of money which is implicit as a business concept which leads to greater "productivity". However, critics from current studies argue that overhead rates fail to account for the realities faced by many organizations. Furthermore, overhead rates it is argued can be misleading, and even potentially

destructive. Tinkelman and Donabedian (2007) made a vivid metaphor in their article that employing solely financial ratios to measure nonprofit efficiency was just like going somewhere else to look for a lost key because there's better light there. Bowman (2006) argued that the overhead ratio is meaningless for comparing organizations. The destructive outcome of focusing on maintaining a low overhead rate has been tested in the case of the Avon Products Foundation's breast cancer walks. After changing its business and accounting practices to help with lowering the overhead rate, the foundation experienced a decline in the number of walkers and amounts of funds raised (Tinkelman, 2009).

Change of net asset as fiscal performance measure

There are few literature studies of the net assets of nonprofits. Baton and Simko (2002) defined net assets as a measure of "earing ability". For nonprofits, which don't have incentives to make profits, the change of net assets shows the "managing ability" of the organization's resources. Following GASB's standards, the change of net assets equals to total revenue minus total expense which is the sum of programs expense and overhead expense.

Misreporting on IRS 990 Forms

The main source for both the practitioners and researchers to get overhead rates is IRS 990 Form. Compared to the audited financial statements which are not always published, data from IRS 990 forms are much easier to be accessed. However, researchers have

argued that the misreporting on IRS 990 Forms limits the relevance and accuracy of the data. Therefore, the analysis based on those data could be less reliable. Froelich et al. (2000) conducted a comparison of financial data between IRS 990 returns and audited financial statement data among 350 organizations. The study concluded that the IRS 990 Forms can be considered as an adequate and reliable source for many types of investigations on financial information. However, Krishnan et al. (2006) stated that understated fundraising expenses in IRS Form 990 filings are widespread and appear to be associated with managers' incentives to report a lower overhead rate, both to attract donations and to increase their own compensation. The misreporting on IRS 990 forms may cause data error on samples in statistical models.

Statistical study on overhead rates

Surprisingly, in the past decades there are few empirical research studies that directly relate to the question of whether rational donor should focus on overhead rates and administrative costs to make donation decisions. Most recent studies have focused either on correlations instead of causality between financial ratios and organizational characters or the association between fundraising ratios and donations. These studies have mixed results and both significant and insignificant relationships have been prevalent. The relationship between the overhead ratio and organizational performance (net assets) has been less thoroughly studied.

The Urban Institute (Hager et. al, 2001) published a study on the influence of size, age, and subsector on overhead and fundraising efficiency measures, based on nation-wide data from IRS 990 Forms reported in 1999. This study employed multiple linear regression models to test the hypotheses and concluded that the overhead and fundraising ratio varies by size and subsectors among nonprofits. The study suggested that to apply financial measures to nonprofits, the industrial variation must be taken into account.

Certain researchers do claims that reported financial measures might "crowd out" donations, which proves the prevailing assumption that the overhead rate matters to donors. Bowman (2006) employed descriptive statistics and an ordinary Least Squares (OLS) model to reveal the relationship between the overhead rate of a nonprofit and the donations it receives. The data set included donation amounts that had been made through the Combined Federal Campaign in the Greater Chicago area. Donors in this campaign had full access to the overhead rates of all participating nonprofits, which means they could compare different participants and make donation decisions. Therefore the effect of overhead rate on donations could be evaluated. The study concludes that there is a negative relationship between changes in overhead ratios and changes in giving.

Financial vulnerability and overhead rate

Several studies on financial vulnerability have started to link overhead rate to organizational performance of nonprofits. Financial vulnerability refers to stages between financial sustainability and demise. Tuckman and Chang (1991) claimed four financial

situations that could lead to financial distress with low overhead rate as one of the four. To test the theory of Tuckman and Chang, Hager (2001) conducted logistic regression models to evaluate the influence of overhead cost, equity balance and revenue concentrations on the log-odds of organizational closure. The data source was from art organizations that reported Form 990 tax returns in the years from 1990 to 1992. The study shows that low overhead rates did indeed, to an extent, predict the closure of art organizations in future years. The author also examined the intercorrelations between the independent variables to test multicollinearity which turns out to be very low.

Based on the above studies, Denison and Beard (2003) built a more understandable interpretation of financial vulnerability of nonprofits, indicating reduced overhead cost is one of the five symptoms of financial distress which will finally lead to bankruptcy or closure of an organization. The studies on financial vulnerability actually raised question on using overhead rates to evaluate nonprofit performance. Forcing nonprofit organizations to keep low overhead may cause dysfunctional effects, which are entirely opposite to a donor's assumption that lower overhead shows efficiency and higher performance.

Models and variables

Although the theory of financial vulnerability mentions the relationship between overhead rate and organizational performance, few empirical studies have been done in

this area. Fortunately, references for models and variables can be found in the literatures about overhead and donations.

Weisbrod and Dominguez (1986) are the early researchers to plug standard economic reasoning into studies about donations. They view a donation as the "price" donors want to pay to see the direct impact of their money. Therefore, in this view, overhead cost is seen by donors as an "extra charge" on the price of program output. Posnett and Sandler (1989) have extended this theory to a "price model" representing the donor's sensitivity on the price of a donation. The fraction of overhead cost (total expense of administration and fundraising) is stated as negatively associated to the total price in this model, with controls on age, size and subsector.

In the study by Greenlee and Brown (1999), they used lagged independent variables (lagged administrative ratio and lagged fundraising ratio) in regression to explain the impact on donations. This research didn't control size and subsector but it employed the lagged effect from overhead ratios on donations the organization received. Frumkin and Kim (2001) further developed the above model and used log forms to measure variables which present spending and revenues but not as ratios. They used panel data of 2,359 organizations in 11 years, and all independent variables are lagged in each single regression. However, controlling for program spending and total revenue in their model increased multicollinearity and made the results unclear. Jacobs and Marudas (2003) reexamined Frumkin and Kim's (2001) study and claim that using the log form on all

variables including ratios and the control for random effects will help improve the robustness of the model.

To explain why previous researches contains mixed results, Tinkelman and Kamini (2007) have tested all the above models—price model (1989), Greenless and Brown's (1999) model, and Frumkin and Kim's (2001) model in three different datasets, implying model specialization and dataset selection could be the reason why prior research led to both mixed significant and insignificant results. There are several valuable suggestions resulting from this study: first, the choice of samples has a critical impact on getting significant results. When the samples are restricted to organizations that are donation dependent and with relevant data on IRS 990 forms, significant results are likely to be found. Second, to use regression models, the heteroscedasticity issue needs to be addressed by controlling subsectors, size and age. However, controlling program spending in addition to overhead rate may induce significant multicollinearity. Third, using log rather than raw ratio improves the robustness of the models.

Conclusion from literature review

Financial ratio analysis has been widely used to meet the donor's desire to compare and select nonprofits. Some empirical studies show that overhead rates matter to donors and affect donation levels. However, no research indicates what the appropriate level of overhead rates is. There is research evidence that overhead spending relates to the unique character of organizations, and one study shows that the level of overhead rate varies by

subsectors and size. Certainly, overhead rate along with other financial figures, offers advantages and disadvantages. However, researchers and practitioners have started to argue that reduced overhead rates may lead to higher financial vulnerability and result in organizational closure. Although there is little empirical research about overhead spending and fiscal performance, literature about the relationship between overhead rate and donations provide statistical reference on sample selection and model specification.

Research Design

Dataset and sample selection

I obtained my data from the IRS and NCCS (National Center for Charitable Statistics) databases with all the National Taxonomy of Exempt Entities (NTEE) Type A (art, culture and humanities) organizations registered under the IRS, including 32 subtypes ranging from museum to research institutes. This national data base includes all the data reported on IRS 990 forms from 1,397 organizations in four years (2000, 2001, 2002 and 2003). The NTEE system has been used by the IRS and NCCS starting inthe mid-1990s to classify nonprofit organizations- whether or not eligible to receive federal tax exempt status. Rather than simply classifying seven subsectors of nonprofits, the NTEE code system provides much more information about the real activities that a nonprofit undertakes. For instance, under major type B (Education), B11 (11 is the common code) a "single support organization" includes foundations that are created to support a single educational entity, e.g., the University of Wisconsin Foundation. Likewise, A11 are

foundations that do fundraising for a single art, culture and humanity-related entity but don't have direct program activities, e.g., the St Louis Art Museum Foundation.

According to Tinkelman and Kamini (2007), missing data would result in insignificant results because it increases the heteroscedasticity of the dataset. Therefore, I eliminated those missing reporting organizations to increase more restricted samples for regression. Meanwhile, even though these missing reporting organizations are indeed part of the industry, the missing data couldn't tell what happened and would mislead the study.

This study's aim is to analyze overhead as a resource that is taken from direct program spending. Therefore, the organizations in my sample should have direct program spending which means overhead cost is competing with program cost for total receipts, and also should be donation dependent rather than mainly relying on fee-for-service. Therefore, it makes more sense for the study to exclude foundation-type nonprofits, consulting-type organizations, advocacy groups, and other non-program nonprofits from the dataset. The sample selection criteria will reduce heteroscedasticity and provide a relative homogeneous population for the regression analysis.

The excluded organizations from the dataset are in the types below: A11, foundations that do fundraising for a single art, culture and humanity-related entity; A12, "Fund Raising & Fund Distribution", charitable foundations that support several entities; A01, Alliances and Advocacy organizations that focus on influencing policies and lobbying for art,

cultural and humanity types; A02, organizations that provide consultation, training, and other management assistance to nonprofit groups within major group A; A03, professional societies and associations that bring together individuals or organizations with a common professional or vocational interest; A05, research and/or public policy analysis organizations in major group A. A33, Printing and Publishing, organizations that publish a variety of materials on diverse topics, including university presses.

Table 1. Sample Selection

NCCS (2000-2003)	Number of organizations
Initial data obtain	**1397**
Less: organizations report for 1 year	(268)
Less: organizations report for 2 year	(260)
Less: organizations report for 3 year	(389)
Total 4-year reported organization	480
Less: A01 organizations- advocacy	1
Less: A02 organizations- consulting and management assistance	1
Less: A03 organizations- professional societies and associations	14
Less: A05 organizations- research and/or public policy analysis	0
Less: A11 organizations- single support foundation	32
Less: A12 organizations- charitable foundation	9
Less: A33 organizations- printing and publishing	12
Total full sample	**411**
Less: organizations with implausible data	142
Total restricted sample	269

There's also a need to narrow sample size. The study of Krishnan, et al. (2006) [20] stated that there are understatements of fundraising expense in IRS Form 990 filings. These understatements will bring irrelevant data into analysis and increase the error term in regression. Therefore, I screened out the organizations with "implausible" data for more than 1 year, defined as zero reported fundraising or administrative (Urban Institution, 2007).

Table 2. Sample composition by category

NTEE Code	Description	Full Sample	Restricted Sample	Difference	Diff./Full
A19	Support NEC	2	0	2	100%
A20	Arts & Culture	16	10	6	40%
A23	Cultural & Ethnic Awareness	14	6	8	57%
A25	Arts Education	14	10	5	33%
A26	Arts & Humanities Councils & Agencies	11	3	8	73%
A30	Media & Communications	5	3	2	43%
A31	Film & Video	8	2	6	74%
A32	Television	11	7	4	36%
A34	Radio	8	7	1	12%
A40	Visual Arts	5	3	2	43%
A50	Museums	22	16	6	27%
A51	Art Museums	40	35	5	12%
A52	Children's Museums	5	4	1	20%
A54	History Museums	36	21	15	41%
A56	Natural History & Natural Science Museums	9	7	2	21%
A57	Science & Technology Museums	13	12	1	8%
A60	Performing Arts	8	8	0	0%
A61	Performing Arts Centers	16	14	3	16%
A62	Dance	8	5	3	40%
A63	Ballet	5	4	1	20%
A65	Theater	47	30	17	36%
A68	Music	5	2	3	63%
A69	Symphony Orchestras	20	16	4	20%
A6A	Opera	9	7	2	23%
A6B	Singing & Choral Groups	3	1	2	67%
A6C	Bands & Ensembles	4	2	2	55%
A6E	Performing Arts Schools	7	5	2	24%
A70	Humanities	6	2	4	63%
A80	Historical Organizations	52	27	25	48%
	Total	**411**	**269**	**142**	

Table 1 indicates the selection criteria used to arrive at the sample used in the analysis. The initial number of reported organizations in the dataset is 1,397. After eliminating observations with missing data and irrelevant subtypes, the sample used for analysis is 411 organizations reported for all four years. The restricted sample has 260 organizations (64.7% of overall sample). In my analysis, I compare results from the full sample to the restricted sample. Table 2 presents the sample composition by category. It also shows that the "zero reporting" fact widely existed in most of the subtypes.

Variables

The overhead ratio is the administrative expense on IRS 990 forms (line 14-15, including general management and fundraising expense) divided by the total expense (line 17) for the same year. A larger ratio indicates that organizations put more resource on supportive management rather than direct programs. I chose the yearly change of net assets to present fiscal performance of the organization. The change of net assets comes from total revenue minus total expense and it means a surplus or deficit in the current year. It's very likely that a nonprofit under effective operation will receive more and spend wisely, which will be shown jointly by a positive change in net assets.

I assume the overhead ratio as part of the dynamic function of organizational development, types of organizations, size, and funding ability. Therefore, these characteristics will be controlled to explain the impact from/on overhead cost. I use total revenue to control the total receipt of the organization and use total assets to control the

size of the organization. All the raw amounts on 990 forms are divided by 1,000. The program features of organizations are defined by 31 NTEE subtypes, ranging from museum to research institutes. I use the NTEE code as dummy variables to control the unique feature in each subtype. I also use year dummy variables to control time period.

Thinking about the accounting side, overhead cost and change on net assets in the same year are highly endogenous. Because the more an organization spends on overhead, the less resource will be left in net assets. To solve this problem, I use lagged independent variables in the analysis. Overhead cost in last year will have little impact on the change on net assets in the current year, but it shows how much is internal management input in last year and it will have an impact on the current year's fiscal performance. Therefore, in Model I, I use lagged overhead cost (period t-1) to explain the change of net assets in period t. In Model II, I use lagged change of net assets (period t-1) to explain the overhead cost in period t. The panel data I have is for four-year periods, but to use lagged variables, three-year periods will be used (2001, 2002, and 2003, with 2000 as the base year). Although the lag model will sacrifice one year, data, time series data of three years is sufficient for the analysis.

I categories the overhead rate into five classes to identify the input level of the organization on administration: 0-10% as class 1, 10%-20% as class 2, 20%-30% as class 3, 30%-40% as class 4, 40%-100% as class 5. Although different levels of overhead cost may not explain the change on next assets, these levels indirectly reflect the size of

supportive and management teams inside the organization. In Model I, these levels are also lagged variables.

Previous researchers (Greenlee and Brown, 1999, and Tinkelman and Kamini, 2007) studying financial data on IRS 990 forms suggest that using log form on skewed financial measures would help to get significant results. However, to use log form, variables need to be of positive value. Because the change of net assets could be either positive or negative, I have to give up using log forms. Even if I can add a base value to adjust all the changes on net assets into positive, it will make the data lack less relevance.

Table 3. Descriptive statistics- overall sample and restricted sample

	Overall sample (411)			Restricted sample (269)		
	Mean	Median	SD	Mean	Median	SD
Overhead cost $_{t-1}$	2,428.34	382.71	6,115.57	3,365.39	1,142.42	7,205.82
Overhead cost $_t$	2,489.51	388.45	6,092.72	3,449.13	1,239.74	7,159.20
Overhead ratio $_{t-1}$	26.38%	23.20%	0.1920	29.43%	26.20%	0.1688
Change on net asset $_t$	1,754.59	13.28	13,404.45	2,420.82	63.05	16,326.25
Total revenue $_t$	13,739.62	1,965.70	40,205.47	17,666.47	5,334.84	41,173.49
Total asset $_t$	47,193.42	6,188.32	128,122.30	66,401.42	17,000.00	153,139.00
Net asset End Bal $_{t-1}$	37,314.39	5,155.61	98,750.49	53,122.60	13,518.00	118,021.20

* Year in dataset: 2000, 2001, 2002, 2003
* Overhead cost, Change on net asset, total revenue, total asset and the ending balance of net asset are numbers in thousands.

Table 3 contains key summaries of data in both the two samples. It can be seen that the mean and median of the overhead ratio in full samples are both less than the ones in the restricted samples. That's because we delaminated organizations with zero fundraising or administrative costs in the restricted sample. In addition, the average of total assets and total revenue in the overall samples are much less than the ones in the restricted samples, indicating that there are more small nonprofits in the overall sample. This trend also suggests that organizations that report "zero fundraising and/or administrative expense" are likely to be small nonprofits with lower revenue and fewer assets.

Methods I and results

In Model I aim to find whether overhead rate in last period will have an impact on the current year's change of net assets. Based on the time series data in three periods, I chose fixed effect models to run the regression. The model is:

Change on net asset $_t$ = F(overhead cost $_{t-1}$, overhead ratio dummy $_{t-1}$, total asset $_t$, total revenue $_t$, NTEE Type dummy variables, Year dummy) t=2, 3, 4.

I analyze both the overall sample and restricted samples. Key variables and significant results are listed in Table 4. Complete results are listed in Appendix A.

Table 4. Significant Result from Model I

Dependent var. :change of net asset $_t$	Overall Sample		Restricted Sample	
	Coefficient	*t-stat*	*Coefficient*	*t-stat*
Overhead cost $_{t-1}$	-1.82***	-4.92	-1.93***	-4.21
Dummy-Overhead ratio 10-20% $_{t-1}$	-3,184.56	-1.43	-9,587.02**	-2.22
Dummy-Overhead ratio 20-30% $_{t-1}$	-964.50	-0.37	-5,460.18	-1.18
Dummy-Overhead ratio 30-40% $_{t-1}$	913.08	0.32	-3,241.53	-0.66
Dummy-Overhead ratio >40% $_{t-1}$	2042.02	0.69	-483.55	-0.09
Total asset	-0.16***	-5.81	-0.16***	-4.71
Total revenue	0.44***	11.74	0.44***	9.41
Subtype- Media and Communication	-35,637.42***	-2.35	-33,175.67*	-1.8
Year 2003	4,406.94***	5.33	6,662.82***	5.35
Constant	6,676.08	1.29	15,365.94**	2.11

1. ***: p value<0.01, **: p value<0.05, *: p value<0.1,
2. The based dummy variable of overhead ratio is overhead ratio below 10%.
3. The based year dummy variable is year 2001 while 2000 is used for the lagged values.
4. Restricted sample drops organizations reports zero fundraising or administrative expense.

The significant levels of the coefficient in both samples indicate the relationship does exist. The lagged effect from last year's overhead cost on current year's change of net asset is negatively significant, which means more overhead cost in previous year will decrease the change of net assets in the current year, controlling everything else. However, the levels of overhead ratios are statistically insignificant, which provides a mixed result. If we take more changes of net assets as improvement on fiscal performance, lower overhead spending in the previous year leads to better fiscal performance, but the ratio of the spending does not matter. Only in the restricted sample,

the class 2 overhead ratio (10-20%), is significantly different from class 1 (0-10%), meaning being in class 2 will have $9,587,020 less change in average on next year's net asset compared to being in class 1.

Because the effects are lagged, the relationships are not endogenous. What happens today cannot change the past. These mixed results imply that less overhead cost in a previous year will increase the change of net assets in next year, but the ratios of the spending in the previous year doesn't matter. In contrast, more spending on overhead in the previous year will lead to less positive change of next year's net assets. It's possible that organizations that spent more in management in the previous year have to keep an increased administrative expense level in the next year but can't immediately find increased revenue to cover the expense. It's also possible that organizations that cut unnecessary costs in the previous year improve efficiency and save more for net assets. Although there may be a "crowding-out" effect on donations because of higher overhead reported, the total revenue was controlled for the effect. The positive relationship between total revenue and total assets suggests that organizations having larger revenues will likely have more positive change of net assets. If the total cost also increases with the increased overhead cost, as a result of organizational growth, then the overhead ratio can't reflect this, but the increase on total assets and total revenue can. This means the growth on revenue and assets are important for improving financial performance.

Back to the topic of this paper, the results suggest to donors that the overhead ratio doesn't closely relate to fiscal performance of a nonprofit. Donors may still view overhead as an extra price of their donation, but no specific overhead ratio would predict the fiscal performance of organizations. For better fiscal performance, saving costs in the prior year and bringing more revenue in the current year seems to be relevant. However, to raise more funding, organizations need to spend more on fundraising expense and other overhead, which means organizations always need to find a balance between spending and fundraising. It also suggests that organizations having increased revenue and zero fundraising expense may not exist.

When comparing the full sample to the restricted sample, the results are largely similar. One thing needs to be noted: that the restricted sample eliminated zero reporting organizations which made the overhead ratio dummy for 10%-20% become statistically significant. It also suggests that missing data will likely lead to insignificant results. The R-square for both samples are quite low (less than 0.3), which means even for the same organization, the change of net assets depends more on the fixed effect which is within the organization itself. In this case, each organization has its own features and a common overhead ratio may not apply to all such organizations.

I also run an ANOVA test to see whether each subtype organization had a different overhead ratio. The result in Table 5 shows significant difference. Group means by NTEE subtypes are listed in Appendix B.

Table 5.Anova test

	Full Sample	Restricted Sample
F-statistic	4.31	2.18
Observation (number of organization *3)	1233	806

Methods II and results

In the second model, the direction is opposite. The dependent variable is the overhead ratio in the current period, while the balance of net assets in the previous period is the independent variable. I used the overhead ratio rather than the overhead ratio dummy to control the spending in the previous year. The model is:

Overhead cost $_t$ = F(Balance of net asset $_{t-1}$, overhead ratio dummy $_t$, total asset $_t$, total revenue $_t$, NTEE Type dummy variables, Year dummy) t=2, 3, 4.

Key variables and results are in Tables 6. Complete results are listed in Appendix C.

The coefficient of lagged net assets indicated that the more net assets are left from the previous period, the more overhead cost in average will be spent in the current period, controlling for other variables. It's reasonable to expect that organizations with more revenue left in hand will invest more in administrative (compensation) or internal improvement. And likewise, nonprofits with lower balances of net assets from the

previous year will be less likely to increase overhead input, which may be associated with pressure from donors or financial distress. In addition, total revenue is significantly related to the spending level of overhead, implying that if an organization generates most revenue, it will also spend more on overhead. The result also suggests that the overhead ratio will not have effect on next year's overhead cost. There is not much difference between the two samples. Although the restricted sample includes more small nonprofits and more zero overhead expenses, the coefficients don't change much, meaning the size of the nonprofit doesn't matter in this case.

Table 6. Significant Results from Model II

Dependent var.: overhead cost $_t$	Overall Sample		Restricted Sample	
	Coff.	*t-stat*	*Coff.*	*t-stat*
Net asset $_{t-1}$	0.041***	8.65	0.042***	7.22
Overhear ratio $_{t-1}$	51.57	0.14	-229.68	-0.36
Total asset $_t$	-0.0042	-1.39	-0.0045	-1.21
Total revenue $_t$	0.011***	3.46	0.009**	2.39
Subtype - Media and Communication	3,199.52***	2.35	(Omitted)	
Subtype – Radio	(Omitted)		-3,561.35**	-2.13
Constant	1082.07***	2.7	1379.10***	2.6

1. ***: p value<0.01, **: p value<0.05, *: p value<0.1,
2. The based year dummy variable is year 2001 because 2000 is used for the lagged values.
3. Restricted sample drops organizations reports zero fundraising or administrative expense.

Conclusion and recommendation

The results show a complex relationship between overhead spending and the change of next year's assets. The first model detects that less overhead spending leads to more

change of net assets in the following year, but the second model suggests more net assets leads to more overhead spending in next year. It's a feedback loop rather than a one direction relationship. In addition, results from the first model show that the overhead ratio does not matter for a change of net assets in the following year. Therefore donors should not look at the overhead ratio in terms of fiscal performance. Total revenue and total assets are positively related to the change of net assets, which means the growth and size of an organization relate to fiscal performance as well. Based on these results, it is recommended that nonprofits strike a balance between saving on overhead and spending for growth.

Limitation and future study

Although IRS 990 Forms include complete financial data of nonprofits, misreporting and missing data and reports limit the relevance of the data. In addition, this data set constrains the study of other nonfinancial characteristic of nonprofits. It would be a robust regression analysis if future research could combine the data set of IRS 990 financial data and the data set of direct impact for certain types of nonprofits. For instance, one could perhaps compare overhead costs with the accomplishments of students as the mission of an educational organization.

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Appendix A. Result of Model I

Dependent variable :change of net asset (period t)	Overall Sample				Restricted Sample		
	Prob > F =		0.0000		Prob > F =		0.0000
	R-sq within	=	0.242		R-sq within	=	0.258
	R-sq betwee	=	0.112		R-sq betwee	=	0.126
	R-sq overall	=	0.010		R-sq overall	=	0.011
	Coff.		t-stat		Coff.		t-stat
Overhead cost t-1	-1.82	***	-4.92		-1.93	***	-4.21
Lagged Overhead ratio 10-20% t-1	-3,184.56		-1.43		-9,587.02	**	-2.22
Lagged Overhead ratio 20-30% t-1	-964.50		-0.37		-5,460.18		-1.18
Lagged Overhead ratio 30-40% t-1	913.08		0.32		-3,241.53		-0.66
Lagged Overhead ratio >40% t-1	2,042.02		0.69		-483.55		-0.09
Total asset	-0.16	***	-5.81		-0.16	***	-4.71
Total revenue	0.44	***	11.74		0.44	***	9.41
Year 2002	1,090.25		1.34		1,883.56		1.53
Year 2003	4,406.94	***	5.33		6,662.82	***	5.35
Alliances & Advocacy	-3,514.42		-0.20		-7,667.84		-0.32
Support NEC	-				-		
Arts & Culture	1,166.76		0.11		-1,697.17		-0.11
Cultural & Ethnic Awareness	-				-		
Arts Education	5,094.11		0.51		1,858.37		0.14
Arts & Humanities Councils &	-2,211.00		-0.09		3,744.59		0.31
Media and Communication	-35,637.42	***	-2.35		-33,175.67		-1.8
Film & Video	-2,702.77		-0.19		-		
Television	-				-		
Radio	-				-		
Visual Arts	-3,939.62		-0.15		-		
Museums	-1,725.95		-0.16		-4,160.11		-0.25
Art Museums	-6,073.45		-0.65		-12,088.06		-0.91
Children's Museums	-				-		
History Museums	2,186.56		0.25		-7,340.16		-0.3
Natural History & Natural	923.66		0.05		-		
Science & Technology Museums	-1,756.27		-0.12		-4,648.31		-0.22
Performing Arts	-1,039.77		-0.05		3,237.89		0.15
Performing Arts Centers	5,027.02		0.28		14,374.83		0.6
Dance	8,078.57		0.41		-		
Ballet	-				-		
Theater	-				-		
Music	-				-		
Symphony Orchestras	-				-		
Opera	5,021.08		0.22		13,046.03		0.44
Singing & Choral Groups	-				-		
Bands & Ensembles	-				-4,173.07		-0.25
Performing Arts Schools	2,650.97		0.19		-		
Humanities	-3,470.13		-0.20		-5,153.19		-0.24
Constant	6,676.08		1.29		15,365.94		2.11

***: p value<0.01, **: p value<0.05, *: p value<0.1

Appendix B

NTEE Code	Description	Full Sample	Restricted Sample
A01	Alliances & Advocacy	46.9%	46.9%
A19	Support NEC	6.0%	-
A20	Arts & Culture	31.1%	34.2%
A23	Cultural & Ethnic Awareness	27.7%	28.0%
A25	Arts Education	22.9%	29.4%
A26	Arts & Humanities Councils & Agencies	20.4%	17.6%
A30	Media & Communications	19.9%	26.0%
A31	Film & Video	15.6%	14.8%
A32	Television	26.4%	33.5%
A34	Radio	22.7%	23.6%
A40	Visual Arts	20.1%	28.6%
A50	Museums	36.0%	36.8%
A51	Art Museums	32.6%	32.9%
A52	Children's Museums	29.4%	34.9%
A54	History Museums	32.1%	33.4%
A56	Natural History & Natural Science Museums	29.3%	29.0%
A57	Science & Technology Museums	25.0%	26.1%
A60	Performing Arts	30.6%	30.6%
A61	Performing Arts Centers	27.9%	30.8%
A62	Dance	15.6%	23.3%
A63	Ballet	16.8%	18.6%
A65	Theater	20.6%	26.1%
A68	Music	12.4%	27.9%
A69	Symphony Orchestras	22.7%	24.9%
A6A	Opera	21.9%	23.4%
A6B	Singing & Choral Groups	12.3%	19.8%
A6C	Bands & Ensembles	18.3%	29.7%
A6E	Performing Arts Schools	25.5%	29.0%
A70	Humanities	25.0%	17.5%
A80	Historical Organizations	29.4%	31.1%

Appendix C. Results from Model II

Dependent variable: overhead cost (period t)	Overall Sample				Restricted Sample		
	Prob > F = 0.0000				Prob > F = 0.0000		
	R-sq within	=	0.150		R-sq within	=	0.156
	R-sq betwee	=	0.720		R-sq betwee	=	0.668
	R-sq overall	=	0.710		R-sq overall	=	0.658
	Coff.		t-stat		Coff.		t-stat
Net asset t-1	0.04	***	8.65		0.04	***	7.22
Overhear ratio t-1	51.57		0.14		-229.68		-0.36
Total asset	0.00		-1.39		0.00		-1.21
Total revenue	0.01	***	3.46		0.01	**	2.39
Year 2002	-24.42		-0.37		-30.03		-0.30
Year 2003	0.76		0.01		20.40		0.20
Alliances & Advocacy	-280.32		-0.19		-		
Support NEC	-				-905.77		-0.71
Arts & Culture	-729.18		-0.81				
Cultural & Ethnic Awareness	-				-		
Arts Education	-433.40		-0.53		-284.16		-0.26
Arts & Humanities Councils &	-729.14		-0.36		-51.49		-0.05
Media and Communication	3199.52	***	2.35		-		
Film & Video	-8.09		-0.01		-		
Television	-				-		
Radio	-				-3561.35	**	-2.13
Visual Arts	-710.93		-0.32		-		
Museums	49.83		0.06		410.61		0.29
Art Museums	177.17		0.23		449.30		0.42
Children's Museums	-				-		
History Museums	-233.77		-0.32		496.27		0.25
Natural History & Natural	298.07		0.20		669.77		0.34
Science & Technology Museum	158.07		0.13		524.14		0.30
Performing Arts	-751.70		-0.45		-78.72		-0.05
Performing Arts Centers	-712.28		-0.49		-9.25		0.00
Dance	-				-		
Ballet	-				-		
Theater	-				-		
Music	-				-		
Symphony Orchestras	-				-		
Opera	-777.91		-0.42		-95.96		-0.04
Singing & Choral Groups	-				-		
Bands & Ensembles	28.35		0.02		-11.89		-0.01
Performing Arts Schools	33.88		0.03		-		
Humanities	-233.08		-0.16		-104.48		-0.06
Constant	1082.07	***	2.70		1379.10	**	2.60

***: p value<0.01, **: p value<0.05, *: p value<0.1