Does Revenue Diversification Really Matter? The Power of Commercial and Donative Distinction in the Nonprofit Arts

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Financial indicators are routinely used as a proxy for nonprofit mission effectiveness. This paper questions how reliable they are in predicting organizational program outcomes. After testing the effectiveness of revenue diversification measures in predicting attendance at nonprofit arts and cultural venues, the paper argues that a simpler explanation for nonprofit success can be found in the more basic question of what the primary funding source is for the organization. In competing these two financial predictors of nonprofit success, the analysis draws on a unique dataset from the Cultural Data Project (2004-2012) that covers over 5,000 nonprofit arts and cultural organizations. While revenue diversification is shown to be associated with a nonprofit arts organization bringing in a greater number of attendees over time, the results are largely dependent on how diversification is operationalized. A more traditional distinction between donations and earned income ultimately proves more reliable in explaining cultural attendance.

Keywords: Nonprofit financial indicators, revenue diversification, users versus funders, free programs, cultural attendance

Introduction

Substantial attention has been paid to identifying nonprofit financial ratios as an alternative measure for organizational ability to deliver mission-based programs, and revenue diversification has been one of the most commonly used indicators. The intuitive rationale for the close connection between fiscal health and nonprofit service capacity is clear. There seem to be no empirical studies, however, regarding the effectiveness of financial indicators to predict how nonprofits serve their constituents. This is partly attributable to the fact that comparatively assessing actual program outputs among a large number of organizations can be challenging. Since nonprofit services differ and their outputs may be difficult to measure, financial features have been appropriate substitutes due to their comparability across widely diverse nonprofit types. Without empirical evidence, it is still difficult to ascertain whether financial health indicators accurately predict the organization's capacity to serve.

Another research gap in previous studies is that there has been relatively little consideration of the primary funding mechanism for a nonprofit. The early nonprofit literature discussed nonprofit organizations in two ways: commercial nonprofits are funded primarily through program service fees whereas donative nonprofits survive mainly on contributions and grants (Hansmann, 1980). These two types of nonprofits operate in different funding structures and circumstances. For instance, a nonprofits' heavy reliance on donations will make its financial resources unstable given that contributions are often unpredictable and easily subject to sudden climate changes (Froelich, 1999; Grønbjerg, 1993). This fundamental distinction has received little attention in empirical studies on nonprofit financial vulnerability and how such two-way distinction can predict an organization's ability to serve its clients.

This study expands upon the previous research in several ways. First, it examines

whether financial indicators are effective in predicting actual program outputs of individual nonprofits. In particular, it begins by replicating the earlier study by Carroll and Stater (2009) that showed a positive effect of revenue diversification on revenue stability. In addition to looking at its effect on financial stability, which is believed to "directly affect the ability of nonprofits to provide programs, compensate staff, and promote mission awareness" (Carroll & Stater, 2009, p. 951), the present study investigates whether revenue diversification leads nonprofits to produce greater service outputs. Second, revenue concentration (inversely, diversification) is operationalized in four different ways to account for measurement sensitivity. Third, it brings scholarly attention back to the fundamental distinction between commercial and donative nonprofits. Fourth, a unique dataset compiled by the Cultural Data Project makes the current study more advantageous as it not only provides information about actual program outputs but also gives detailed information about revenue sources. Lastly, this study focuses only on nonprofit arts and cultural organizations, one of the major nonprofit subsectors, to provide more accurate estimates since funding and operational environment for nonprofits in different fields can vary widely.

Resource Dependency & Revenue Diversification Strategy

Resource dependence theory (Pfeffer & Salancik, 1978) suggests that "the key to organizational survival is the ability to acquire and maintain resources" (p. 2). A nonprofit's agility in reacting to environmental changes largely determines its success in fulfilling one's mission. Nonprofits constantly face financial instability, largely due to their dependence on third parties for funding (Froelich, 1999; Hodge & Piccolo, 2005). Although there are times that poor performance or financial mismanagement lead to a reduction in revenues, financial shocks for

nonprofits often occur from changes in individual donor preferences, changing criteria of charitable foundations, availability of institutional grants, or a loss of government support due to socioeconomic and political capriciousness. Thus, the higher quality of an organization's services does not reflectively translate into increased contributed income, and therefore it is essential for nonprofit managers to understand factors that influence their organization's ability to provide programming without interruption.

Given such circumstances, revenue diversification strategy has garnered a great deal of attention because it is a means to cope with financial risks related to resource dependency and revenue uncertainty (Carroll & Stater, 2009; Chang & Tuckman, 1996; Frumkin & Keating, 2011). Revenue diversification is originally derived from the modern portfolio theory (Markowitz, 1952), a basic tenet of which is that investors aim to maximize the expected rate of return and minimize risk by striking the right combinations of various assets in the portfolio. By diversifying funding mechanisms, a nonprofit can avoid drastic revenue downturns in the event of withdrawal or decline of one particular income source by increasing revenues from other sources. In other words, maintaining multiple funding bases creates a safety net for nonprofits. A number of empirical studies support the notion that diversified revenue bases decreases the likelihood of a nonprofit to become vulnerable financially (Carroll & Stater, 2009; Chang & Tuckman, 1996; Frumkin & Keating, 2011; Trussel, 2002; Greenlee & Trussel, 2000; Keating et al., 2005; Tuckman & Chang, 1991).

Although it has been generally embraced as a desirable strategy, some scholars caution that maintaining multiple funding mechanisms can impose greater administrative burdens (Grønbjerg, 1993). For instance, nonprofit recipients of government or foundation grants are often subject to substantial administrative requirements. Maintaining multiple revenue sources

also requires substantial managerial efforts to deal with complex relationships, such as meeting multiple funder compliance requirements, which can result in goal conflicts (DiMaggio, 1986; Tuckman, 1998). Maintaining numerous funding sources can be even more challenging when raising revenue from one source could also influence another source of income. The issue of government grants crowding out private giving is one of the frequently discussed topics in the nonprofit literature (see Kim & Van Ryzin, 2013). Some empirical studies provide evidence that revenue concentration strategy, rather than diversification, benefits nonprofit organizations by saving administrative and fundraising costs (Frumkin & Keating, 2011) and results in a positive growth in total organizational revenue over time (Chikoto & Neely, 2014). Even so, the benefits of revenue diversification strategy seem to outweigh its less favorable consequences.

Measurement Sensitivity of Revenue Concentration/Diversification

Revenue concentration/diversification has been typically operationalized using the Herfindahl-Hirschman Index (HHI). This approach provides an index based on how concentrated or evenly distributed a nonprofit's revenue is among selected categories. Nonprofit organizations receive individual donations, corporate contributions, foundation grants, government grants and contracts, membership dues, and fees for goods and services. In addition to these primary revenue sources, they also derive revenue from investment interest, rents, special events, and sales of inventories. Although some chose to employ more than three categories (Calabrese, 2012; Chikoto & Neely, 2014; Yan et al., 2009), a number of studies classified individual revenues into three categories: earned income, investments, and contributions (Carroll & Stater, 2009; Frumkin & Keating, 2011).

The HHI-based approach implies that all organizations are the same in terms of their

ability to diversify one's revenue structure and assumes that every organization generates revenues from each of the selected revenue categories. Using the three category criteria, a nonprofit that has no commercial or investment income but generates a wide variety of contributed revenue will show a highly concentrated revenue structure. In fact, this organization's revenue sources are well spread out. Findings in a recent study by Chikoto and Neely (2014) showed the sensitivity of revenue concentration measures to the choice of revenue categories used to calculate the index. In addition, the interpretation of the index can be somewhat misleading. A nonprofit that mostly relies on contributed income and another organization that generates the bulk of its revenue from commercial activities can show similar scores for the revenue diversification index. Nonetheless, the service outputs of these two nonprofits could differ substantially. The index obscures the nature of different revenue types; it focuses only on how equally distributed each kind of revenue is without giving relative weights to each revenue source. Another recent study (Mayer et al., 2014) showed that the compositional change in the portfolio modifies the revenue diversification effects on expected revenue growth as well as on revenue volatility. In short, there should be sufficient consideration regarding what combination of revenue categories should be used to measure revenue diversification.

Primary Funding Structure

In his 1980 article, Henry Hansmann classified nonprofits as either essentially "donative" or "commercial" depending on where they derive the majority of their income. This idea has been adopted sporadically in some studies. Commercial nonprofits tend to have more concentrated revenue streams compared to donative nonprofits (Chang & Tuckman, 1996) and donative nonprofits experience more fluctuations in their revenue streams (Carroll & Stater,

2009). Still, the literature does not connect the distinctions between donative and commercial enterprises to their ability to deliver services. For these two types, concern for funding constraints and competitors, major activities, and many other important aspects can vary widely. Donative nonprofits will be able to serve more people free of charge although their program decisions will be more constrained by funders' requirements. On the other hand, commercial arts nonprofits will be market-sensitive and more successful in attracting those who can pay for programs. Yet, they would not have enough financial capacity or willingness to offer free admission. In other words, understanding the predominant source of income can reveal more about a nonprofits' financial circumstance that determines the fate of its success. Hansmann's distinction between nonprofits may be somewhat extreme given that there are only a few nonprofits that are entirely donative or commercial. This simple distinction, however, can be an effective tool to predict nonprofits' ability to serve their constituents since a lot can be determined by the primary funding mechanism.

Previous Studies on Nonprofit Financial Indicators

Tuckman and Chang (1991) initially developed four indicators to predict a financially vulnerable organization that is "likely to cut back its service offerings immediately when it experiences a financial shock" (p. 445). Subsequent nonprofit studies continuously used financial ratios to develop better prediction models in terms of scope and methodological refinement (Greenlee & Trussel, 2000; Hager, 2001; Keating et al., 2005; Trussel, 2002; Trussel & Greenlee, 2004). A similar line of research has been developed in the context of predicting nonprofit revenue stability (Carroll & Stater, 2009; Jegers, 1997; Kingma, 1993; Mayer et al., 2014).

Tuckman and Chang's (1991) nonprofit financial indicators include revenue diversification, administrative expense ratio, operating margin, and equity balance. During a fiscal crisis, nonprofits can buffer their service provision by shedding some of their administrative costs before they need to reduce program offerings (Greenlee & Trussel, 2000; Trussel, 2002; Tuckman & Chang, 1991). The operating margin reflects the ability of a nonprofit to save or invest. This ratio yields the proportion of net income from a nonprofit's total revenue that can be used to grow or to draw from in the event of a fiscal shock (Greenlee & Trussel, 2000; Hager, 2001; Trussel, 2002; Tuckman & Chang, 1991). A nonprofit with a larger amount of equity balance can also better weather financial setbacks to maintain their programs (Greenlee & Trussel, 2000; Trussel, 2002).

In their seminal work, Tuckman and Chang (1991) suggested that the most effective way of measuring fiscal influence on nonprofit operation would be examining the changes in program outputs after financial shocks. They found it challenging to quantify program outputs of individual nonprofit organizations, not only due to difficulties in examining various types of programs, but also due to the lack of available data. Instead, they categorized organizations that are financially "at risk" or "severely at risk" using their four criteria. While they did not attempt to provide evidence on the predictability of these indicators, Greenlee and Trussel (2000) made the first attempt to build prediction models. They defined financially vulnerable nonprofits as those that exhibit significant reductions in program expenditures for a consecutive three-year period. Trussel and Greenlee (2004) and Trussel (2002) expanded the earlier model by redefining financial vulnerability as contraction of its net assets over three years. Using Tuckman and Chang's indicators, Hager (2001) estimated the closure of arts organizations. More recently, Carroll and Stater (2009) examined how revenue diversification and other financial measures

predict nonprofit revenue volatility. To summarize, nonprofit scholars have repeatedly examined financial indicators, including revenue diversification, to predict a nonprofit's ability to deliver mission-oriented programs. Scholars have experimented with various ways to operationalize financially vulnerable nonprofits, yet financial vulnerability does not necessarily mean that an organization will stop or reduce programs, although it is likely. Instead of looking at financial performance or organizational survival, this study empirically test whether financial indicators effectively predict the actual output of nonprofit programs. It specifically focuses on the reliability of revenue diversification index and distinction for the nonprofit primary funding mechanism. Table 1 provides a summary of the selected literature reviewed.

[Table 1]

Selection of the Sector

The nonprofit sector encompasses organizations that undertake a wide range of activities and disciplines, which include civic, advocacy, arts and culture, education, health, and human services. They also range in size from extremely large, such as major hospitals, universities, and major cultural institutions, to extremely small community organizations that operate only with volunteers. Even the subset of the nonprofit arts and cultural sector is so broad that it includes nonprofit theaters, dance companies, ballets, opera companies, symphony orchestras, museums, arts service centers, arts councils, historical societies, galleries, art institutes, and even fairs and festivals. Consequently, attempts to empirically analyze the entire nonprofit sector can easily lead to fallacy. Even though it is possible to control the subsectors as done in Carroll and Stater (2009), upon which this study builds, empirical estimations separately run for each subsector can

produce more reliable results than including sector dummy variables. Hence, this study focuses only on 501c (3) nonprofit arts and cultural organizations, one of the five nonprofit subsectors. The nonprofit arts sector is well suited for this study because arts groups have been particularly hard hit during the recent recession (Hoye, 2009). Also, arts organizations often operate under pressure to better justify their receipt of public funding and foundation grants in light of many other urgent needs, such as health and security. Thus, making strategic financial decisions is particularly important for nonprofit arts groups.

Measuring Program Service Outputs & Hypotheses

This study measures program service outputs in terms of how many people are served in a given year. While serving a larger number of people is desirable and can be an indication of program success, nonprofit arts and cultural organizations need to differentiate themselves from for-profit organizations in terms of how they serve their audience. To maintain their unique identity, it is critical for nonprofits to strike a balance between their multiple roles that include being mechanisms for people to express their social and cultural values as well as instrumental functions such as cultural service delivery (Frumkin, 2005). Nonprofits provide routes for donors and volunteers to express their interest in particular arts and cultural experiences and share those interests with others. Accordingly, many nonprofit arts organizations receive substantial donations and provide programs and events for free; they may even offer a portion of their admission tickets at no cost for those who could not otherwise afford to pay. Offering free programs and selling tickets to remain financially sustainable can inherently lead to a conflict of interest. As Frumkin (2005) states, "the managerial challenge, of course, is to bring the expressive and instrumental dimensions into alignment" (p. 24). This study shows how

nonprofit managers can better balance two seemingly contradictory goals by aligning fiscal and patron characteristics—paying versus non-paying audience groups.

The primary output variable in this study is (1) the number of total attendees at performances in a given year. It then looks at (2) the number of paying attendees, and (3) free attendees, as serving two groups incurs different types of expenses and revenues in nature. The study also examines how financial indicators predict (4) the percentage of people served for free out of all attendees and (5) the stability in overall attendance size. Attendance stability is the extent to which the actual number of attendees differs from the expected number of program offerings. The idea is taken from the deviation-from-trend approach, frequently used to measure revenue volatility. In order to make a comparison to Carroll and Stater (2009), (6) revenue volatility is tested prior to examining non-financial output variables. Given the discussion above and findings in previous works, the following hypotheses are developed:

H1: Revenue diversification is associated with greater total attendance (both paying and nonpaying) over time.

H2: Commercial nonprofits and donative nonprofits serve different proportions of paying and free attendees over time.

H3: Commercial nonprofits have greater stability in terms of total attendance size whereas donative nonprofits have greater instability in terms of total attendance size.

Data and Measurement

Most prior analyses are based on financial information from 990 Forms that each nonprofit files with the Internal Revenue Service (IRS). One of the major drawbacks of this

widely used database is that it lacks information about the actual output of nonprofit programs. This study benefits from using a unique dataset taken from the Cultural Data Project (CDP)[1], because it covers programmatic and operational information in addition to basic financial data. The CDP was begun by a group of public and private grant makers and arts advocates and has been operated by the Pew Charitable Trust until 2013 when it became an independent 501(c) 3 nonprofit. Initially, the CDP was designed as an online management tool for arts and cultural organizations that enables managers to enter financial, programmatic, and operational data into a standardized online form. Participating organizations can then produce a variety of reports to assist with their own management decision-making procedures or to use when applying to grant-making institutions. For example, there are over 260 funding programs that accept CDP reports as a part of the application package. This study covers participating organizations in Arizona, California, the District of Columbia, Illinois, Maryland, Massachusetts, Michigan, New York, Ohio, Pennsylvania, Rhode Island, and Vermont whose information was available for research as of 2013, when the data was obtained. The data is considered to be highly reliable because the CDP makes it available for research only after the reported information is reviewed by the CDP staff. The sample for this study covers all 501(c) 3 nonprofit arts and cultural organizations that filed a CDP form for the years 2004-2012. The CDP provides longitudinal data that have been collected since 2004, but the number of years observed for each organization varies due to a gradual expansion of the project. On average, the majority of organizations have 4 to 6 years of observations[2]. In summary, this study makes use of an unbalanced panel of around 15,000

[1] http://www.culturaldata.org/

[2] To overcome the potential bias attributable to the limited years of observations, each regression model was estimated with subset of sample that had longer years of observations. Results of regressions with different sets of sample parameters were qualitatively unchanged.

observations, covering approximately 5,000 nonprofit arts and cultural organizations[3], to expand upon earlier studies and further explore the relationship between financial indicators and actual nonprofit program outputs.

Dependent Variable

Total attendance (Section 11, line C3) is counted as the annual sum of paid and free attendees. For the number of total paid attendance (Section 11, line C1), organizations were asked "How many people paid an entrance fee to visit your organization, participate in your programming, or otherwise experience your organization's work, whether they were general visitors, ticket holders, members, subscribers, students taking classes, workshop participants or those attending outreach activities?" Organizations were also asked to report the total number of free attendees (Section 11, line C2) by answering the question, "How many people attended your organization, participated in your programming, or otherwise experienced your organization's work and paid no admission fee, whether your organization has no admission fee, or whether the visitor entered during a free admission period or had complimentary tickets to enter or attend? This includes students taking classes, workshop participants and those attending outreach activities." Using natural logarithms to transform these three variables made comparative assessments of variations in attendance among a large number of entities possible. Another two variables—the proportion of free attendees out of all attendees and instability in total attendance—also account for the differences in organizational size as they are measured in percentage terms. Following Carroll and Stater's (2009) approach to estimate revenue volatility, attendance volatility is calculated with an attendance growth trend regression model shown below:

[3] Due to the missing variables, the available number of observations varies slightly depending on the dependent variable.

$$\textbf{Attendance}_{it} = \exp(\alpha + \beta_{1t} + \beta_{2i})$$

The dependent variable, the natural log of the number attendees, is calculated as the absolute deviation of the residuals divided by the predicted value to measure the percentage deviation of actual number of attendance from the expected number for nonprofit (i) in year (t) based upon the organization's unique growth trend in total gross revenue. Organizations whose attendance largely fluctuates from year to year would have a greater value for this variable. Prior to examining the effectiveness of financial indicators on predicting nonprofit program outputs, the econometric model offered for the attendance is applied to the revenue volatility. Revenue volatility is measured by the standard deviation of revenues during the period, following the same steps described for the attendance volatility.

Independent Variables

In keeping with prior literature (Carroll & Stater, 2009; Chang & Tuckman, 1996; Greenlee & Trussel, 2000; Grønbjerg, 1993; Frumkin & Keating, 2011; Hager, 2001; Trussel, 2002; Tuckman & Chang, 1991), ten independent variables are included, either as predictors or to control for organizational factors.

The primary variable of interest is revenue concentration, which inversely measures revenue diversification. In light of previous studies that found the sensitivity of the index (Chikoto & Neely, 2014), it is measured in four ways. First is the often used three revenue streams—contributed income (section 3, line 33 on CDP form), earned income (section 3, line 20 on CDP form less investment), and investment (section 3, line 16, 17 and 18 on CDP form) (e.g., Carroll & Stater, 2009; Frumkin & Keating, 2011). The second way follows Yan et al. (2009) who separated government grants (section 3, line 25, 26, 27, and 28 on CDP form) from the rest

of contributed income, making four categories. Six categories[4] and ten categories[5] are also employed, taking advantage of richness in the CDP data. The index is calculated as the sum of squares of the percentage share of each revenue stream out of total revenues. A nonprofit relying on a single revenue source will have an index of 1 whereas an organization that equally depends on multiple sources will have a concentration index close to 0. To make the measurement interpretable, any negative revenues reported were set to $0, following Hager (2001). Total revenues were manually added from all revenue streams.

The other independent variables of interest are dummy variables to indicate commercial and donative nonprofits. A commercial nonprofit is operationalized as those who receive at least 60% or more of their revenue from commercial sources following Tuckman and Chang (1991). Several other criteria (when 55%, 65%, 70%, and 80% of their revenue was derived from commercial or donative sources) were used to address the measurement sensitivity, but regression results were qualitatively unchanged by these alternative criteria. The same logic was applied to create a dichotomous variable to indicate donative nonprofits. The portion of investment revenue was not included to create either of the variables.

The ratio of administrative efficiency is the proportion of administrative and fundraising expenses relative to total spending (Section 6, line 45 on CDP form). Operating margins[6] are total revenues minus total expenses divided by total revenues (Section 3, line 36 on CDP form).

[4] SIX categories: Board and individual contributions (Section 3, line 21 and 22), corporation and foundation giving (Section 3, line 23 and 24), government grants (section 3, line 25, 26, 27, and 28), other support (Section 3, line 28a, 29, 30, 30b, 30c, 31 and 32), investment (section 3, line 16, 17 and 18), and earned revenue (section 3, line 20)

[5] TEN categories: Board contribution (Section 3, line 21), individual giving (Section 3, line 22), corporate giving (Section 3, line 23), foundation grants (Section 3, line 24), government grants (section 3, line 25, 26, 27, and 28), other support (Section 3, line 28a, 29, 30, 30b, 30c, 31 and 32), investment (section 3, line 16 and17), interest and dividends (section 3, line 18), program revenue (section 3, line 1, 2, 3, 4, 5, 6, 9, 10, 10a, and 11), and commercial income (section 3, line 7, 7a, 8, 8a, 12, 13, 14, 15, and 19)

[6] A few extreme values was reset to a floor value of –25 (11 observations) or to a ceiling value of +25 (9 observations) to suppress the effect of outliers.

Then, a nonprofit's equity[7] is operationalized as the amount of net assets (Section 8, line 36 on CDP form) divided by total revenue.

Organizational size, a variable closely related to economies of scale, determines the ability of a nonprofit to offer programs (Calabrese, 2012; Carroll & Stater, 2009; Trussel, 2002). Following Calabrese (2012) and Froelich (2000), organization size is measured by the natural logarithm of total revenues. It is reasonable to speculate that in urban areas, competition in the arts and cultural industry could be greater since more entertainment substitutes are available. A dichotomous variable controls whether an organization is located in Metropolitan Statistical Areas, identified using zip codes (Section 1, line 11 on CDP form). Nonprofits are likely to experience significant changes in programming and staffing during the first few years of operation. Previous studies suggest that an organization's age (i.e. its years in operation) can be a proxy for a nonprofit's reputation, and organizations with many years of experience can be better at running programs (Hager, 2001; Tinkelman & Neely, 2010). The IRS ruling date for tax exemption has been often used as a proxy for the founding year (Tinkelman & Neely, 2010). Since not every organization obtains tax-exempt status in the year of foundation, organization age in this study uses the exact founding year of a nonprofit, available in the CDP data, to calculate an organization's age. Finally, the one year lag of dependent variable is also included in the empirical model to account for the potential influence of previous attendance on the following year. Table 2 lists how each variable is operationalized.

[Table 2]

[7] A few extreme values was reset to a floor value of –25 (39 observations) or to a ceiling value of +25 (71 observations) to suppress the effect of outliers.

Table 3 provides a summary and correlation matrix of all variables used in this study. It is noteworthy that the revenue concentration index decreases as the number of revenue categories increase. In addition, indicators based on fewer sets of revenue types are not highly correlated with those using more comprehensive categories. Among the observed, slightly more than half of organizations are identified as "donative," about 24% of them are "commercial," and the rest remain as neither donative nor commercial. According to the correlation matrix, the inter-correlations among the independent variables are generally very low.

[Table 3]

Empirical Models

$$ln\_Attendance_{it} = \beta_0 + \beta_1 Revenue\_Diversification_{it-1} + \beta_2 Donative_{it-1} + \beta_3 Commercial_{it-1} + \beta_4 Administrative\_Efficiency_{it-1} + \beta_5 Operation\_Margin_{it-1} + \beta_6 Equity\_Ratio_{it-1} + \beta_7 ln\_Total\_Revenue_{it-1} + \beta_8 Urban\_Area_{it-1} + \beta_9 Age_{it-1} + \beta_{10} ln\_Prior\text{-}year's\ Attendance_{it-1} + \alpha_i + u_{it}$$

The dependent variable is regressed using ordinary least squares with ten independent variables. Including fixed effects for organizations and years enables the estimation to capture the time-invariant heterogeneity within organizations as well as macro-level time-varying shocks that similarly affected all nonprofit organizations. This study hypothesizes the causal relationship between the defined dependent and independent variables, but it is possible to suspect a reversed causal relationship for some of the independent variables. The econometric model incorporates one-year lagged values of all independent variables except for the dichotomous variable (i.e., DONATIVE and URBAN) and AGE to overcome potential endogeneity bias since lagged variables can be considered exogenous variables (Kennedy, 1998). Further, a one-year lag for

each dependent variable is included as a control variable to address the potential influence of the prior year's service outputs on the current years (Wooldridge, 2006). Hausman's specification test indicated that the fixed effects model would be more appropriate for this data instead of the random effects estimator. To control for heteroskedasticity, robust standard errors are reported (Tinkelman & Neely, 2010). The consumer price index was used to adjust all financial variables for inflation to 2013 dollars.

Estimation Results

Table 4 provides the regression results of revenue volatility and log-transformed total number of attendance. Results show positive and statistically significant coefficients of revenue concentration for revenue volatility, which is consistent with Carroll and Stater (2009). For donative nonprofit arts organizations, revenue volatility is nearly 40% higher compared to others. This statistically significant result reflects the unstable and unpredictable nature of contributed revenues (Grønbjerg, 1993; Froelich, 1999). Overall, the four initial regression results for revenue volatility provide fairly solid ground for making comparative assessments of other empirical models that have non-financial output variables.

[Table 4]

Looking at results of total attendance, the principal interest of this study, it is clear that a one unit increase in revenue concentration leads to an average decrease in total attendance of approximately 30% over time. This finding suggests that arts nonprofits attract more attendees when they diversify revenue streams to greater extents. It confirms the first hypothesis and is not

unexpected since these nonprofits are also likely to have greater revenue stability that determines their capacity to serve. It is, however, notable that the statistical significance of the revenue concentration effect is not consistent across the four estimations using differently constructed indexes. To put it another way, how revenue types are categorized in each measure leads to different results.

For Hansmann's dichotomous nonprofit type indicators, donative nonprofits attract about 5% fewer attendees whereas commercial nonprofits draw 5% more visitors over time. The results recall the warning that unpredictable contributed incomes often disrupt nonprofit program operations (Froelich, 1999). It also means that donative nonprofits are more attuned to donors' interests whereas commercial nonprofits are more attentive to the market and care about what their target audiences want. Larger nonprofits appear to serve more people and the previous year's attendance determines how many people they will serve in the following year.

[Table 5]

The same econometric models are run for four different program outputs: (1) the log transformed number of paid attendance, (2) the log transformed number of free attendance, (3) the proportion of free attendance out of total attendance, and (4) attendance volatility. These sub-analyses allow for further interpretation of the effect of financial indicators, mainly revenue diversification and the donative and commercial distinctions. When looking at paying customers only, revenue diversification strategic actions do not appear to make a statistically significant impact. Revenue concentration, however, is negatively and statistically significantly associated with the absolute volume of free attendees, the proportion of free attendees, and attendance

volatility. Put another way, these arts organizations serve a larger number of free attendees, save more seats for those who cannot afford to pay for admission tickets, and see continuing patterns in attendance over time when they further diversify their income bases. Since revenue diversification leads to greater revenue stability, these organizations would be better equipped to extend their efforts to serve more people at no cost. Similarly, these nonprofits are better equipped to serve arts and cultural patrons as planned and therefore maintain the trend in terms of how many people are served in a given year. Yet again, the revenue concentration coefficients for these output variables are not consistently significant statistically, depending on how it was measured.

In line with the results on total attendance, commercial and donative nonprofits are statistically different with regard to attendance type, confirming the second hypothesis. Donative nonprofits serve 7% less paid attendance than the others over time, but these organizations do not seem to differ from others when it comes to offering free admissions and maintaining attendance stability. Commercial nonprofit arts organizations, on the contrary, bring in 8% more attendees who pay for admission tickets than other organizations. When it comes to serving people for free, the number of attendees at commercial nonprofits decreases by 175% on average over time. How much organizations spend on administrative and fundraising work also appears to influence how many patrons attend for free. Organizations that devote more resources to administration and fundraising activities offer more programs free of charge. It is presumable that these nonprofits rely on support from government and foundations that typically want nonprofits to serve a more diverse audience, including those who otherwise cannot afford to pay. But these organizations are likely to be pressured to fill out extensive paperwork to receive financial support. Those labeled as commercial nonprofit arts show strong stability in terms of the audience size they

attract over time. The result, which partially confirms the last hypothesis, is probably because they pay close attention to market demands. No statistically significant evidence is found for the claim that donative nonprofits have greater fluctuations in numbers attending over time. Understandably, larger organizations serve more paying customers and also have more people who attend for free, observed separately or altogether. Again, it could be attributed to the fact that they have greater financial capacity to offer more programs.

Discussion and Conclusion

This study extends previous works on nonprofit financial ratios by examining their direct impact on service delivery. Before discussing the implications, it is important to note a few limitations in this study. Even though the CDP dataset includes substantial parts of the U.S., the CDP does not cover the full universe of arts and cultural nonprofits, but only those organizations participating in the CDP project. Furthermore, as it is currently reported, attendance does not reflect specific details, such as how many people attended mission-based programs, who are recurring attendees or season subscribers, and what proportions of attendees constitute one-time guests at special events.

Despite these limitations, this study makes significant contributions to existing knowledge. It is the first of its kind to provide empirical evidence that fiscal health, measured by revenue volatility, does indeed reflect upon program outputs. Some nonprofit arts organizations have revenue portfolios that are more diversified, and therefore they enjoy greater revenue stability which helps them to serve more people. More importantly, the results indicate that Hansmann's donative and commercial nonprofit distinctions make more powerful predictions for service outputs in terms of how many and what type of patrons they serve.

Many arts and cultural organizations try to offer more programs for free with a goal of attracting new and wider audiences and engaging first-timers. Operating without charging for services makes soliciting substantial individual donations a necessity. Corporate and foundation giving, in addition to government grants, become even more significant when operating without admission fees. Simultaneously, the changing environment forces nonprofit arts organizations to raise more fee-based income (Toepler & Wyszomirski, 2012). Therefore, nonprofit theatres, symphony orchestras, opera companies, galleries, and other arts service organizations all need to focus on how to attract sufficient paying customers to survive. The results of this study show that heavy reliance on commercial income led organizations to draw more paying customers but fewer non-paying attendees. In the meantime, organizations funded mostly by contributions tend to lose audiences, including those who pay for the admission.

Taken together, this raises two interesting speculative scenarios. First, organizations may decide to charge fewer patrons over time as they become successful in raising enough funds from donors. The fact that donative nonprofits serve less paid attendees over time gives some support for this argument. However, the claim is not fully supported since there is no evidence that being a donative nonprofit is linked to increased free attendance over the period observed.

A more plausible argument is that donative organizations lose paying customers because they are overly driven by funders rather than program users. On the contrary, commercial nonprofit programs are fully reflective of audience demand to attract more people. Donors may have certain preferences for what type of cultural activities the recipient organizations bring about even though such programs may not appeal to the broader public. For example, a modern arts museum can exhibit an exclusive, unknown modern painter because one of its major donors stipulated that the exhibit be made. The exhibit would not attract as many visitors as an

exhibition of a more popular artist.

Greater attendance signifies a larger number of people satisfied with the programs. Still, it should not be mistaken that selling more admission tickets or generating greater attendance equals better program outputs. While a nonprofit art gallery is following the popular trends that sell out, it may fail to fulfill its part of the mission that aims to promote new cultural experiences. In other words, this could mean a shift from contributions to innovate cultural and artistic movements towards big commercialized programs. On the other hand, an arts connoisseur could donate large fortunes, hoping to share the great works of yet less well-known artists with more people. While this could bring positive outcomes, it is also possible that an organization moves away from its stated purpose in order to meet the gift agreements or to placate the donor and therefore lose some of its constituents. Such a mission drift could happen if organizations are concerned more about changes in market conditions or donor requests than being truthful to their original mission statement and their constituents (Jones, 2007). Even after considering such normative values, it seems reasonable to conclude that commercial nonprofits care more about what a broad public wants from them. The results clearly show that organizations funded primarily through program fees gain greater market shares, in terms of how many people they serve.

The results of this study also suggest that it is more important to pay attention to the fundamental distinction of a nonprofit organization rather than simply examining whether funding bases are well balanced. Too much emphasis has been placed on the efficacy of the revenue diversification strategy that is grounded in the business literature while the commercial and donative distinctions grounded in the nonprofit context have been underestimated. Greater attention needs to be given to determine whether a nonprofit's main source of funding is derived

from donors or users and in what ways this matters to programs. For organizations that are not attracting enough paying clients, it would be beneficial to consider means to increase the proportion of program revenues. When they think about how to boost ticket sales, they become more attentive to market demands. If an arts organization is less successful in providing free admission opportunities, it should consider whether it may be overly driven by market forces. If nonprofits are too much market-oriented, they will become indistinguishable from for-profit entities. The focus is not about whether one system is better than another, but more about whether nonprofit managers are aware of how each of their revenue sources alters who they serve and how well they serve.

Nonprofit studies on revenue diversification (Chang & Tuckman, 1996; Carroll & Stater, 2009; Calabrese, 2012; Hager, 2001) have been operationalizing the concept using inconsistent ways of categorizing revenues The inconsistent results are dependent on how the index is constructed, which raises questions on the validity of the prevalent belief that glorifies the effectiveness of diversification strategy. Future research should focus on achieving a consensus in regards to revenue diversification measurement criteria. A separate discourse must be made in favor of recognizing the varied influence of each revenue type and relative weights should be given to different kinds of revenues when a nonprofit designs its revenue diversification strategy. Future studies also need to look at whether diverse price schemes make a difference in program outputs since the current study does not recognize that many organizations offer discounted tickets for seniors, students, and some other groups.

Despite its focus on the arts and cultural sector, the findings are relevant to other types of nonprofit organizations. Arts nonprofits provide great examples for this study because they generally have half of their revenue comes from program fees and the rest from contributed

revenue, unlike other types of nonprofits (Americans for the Arts, 2013; Hall, 2010). Social service organizations receive most of their income from grants and donations. The majority of revenue for universities and hospitals, for example, comes from tuition or service charges. . Still, most nonprofits rely on individual donations, corporate, foundations and government grants to some extent, and they all face financial circumstances that make it imperative to garner some sort of self-sustainable income. Accordingly, other types of nonprofits can learn lessons from the findings of this study.

In estimating the predictability of nonprofit financial ratios, the present study looked at actual program service outputs instead of financial outputs that have been used as proxies to program success. Artistic, cultural, and religious service outputs are perhaps the hardest to measure, which means replacing financial proxies with real service outputs is plausible for other nonprofit subsectors such as health care, education, and social services. In nonprofit research, doing so is not yet popular but should be encouraged. It would be interesting to find if Hansmann's dichotomous distinctions show more robust and consistent results for other nonprofit subsectors than revenue diversification index.

Reference

Americans for the Arts. (2013). Source of revenue for nonprofit arts organizations. *Americans for the Arts.*

Calabrese, T. (2012). The accumulation of nonprofit profits: A dynamic analysis. *Nonprofit and Voluntary Sector Quarterly, 41*(2), 300–324.

Carroll, D., & Stater, K. (2009). Revenue diversification in nonprofit organizations: Does it lead to financial stability? *Journal of Public Administration Research and Theory*, *19*(4), 947–966.

Chang, C., & Tuckman, H. (1996). Revenue diversification among nonprofits. *VOLUNTAS, 5*(3), 273–290.

Chikoto, G. , & Neely, D. (2014). Building nonprofit financial capacity: The impact of revenue concentration and overhead costs. *Nonprofit and Voluntary Sector Quarterly, 43*(3), 570–588.

DiMaggio, P. J. (1986). Introduction. In P. DiMaggio (Ed.), *Nonprofit Enterprise and the Arts* (pp. 3-13). New York, NY: Oxford University Press..

Froelich, K. (1999). Diversification of revenue strategies: evolving resource dependence in nonprofit organizations. *Nonprofit and Voluntary Sector Quarterly, 28*(3), 246–268.

Froelich, K. A., Knoepfle, T.W. & Pollak, T.H. (2000). Financial measures in nonprofit organization research: Comparing IRS 990 return and audited financial statement data. *Nonprofit and Voluntary Sector Quarterly, 29*(6), 232–254.

Frumkin, P., & Keating, E. (2011). Diversification reconsidered: the risks and rewards of revenue concentration. *Journal of Social Entrepreneurship*, *2*(2), 151–164.

Frumkin, P. (2005). *On being nonprofit: a conceptual and policy primer*. Cambridge, MA: Harvard University Press.

Greenlee, J., & Trussel, J. (2000). Estimating the financial vulnerability of charitable organizations. *Nonprofit Management and Leadership, 11*(2), 199–210.

Greene, W. (2000). *Econometric Analysis*. Upper Saddle River, NJ: Prentice Hall.

Grønbjerg, K. (1993). *Understanding nonprofit funding: managing revenues in social service and community development organizations*. San Francisco, CA: Jossey-Bass.

Hager, M. (2001). Financial vulnerability among arts organizations: A test of the Tuckman-Chang measures. *Nonprofit and Voluntary Sector Quarterly, 30*(2), 376–392.

Hall, P. D. (2010). Historical perspectives on nonprofit organizations in the United States. In R. D. Herman & Associates (Eds), *The Jossey-Bass handbook of nonprofit leadership and management*, (pp. 3-41). San Francisco, CA: Jossey-Bass.

Hansmann, H. (1987). Economic theories of nonprofit organization. In W.W. Powell (Ed.), The nonprofit sector: A research handbook (pp. 27–42). New Haven, CT: Yale Univ. Press.

Hodge, M., & Piccolo, R. (2005). Funding Source, Board Involvement Techniques, and Financial Vulnerability in Nonprofits. *Nonprofit Management and Leadership, 16*(2), 171–190.

Hoye, S. Recession Hits Arts Groups Especially Hard. *The Chronicle of Philanthropy*. January 2, 2009. Accessed on August 13, 2013 http://philanthropy.com/article/Recession-Hits-Arts-Groups/62975/

Jegers, M. (1997). Portfolio theory and nonprofit financial stability: A comment and extension. *Nonprofit and Voluntary Sector Quarterly, 26*(1), 65–72.

Jones, M. (2007). The multiple sources of mission drift. *Nonprofit and Voluntary Sector Quarterly, 36*, 299-307.

Keating, E., Fischer, M., Gordon, T. & Greenlee, J. (2005). *Assessing financial vulnerability in the nonprofit sector*. Faculty Research Working Paper Series: Hauser Center for Nonprofit Organizations, Paper no. 27.

Kennedy, P. (1988). *A Guide to Econometrics*. Cambridge, MA: MIT Press.

Kim, M. & Van Ryzin, G.G. (2013). Impact of government funding on donations to arts organizations: a survey experiment. *Nonprofit and Voluntary Sector Quarterly* Advance Access published May 21, 2013.

Kingma, B. (1993). Portfolio theory and nonprofit financial stability. *Nonprofit and Voluntary Sector Quarterly, 22*(2), 105–120.

Markowitz, H. M. (1952). Portfolio selection. *Journal of Finance 7*(1), 77–91.

Mayer, W.J, Wang, H., Egginton, J.F. & Flint, H. S. (2014). The impact of revenue diversification on expected revenue and volatility for nonprofit organizations, *Nonprofit and Voluntary Sector Quarterly, 43*(2), 374-392.

Pfeffer, J., & Salancik, G. (1978). *The external control of organizations*. New York, NY: Harper and Row.

Tinkelman, D., & Neely, D.G. (2010). Research note: some econometric issues in studying nonprofit revenue interactions using NCCS data. *Nonprofit and Voluntary Sector*

Quarterly, 40(4), 751–761.

Toepler, S. & Wyszomirski, M. (2012). Arts and culture. In L. Salamon (Ed.), *The state of nonprofit America* (pp. 229-265). Washington, DC: Brookings Institute Press.

Trussel, J., & Greenlee, J. (2004). A financial rating system for nonprofit organizations. *Research in Government and Nonprofit Accounting. 11,* 105-128.

Trussel, J. (2002). Revisiting the prediction of financial vulnerability. *Nonprofit Management and Leadership*, *13*(1), 17–31.

Tuckman, H., & Chang, C. (1991). A methodology for measuring the financial vulnerability charitable nonprofit organizations. *Nonprofit and Voluntary Sector Quarterly*, *20*(4), 445–460.

Tuckman, H. (1998). Competition, commercialization, and the evolution of nonprofit organizational structures. *Journal of Policy Analysis and Management*, *17*, 175–194.

Wooldridge, J. M. 2006. *Introductory econometrics*. Ohio: Thomson South-Western.

Yan, W., Denison, D. V., & Butler, J. S. (2009). Revenue structure and nonprofit borrowing. *Public Finance Review, 37*(1), 47-67.

Table 1. Selective Review on the Financial Indicators for the Nonprofit Sector

Study	Major Contributions	Dependent Variable(s)	Data	Observation Period	Number of NPOs
Tuckman & Chang (1991)	Developed four indicators for the nonprofit financial vulnerability	A ranking procedure is employed to determine financially vulnerable nonprofits.	990 tax returns	1983	4,730
Greenlee & Trussel (2000)	The first to use T & C's ratios to predict nonprofit financial distress	Negative program expenses over a consecutive 3 years	990 tax returns	1985-1995	3,151 - 5,918
Hager (2001)	Found the usefulness of T & C indicators for certain types of nonprofit arts organizations	The closure of arts organizations	990 tax returns	1990-1992	7,266 arts nonprofits
Trussel (2002)	Expanded database enabled to control for 10 subsectors and accounted for the organization size	More than a 20 percent reduction in net assets over a consecutive 3 years	NCCS Core files	1997-1999	94,002
Keating et al. (2005)	Compared the usefulness of the T & C approach to approaches adopted from business literature	4 indicators of drastic fiscal change (Insolvency risk, financial disruption, funding disruption, program disruption)	NCCS Digitized data	2000	290,579
Carroll & Stater (2009)	Showed that revenue diversification leads to greater stability in the revenue structures	Revenue volatility	NCCS Core files	Panel of 1991-2003	294,543
Frumkin & Keating (2011)	Demonstrated the tradeoff between efficiency & stability	A set of financial measures (3 efficiency measures, 3 growth measures, and 4 indicators of financial health)	NCCS Statistics of Income (SOI)	Panel of over 12 years of observations	8,828
Chikoto & Neely (2014)	Revenue concentration strategy as well as the larger administrative and fundraising	5-year growth in total revenue, fund balance, and unrestricted fund balance	NCCS Digitized data	Panel of 1998-2003	50,000 - 108,000

*Note: The list is meant to be representative but not exhaustive. All types of National Center for the Charitable Statistics (NCCS) data files are based on 990 tax returns.

Table 2. Summary of Variable Descriptions

Factor	Variable		Operation
Dependent Variables	Total Attendance (ln)		Total attendance
	Revenue Volatility		The extent to which actual revenue differs from expected revenue
	Attendance Volatility		The extent to which actual number of attendance/visitors differs from expected number
	Paid Attendance (ln)		Total paid attendance
	Free Attendance (ln)		Total free attendance
	Percentage of Free Admission		[Free attendance / Total attendance] X 100
Explanatory Variables of Primary Interest	Revenue Concentration Index (RCI)		Σ (Revenue *i* / Total Revenue)^2 where *i* = revenue type; revenues are divided into 3, 4, 6, and 10 categories
	Hansmann's Categorization	Donative	More than 60% of total revenues come from contributed incomes
		Commercial	More than 60% of total revenues come from earned incomes
Financial Sustainability Indicators	Administrative Expenses Ratio		(Administrative + fundraising expenses) / Total expenses
	Operating Margin		(Total revenues - Total expenses) / Total revenues
	Equity Balance		Net assets / Total revenues
Control Variables	Size—Total Revenue (ln)		Log-transformed total revenues
	Urban Area		Located in Metropolitan Statistical Areas
	Age		2013 - Founding year

Table 3. Full Sample Descriptive Statistics

	Mean	Std. Dev.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 Total attendance (ln)	8.88	1.99																	
2 Revenue Volatility	0.02	0.03	-0.15																
3 Volatility in Attendance/Visitors	4.06	6.19	-0.15	0.19															
4 Paid Attendance/Visitors (ln)	8.04	2.05	0.76	-0.13	-0.24														
5 Free Attendance/Visitors (ln)	7.81	2.31	0.86	-0.10	-0.06	0.43													
6 Proportion of Free Attendance	50.01	37.80	0.05	0.06	0.12	-0.41	0.48												
7 RCI 3 *t-1*	0.65	0.16	-0.18	0.11	0.10	-0.26	-0.03	0.30											
8 RCI 4 *t-1*	0.56	0.17	-0.11	0.10	0.04	-0.12	-0.05	0.14	0.77										
9 RCI 6 *t-1*	0.44	0.18	-0.10	0.07	0.02	-0.07	-0.09	0.02	0.53	0.71									
10 RCI 10 *t-1*	0.38	0.17	-0.16	0.08	0.05	-0.16	-0.11	0.09	0.56	0.67	0.91								
11 Donative	0.51	0.50	-0.13	0.09	0.11	-0.22	0.02	0.29	0.39	0.10	-0.21	-0.08							
12 Commercial	0.24	0.43	0.04	-0.06	-0.06	0.09	-0.07	-0.20	-0.00ˣ	0.19	0.47	0.34	-0.56						
13 Admin. Ratio *t-1*	0.27	0.20	0.04	0.02	0.00ˣ	0.01ˣ	0.06	0.06	0.00ˣ	0.01ˣ	-0.05	-0.05	0.05	-0.06					
14 Operating Margin *t-1*	0.00	1.08	0.02	-0.07	0.00	0.01ˣ	0.01	0.00ˣ	0.00ˣ	0.00ˣ	-0.02ˣ	-0.01ˣ	0.00ˣ	-0.01ˣ	-0.01ˣ				
15 Equity Ratio *t-1*	1.19	3.14	0.11	0.11	-0.03	0.13	0.11	0.00ˣ	-0.11	-0.07	-0.06	-0.10	-0.02	-0.04	0.10	-0.51			
16 Total Revenue *t-1* (ln)	12.53	1.83	0.65	-0.20	-0.13	0.66	0.53	-0.08	-0.16	-0.12	-0.13	-0.17	-0.07	-0.02	0.07	0.10	0.16		
17 Urban area	0.93	0.26	0.09	0.00ˣ	0.01ˣ	0.08	0.08	0.02	0.03	0.03	0.01ˣ	0.02	0.02	-0.01ˣ	0.01ˣ	-0.01ˣ	0.01ˣ	0.13	
18 Age	38.16	34.11	0.27	-0.06	-0.11	0.28	0.23	-0.01	-0.14	-0.07	-0.04	-0.07	-0.09	-0.01ˣ	0.08	0.03	0.19	0.36	0.03

*Note: All correlations are significant at the 0.01 level unless marked with a small X.; pairwise n ranges from 15,541 to 28,754.

Table 4. Panel Regression Results (2004-2012) with Different Specification

	Revenue Volatility				Total Attendance/Visitor (ln)			
	RCI 3	RCI 4	RCI 6	RCI 10	RCI 3	RCI 4	RCI 6	RCI 10
Revenue Concentration Index								
RCI 3 *t-1*	1.226 ***	--	--	--	-0.096	--	--	--
	(0.275)				(.102)			
RCI 4 *t-1*	--	0.691 ***		--	--	-0.131	--	--
		(0.228)				(.089)		
RCI 6 *t-1*	--	--	0.336	--	--	--	-0.306 ***	--
			(0.255)				(.109)	
RCI 10 *t-1*	--	--		0.351	--	--	--	-0.295 **
				(0.288)				(.125)
Hansmann's Categorization								
Donative	0.392 ***	0.395 ***	0.393 ***	0.393 ***	-0.050 **	-0.051 **	-0.051 **	-0.052 **
	(0.074)	(0.074)	(0.074)	(0.074)	(.024)	(.024)	(.024)	(.024)
Commercial	-0.007	-0.013	-0.014	-0.014	0.052 **	0.052 **	0.052 **	0.052 **
	(0.078)	(0.078)	(0.078)	(0.078)	(.025)	(.025)	(.025)	(.025)
Financial Sustainability Indicators								
Admin. Raio *t-1*	-0.103	-0.074	-0.053	-0.056	-0.008	-0.008	-0.014	-0.012
	(0.207)	(0.208)	(0.207)	(0.207)	(.093)	(.093)	(.094)	(.093)
Operating Margin *t-1*	0.050	0.054	0.048	0.047	-0.007	-0.008	-0.008	-0.009
	(0.049)	(0.050)	(0.049)	(0.049)	(.012)	(.012)	(.011)	(.012)
Equity Ratio *t-1*	-0.020	-0.019	-0.013	-0.013	0.002	0.003	0.001	0.001
	(0.025)	(0.025)	(0.025)	(0.025)	(.006)	(.006)	(.006)	(.006)
Control Factors								
Size—Total Revenue *t-1* (ln)	-0.315 ***	-0.289 ***	-0.279 ***	-0.284 ***	0.052	0.052	0.055	0.060 *
	(0.095)	(0.094)	(0.094)	(0.095)	(.034)	(.034)	(.034)	(.034)
Urban area	-0.410	-0.395	-0.388	-0.386	-0.034	-0.034	-0.035	-0.036
	(0.288)	(0.285)	(0.283)	(0.283)	(.140)	(.141)	(.141)	(.141)
Age	-0.008	-0.008	-0.008	-0.008	0.005	0.005	0.005	0.005
	(0.015)	(0.015)	(0.015)	(0.015)	(.004)	(.004)	(.004)	(.004)
1-year lag of DV	-0.265 ***	-0.261 ***	-0.258 ***	-0.259 ***	0.248 ***	0.248 ***	0.247 ***	0.247 ***
	(0.021)	(0.021)	(0.022)	(0.022)	(.033)	(.033)	(.033)	(.033)
Constant	6.165 ***	6.185 ***	6.265 ***	6.345 ***	6.388 ***	6.399 ***	6.425 ***	6.354 ***
	(1.411)	(1.415)	(1.413)	(1.412)	(.483)	(.484)	(.484)	(.482)
Year Effects			Yes				Yes	
Organization Effects			Yes				Yes	
Number of Observations		15,263					14,777	
Number of Organizations		5,382					5,231	
Average Years of Observations		3					3	
Adj. R-Squared	0.8783	0.8783	0.8784	0.8784	0.8783	0.8783	0.8784	0.8784

Note: All financial data were inflated using the 2013 CPI as the base. Hausman Test supports the use of Fixed Effects instead of Random Effects. No evidence of multicollinearity. Modified Wald test indicates the evidence of groupwise heteroskedasticity at 0.001 level, but its power is said to be very low in the context of fixed effects with "large N, small T" panels (Greene, 2000). To control the groupwise heteroskedasticity, Robust Standard Error has been reported. *** Significance greater than 0.01, ** greater than 0.05, * greater than 0.1.

Table 5. Panel Regression Results (2004-2012)

	1. Paid Attendance/Visitors (ln)				2. Free Attendance/Visitors (ln)				3. Percentage of Free Admission				4. Volatility in Attendance			
	RCI 3	RCI 4	RCI 6	RCI 10	RCI 3	RCI 4	RCI 6	RCI 10	RCI 3	RCI 4	RCI 6	RCI 10	RCI 3	RCI 4	RCI 6	RCI 10
RCI 3 *t-1*	0.13	--	--	--	-0.24 **	--	--	--	-4.22 **	--	--	--	-1.30 **	--	--	--
RCI 4 *t-1*	--	0.06	--	--	--	-0.17	--	--	--	1.82	--	--	--	-0.27	--	--
RCI 6 *t-1*	--	--	-0.02	--	--	--	-0.29 **	--	--	--	-1.41	--	--	--	-1.14 *	--
RCI 10 *t-1*	--	--	--	-0.03	--	--	--	-0.29 **	--	--	--	-0.74	--	--	--	-1.06
Donative	-0.07 ***	-0.07 ***	-0.07 ***	-0.07 ***	-0.04	-0.04	-0.04	-0.04	0.40	0.38	0.38	0.38	0.19	0.19	0.19	0.19
Commercial	0.08 ***	0.08 ***	0.08 ***	0.08 ***	-0.03	-0.03	-0.03	-0.03	-1.75 ***	-1.73 ***	-1.73 ***	-1.73 ***	-0.30 *	-0.29 *	-0.29 *	-0.30 *
Admin. Ratio *t-1*	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	4.13 **	4.03 **	3.98 **	3.99 **	-0.20	-0.24	-0.26	-0.25
Operating Margin *t-1*	0.00	0.00	0.00	0.00	-0.02	-0.02	-0.02	-0.02	-0.20	-0.19	-0.17	-0.17	0.06	0.07	0.07	0.07
Equity Ratio *t-1*	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.00	0.00	0.00	0.00	-0.01	-0.01	-0.04	-0.04	-0.01	-0.02	-0.02	-0.03
Size—Total Revenue *t-1* (ln)	0.08 **	0.08 ***	0.09 ***	0.09 ***	0.09 **	0.08 **	0.08 **	0.09 **	0.69	0.57	0.54	0.53	-0.19	-0.24	-0.22	-0.20
Urban area	0.14	0.14	0.15	0.15	0.00	0.00	0.00	-0.01	-1.74	-1.82	-1.84	-1.85	-0.77	-0.79	-0.79	-0.80
Age	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.06	-0.06	-0.06	-0.06	0.00	0.00	0.00	0.00
1-year lag of DV	0.13 ***	0.12 ***	0.12 ***	0.12 ***	0.21 ***	0.21 ***	0.21 ***	0.21 ***	0.13 ***	0.13 ***	0.13 ***	0.13 ***	-0.08 **	-0.08 **	-0.08 **	-0.08 **
Constant	6.09 ***	6.09 ***	6.10 ***	6.10 ***	5.64 ***	5.65 ***	5.66 ***	5.59 ***	41.78 ***	42.02 ***	41.99 ***	41.73 ***	9.84 ***	9.87 ***	9.96 ***	9.68 ***
Year Effects	Yes				Yes				Yes				Yes			
Organization Effects	Yes				Yes				Yes				Yes			
Number of Observations	12,267				14,153				14,777				14,777			
Number of Organizations	4,352				5,043				5,231				5,231			
Average years of observations	3				3				3				3			
Adj. R-Squared	0.931	0.931	0.931	0.931	0.847	0.847	0.847	0.847	0.850	0.850	0.850	0.850	0.589	0.588	0.589	0.589

Note: All financial data were inflated using the 2013 CPI as the base. Hausman Test supports the use of Fixed Effects instead of Random Effects. No evidence of multicollinearity. Modified Wald test indicates the evidence of groupwise heteroskedasticity at 0.001 level, but its power is said to be very low in the context of fixed effects with "large N, small T" panels (Greene, 2000). To control the groupwise heteroskedasticity, Robust Standard Error has been used. *** Significance greater than 0.01, ** greater than 0.05, * greater than 0.1.