The effects of nonprofit organization-specific factors on governmental support to nonprofit organizations

Nicholas Marudas
Auburn Montgomery

Fred Jacobs
Auburn Montgomery and Mid-Sweden University

Abstract

Numerous studies examine the effects of nonprofit organization-specific factors on donations to nonprofit organizations (NPOs) at the individual NPO level. Although donations are a significant source of funding for NPOs, governmental support is also a significant source of funding, comprising 11% of total revenues of the NPOs in the large sample of U.S. NPOs tested in this paper. Despite the importance of this source of NPO funding, we are unaware of any published models of organization-level governmental support to NPOs. Thus, we develop what we believe to be the first model of governmental support to NPOs at the organizational level as a function of NPO organization-specific factors. We test this five-factor model, using OLS, on data for a large sample from the National Center for Charitable Statistics database of U.S. NPOs and find that all factors in the model are statistically significant. NPO inefficiency, age, and wealth have a significant negative effect on governmental revenues of the NPOs, and fundraising expenses and non-governmental revenue have a significant positive effect.

Keywords: nonprofit organizations, governmental support, fundraising, efficiency

INTRODUCTION

Donations are an important source of revenues for U.S. NPOs. Thus, it is not surprising that numerous studies examine the determinants of organization-level donations to nonprofit organizations (NPOs) (Posnett and Sandler, 1989; Callen, 1994; Khanna, Posnett, and Sandler, 1995; Tinkelman, 1998 and 1999; Khanna and Sandler, 2000; Jacobs and Marudas, 2004; Marudas, 2004; Marudas and Jacobs, 2006; Jacobs and Marudas, 2006 and Marudas and Jacobs, 2007, Tinkelman and Mankaney, 2007). In the large sample of U.S. NPOs used in the current study, donations comprise 17% of total revenue. However, governmental support also is a significant source of revenue for NPOs, comprising 11% of total revenues. Despite governmental support being a significant source of revenues for U.S. NPOs, there is no published model of governmental support to NPOs at the individual NPO level as a function of NPO-specific factors.

This paper advances the literature on effects of NPO-specific factors on revenues to NPOs by developing a first model of governmental support to NPOs as a function of NPO-specific factors and testing this model using data for a large sample from the National Center for Charitable Statistics database of U.S. NPOs. Thus, this research is exploratory and intended to stimulate debate about factors that may influence organization-level governmental funding of NPOs.

HYPOTHESIS DEVELOPMENT

Numerous studies in the accounting, economics, and public administration literatures develop and test models of donations (one source of revenue) to NPOs at the organizational level as a function of NPO-specific factors. Since there is no model of government support (another source of revenue) at the organizational level posited in the literature, such a model is developed in this paper by analogizing from the numerous NPO-specific factors found in the literature to affect donations to NPOs. In doing this, the relevant literature on the NPO-specific factors that affect donations to NPOs is reviewed.

The studies that model donations to NPOs as a function of NPO-specific factors include the following factors: inefficiency, amount of advertising, quality, size, wealth, and other sources of revenue. The majority of these studies (Posnett and Sandler, 1989; Callen, 1994; Khanna, Posnett, and Sandler, 1995; Tinkelman, 1998 and 1999; Khanna and Sandler, 2000; Jacobs and Marudas, 2004; Marudas, 2004, and Marudas and Jacobs, 2006) specify inefficiency as "donation price" (total expenses / program expenses), the reciprocal of the accounting efficiency ratio "program spending" published by the Philanthropic Advisory Service of the Better Business Bureau, the American Institute of Philanthropy, Guidestar, and similar agencies. These organizations, so called "watchdog agencies", serve the important role of informational intermediaries between NPOs and the public.

There is substantial evidence from the literature that donation price of an NPO has a significantly negative effect on the donations it receives. The interpretation of this effect is that potential donors, one type of provider of revenues to NPOs, factor donation price into their donation decision-making, preferring to donate to more efficient rather than less efficient NPOs, ceteris paribus. Since governments are another provider of revenue, it is plausible that persons in government who decide on the levels of government support to individual NPOs also take into account the efficiency of the NPO, and, like donors, prefer to provide funds to more efficient

NPOs rather than to less efficient NPOs, ceteris paribus. The preference by governments to fund more efficient, rather than less efficient, NPOs follows from the assumption that the purpose of government spending is to enhance the social welfare. Thus, more efficient NPOs are likely to produce a relatively greater amount of "social welfare output" per dollar of funding than less efficient NPOs. Therefore, the first hypothesis, in alternative form is

H1: Amount of governmental revenue of an NPO is negatively related to the inefficiency of the NPO.

All studies of NPO organizational factors that affect donations to NPOs include amount of NPO spending on fundraising activities (fundraising expense), as a proxy for advertising, in their models of donations to NPOs. The amount of spending on fundraising activities is reported by NPOs in their annual financial disclosures. All studies find that the amount of an NPO's fundraising expenses has a significant positive effect on the amount of donations the NPO receives. Fundraising activities of an NPO can raise awareness of the particular NPO's cause, the benefits it provides via its program activities, and can generate more and larger donations. Fundraising expenditures go towards activities such as direct mail solicitations, salaries of fundraising officers, whose function is to solicit donations from certain segments of the public and from private foundations, advertising in various outlets, etc. Fundraising expenses also includes the principal means by which U.S. NPOs obtain governmental support; i.e., through solicitation of governmental grants. Since fundraising expenses are not disaggregated by purpose, it is not possible to know how much of it relates to raising donations versus obtaining government grants. Therefore, it is unclear whether an NPO's total fundraising expense is a good proxy for level of activity associated with obtaining governmental grants and other forms of governmental revenues. Despite the potential measurement error of this proxy, it has been used in numerous studies on donations. Thus, by analogy, the second hypothesis, in alternative form, is

H2: Amount of governmental revenue of an NPO is positively related to the amount of fundraising expense of the NPO.

Tinkelman (1998) is the first study to introduce NPO size as a factor in a model of donations. Nearly all subsequent studies also include NPO size in the models they test. All studies find a significant positive effect of an NPO's size on the donations it receives. However, the theoretical basis for including size is not developed in the literature, and it may be that the direction of cause and effect is reverses; higher donations to an NPO may increase the size of the NPO. Therefore, no relation between size and government support is hypothesized. However, one proxy for size, total revenues, with some modification, may have an effect on governmental support other than as a proxy for size. Some government grants provided to NPOs have a matching requirement that the NPO receiving the grant provide funding sources, other than governmental ones, towards the objective of the government grant. This suggests that NPOs with more non-governmental funds, which could be used to match government grants, would receive more government grant funding than NPOs with less non-governmental funds, ceteris paribus. Therefore, the third hypothesis, in alternative form, is

H3: Amount of governmental revenue of an NPO is positively related to the amount of non-governmental revenue of the NPO.

Weisbrod and Dominguez (1986), the first study of NPO organizational factors that affect donations to NPOs, develop a three-factor model of donations. The three factors are efficiency, advertising, and quality. Weisbrod and Dominguez use, as a proxy for quality of an NPO, the age of the NPO (numbers of years elapsed since the founding of the NPO). Nearly every subsequent study includes NPO age as a factor. Many of these studies (Weisbrod and Dominguez, 1986; Posnett and Sandler, 1989; Callen, 1994; Khanna, Posnett, and Sandler, 1995, and Khanna and Sandler, 2000) find that the age of a NPO has a statistically significant positive effect on donations to the NPO. None of these studies includes a proxy for NPO size in the models tested. Tinkelman (1998) is the first study to include a control for NPO size in his model and his and subsequent studies that include a proxy for NPO size (Tinkelman, 1998 and 1999; Marudas, 2004; Marudas and Jacobs, 2006, and Tinkelman and Mankaney, 2007) find a statistically significant negative effect of NPO age on donations. Tinkelman (1998) proposes that this negative effect, after controlling for size, which is positively correlated to age, is a measure of how "fashionable" an NPO's mission is, suggesting that younger NPOs have missions that are more appealing, ceteris paribus, to the donating public than older NPOs. However, as discussed before, because there is no theoretical basis for including NPO size in the model of donations, it is not proposed as a factor for inclusion in a model of NPO governmental revenues. It is plausible that governments prefer to provide funding to higher quality NPOs, proxied by age, rather than lower quality NPOs, ceteris paribus. Therefore, the fourth hypothesis is

H4: Amount of governmental revenue of an NPO is positively related to the age of the NPO.

Marudas (2004) and Marudas and Jacobs (2006) include a proxy for NPO wealth in the models they test. They develop theory related to why donations should be lower for more wealthy ("less needy") NPOs than for less wealthy ("more needy") NPOs, ceteris paribus, and they proxy wealth with "years of available assets", an accounting ratio published by the watchdog agency American Institute of Philanthropy. This accounting ratio is defined as (net assets - permanently restricted net assets) / (total expenses - fundraising expenses). It is plausible that governments also prefer to support "more needy" NPOs to "less needy" ones.

H5: Amount of governmental revenue of an NPO is negatively related to the wealth of the NPO.

EMPIRICAL SPECIFICATIONS

To test hypothesis 1, donation price (total expenses / program expenses) is used to proxy for inefficiency. The underlying source of the two components of this variable is NPO financial disclosures (the IRS Form 990). This ratio is the reciprocal of the program spending ratio published by the watchdog agencies. The variable is lagged one year because its value for the current year would not be known until after the end of the current year.

To test hypothesis 2, fundraising expenses is used, the underlying source of which is NPO financial disclosures (IRS Form 990). The variable is lagged one year because governments' funding decisions are likely made in the year before the year in which the revenues

are earned, and therefore recorded, by the NPO. Thus, the relevant amount of government revenue-generating activity, as proxied by fundraising expenses, is that made in the prior year.

To test hypothesis 3, non-governmental revenue is used. This is defined as (total revenue - governmental revenue), the underlying source of which is the IRS Form 990. The variable is lagged one year because governments' funding decisions are likely made in the year before the year in which the revenues are earned, and the relevant amount of matching funds considered to be available to the NPO is the amount available when the governments' funding decisions are made.

To test hypothesis 4, the number of years elapsed since the NPO first filed a Federal tax return is used because the inception date of the organization is not available in the database. This number of years equals the inception date of the organization, except for NPOs that began prior to 1913. Therefore, this proxy results in some winsorizing of age. This proxy is used by other studies that include age in their models of donations revenue (e.g., Tinkelman 1998 and 1999 and Tinkelman and Mankaney 2007).

To test hypothesis 5, a specification of NPO "wealth" is used that is the same as that used in the studies of donations revenues that include NPO wealth (Marudas, 2004 and Marudas and Jacobs, 2006). This specification is net assets / (total expenses - fundraising expenses). This differs from the measure of wealth published by the watchdog agency American Institute of Philanthropy in that it does not remove permanently restricted net assets from the numerator. This is because data on permanently restricted net assets are not available in the database used in this paper. However, Marudas and Jacobs (2006) tested a smaller set of data on the largest U.S. NPOs (from the Nonprofit Times 100) that does contain data on permanently restricted net assets and found that the measurement error introduced from not removing permanently restricted net assets from the numerator, at least for the largest U.S. NPOs, was trivial.

The model developed, based on the preceding discussion, is shown below. The model is in log-log form because results from the Ramsey RESET (Gujarati, 1988) test indicate it is the best specified among the linear, semilog, and log-log forms of the model.

$$\ln GOV_{i,t} = b_0 + b_1 \ln PRICE_{i,t-1} + b_2 \ln FR_{i,t-1} + b_3 \ln AGE_{i,t} + b_4 \ln WEALTH_{i,t} + b_5 \ln (TOTREV - GOV)_{i,t-1} + u_{i,t}$$

where i indicates NPO, t indicates year, GOV is government support, PRICE is total expenses / program expenses, FR is fundraising expense, AGE is years since first filing a Federal tax return, WEALTH is net assets / (total expenses - fundraising expenses), TOTREV is total revenues, and u is error.

The model is tested using OLS in levels form. Because of significant heteroscedasticity, White's (1980) consistent variance-covariance matrix estimator is used to develop confidence intervals. Multi-collinearity, measured by condition indices is low, based on results from applying the method of Hair, et al., (1995). Cook's distance test indicates no influential outliers. Durbin-Watson d statistics indicate no significant autocorrelation.

DATA

All data are from the Statistics of Income database developed by the National Center for Charitable Statistics for 2001 and 2000. This database includes all U.S. NPOs with total assets of at least $10,000,000 and an asset-weighted random sample of smaller NPOs. Since the model requires lagged values of certain variables, only NPOs with data in two successive years can be used. There were 12,968 such observations. From this number, the following observations were deleted because of implausible values of one or more variables, following Tinkelman (1999).

2,309 observations with zero donations
4,871 observations with zero fundraising expenses
10 with negative total revenue
90 with zero or negative administrative expenses
27 with zero program expenses
30 with no data to calculate age

In addition, 2,917 observations had no governmental revenue and 53 had negative non-governmental revenue; i.e., government revenue was greater than total revenue, and 28 had negative net assets, and therefore, negative wealth. These latter observations are deleted because the log of a negative number is undefined, and the hypothesized relation between wealth and private donations is unlikely to be monotonic from positive to negative values of wealth, precluding simply adding a constant to make these negative values positive. This left a usable sample of 2,633 observations. Descriptive statistics of the data are shown in Table 1 (Appendix).

RESULTS AND DISCUSSION

As indicated in Table 2 (Appendix), every factor in the model is significant at the 2% level or better, with all but age significant at the 1% level, and that all hypotheses, except one, are confirmed. Hypothesis 1 is confirmed – NPO inefficiency, as measured by PRICE (donation price), has a significant negative effect on the amount of governmental funding a NPO receives. Since the model is in log-log form, the coefficients of the model are interpreted as elasticities. Therefore, results suggest that a one percent increase in an NPO's donation price is associated with, on average, a 1.1 percent decrease in governmental funding in the subsequent year. Hypotheses 2 is also confirmed, indicating that the initial concerns that FR (fundraising expense) may not be a sufficiently precise proxy for an NPO's activities devoted to raising governmental funds may not be an issue. Confirmation of hypothesis 2 also suggests the possibility that an NPO's fundraising activities, such as advertising and other awareness-generating activities directed towards raising donations, may have some positive "spill over" effect on the persons who decide on behalf of governmental agencies how government grants are awarded. Results suggest that a one percent increase in fundraising expenses leads to, on average, a 0.4 percent increase in government funding in the subsequent year. Hypothesis 3 is also confirmed – NPO non-governmental revenue has a significant positive effect on NPO governmental funding, although the effect is relatively small. Results suggest that a one percent increase in non-governmental revenues is associated with a 0.17 percent increase in governmental funding in the following year. Hypothesis 4, that age has a positive effect on governmental revenue, interestingly is not confirmed. In fact, results indicate the opposite effect of that hypothesized;

i.e., AGE has a significant negative effect on governmental funding. However, the effect of age is small relative to the effects of the other variables; an increase in an NPO's age of one percent is associated, on average, with a decrease of only 0.14 percent in the NPO's governmental funding. One interpretation of this negative effect is that governments prefer to support newer NPOs, perhaps because the missions of newer NPOs are more attractive or innovative (Tinkelman, 1998). Hypothesis 5 is also confirmed; the results suggest that wealth of an NPO has a significant negative effect on the NPO's government funding. A one percent increase in WEALTH (years of available assets) leads to, on average, a 0.33 percent decrease in government funding.

Results also indicate that the model explains 27% of the variation in government funding to NPOs. This is reasonably good as an initial model, but also suggests that other factors explain the vast majority of variation in government funding to NPOs.

A limitation of this study is that the sample tested is weighted toward large U.S. NPOs, those with assets of greater than $10 million. Furthermore, the model is a first attempt at capturing some of the organizational characteristics of NPOs that affect the amount of governmental funding it receives. Clearly much additional research is needed, both theoretical and empirical, towards identifying additional NPO-specific factors that affect governmental funding, a significant source of revenue for many NPOs. An interesting extension of this study would be to test data on NPOs of other countries; governmental funding is the principal source of revenue for many NPOs in countries where private donor markets are undeveloped. Additional extensions of this study could be to identify factors that affect the sensitivity of governmental revenues of NPOs to donation price, wealth, and the other factors affecting governmental revenue.

NPO managers and directors should be interested in the results of this paper. The Internal Revenue Service requires all NPOs receiving at least $25,000 in a year to file a Form 990, which is the underlying source of the database used in this paper. The Form 990 requires NPOs to classify their expenses into three mutually exclusive and collectively exhaustive categories: program, fundraising, and administration. It is from these filings that the watchdog agencies and others calculate the inefficiency ratio "donation price" (total expenses / program expenses). NPO managers and directors, in their decisions to allocate spending across these three categories, affect donation price. Since results of this paper suggest that an NPO's donation price has a significant negative effect on the amount of governmental funding it receives, NPO managers and directors should consider incorporating, into their allocation decisions, the effect that their decisions would have on donation price. In addition, NPO managers and directors decide on the extent to which an NPO will incur a surplus or deficit in a given year. This decision impacts net assets, and therefore, wealth (total net assets - permanently restricted net assets) / (total expenses - fundraising expenses). This specification is the same as that published by the watchdog agency American Institute of Philanthropy. Since, results of this paper indicate that wealth has a significantly negative effect on governmental funding, managers and directors of an NPO should consider incorporating into their decision of the amount of surplus or deficit to incur in a given year, the impact the decision would have on the NPO's wealth.

REFERENCES

Callen, Jeffrey L. (1994). "Money Donations, Volunteering, and Organizational Efficiency." *The Journal of Productivity Analysis*, Volume 5, 215-228.

Frumkin, Peter and Mark T. Kim. (2001). "Strategic Positioning and the Financing of Nonprofit Organizations: Is Efficiency Rewarded in the Contributions Marketplace?" *Public Administration Review*, Volume 61, 266-275.

Hair, Joseph H., Rolph E. Anderson, Ronald L. Tatham, and William C. Black, *Multivariate Data Analysis.* Upper Saddle River, New Jersey: Prentice Hall.

Internal Revenue Service. 2006. *Instructions for the Form 990*. Washington DC: Department of the Treasury.

Jacobs, Fred A. and Nicholas P. Marudas. (2006). "Excessive, Optimal, and Insufficient Fundraising among the *Nonprofit Times* 100." *International Journal of Nonprofit and Voluntary Sector Marketing,* Volume 11, 105-114.

Gujarati, Damodar N. (1988). *Basic Econometrics*. New York: McGraw-Hill.

Khanna, Jyoti, John Posnett, and Todd Sandler. (1995). "Charity Donations in the UK: New Evidence Based on Panel Data." *Journal of Public Economics*, Volume 56, 257-272.

Khanna, Jyoti and Todd Sandler. (2000). "Partners in Giving: The Crowding-in Effects of UK Government Grants." *European Economic Review*, Volume 44, 1543-1556.

Marudas, Nicholas P. (2004). "Effects of Nonprofit Organization Wealth and Efficiency on Private Donations to Large Nonprofit Organizations." *Research in Governmental and Nonprofit Accounting*, Volume 11, 71-92.

Marudas, Nicholas P. and Fred A. Jacobs (2004). "Determinants of Charitable Donations to Large U.S. Higher Education, Hospital, and Scientific Research NPOs: New Evidence from Panel Data." *Voluntas: International Journal of Voluntary and Nonprofit Organizations*, Volume 11, 157-180.

Marudas, Nicholas P. and Fred A. Jacobs (2006). "Effects of Nonprofit Organizational Wealth on Donations: Evidence from Recent Data on the *NonProfit Times 100." Zeitschrift fur Offentliche and Gemeinwirtschaftliche Unternehmen*, Volume 34, 74-88.

Marudas, Nicholas P. and Fred A. Jacobs (2007). "The Extent of Excessive or Insufficient Fundraising among US Arts Organizations and the Effect of Organizational Efficiency on Donations to US Arts Organizations." *International Journal of Nonprofit and Voluntary Sector Marketing,* Volume 12, 267-273.

Posnett, John and Todd Sandler. (1989). "Demand for Charity Donations in Private Non-profit Markets." *Journal of Public Economics*, Volume 40, 187-200.

Tinkelman, Dan (1998). "Differences in Sensitivity of Financial Statement Users to Joint Cost Allocations: The Case of Nonprofit Organizations." *Journal of Accounting, Auditing, and Finance*, Volume 13, 377-394.

Tinkelman, Dan (1999). "Factors Affecting the Relation between Donations to Not-for-Profit Organizations and an Efficiency Ratio." *Research in Governmental and Nonprofit Accounting*, Volume 10, 135-161.

Tinkelman, Dan and Kamini Mankaney. (2007). "When is Administrative Efficiency Associated with Charitable Donations?" *Nonprofit and Voluntary Sector Quarterly*, Volume 36, 41-64.

White, Henry (1980), "A Heteroscedasticity–consistent Covariance Matrix Estimator and a Direct Test for Heteroscedasticity." *Econometrica*, Volume 48, 817-838.

APPENDIX

Table 1

Descriptive statistics (mean and standard deviation) of the data from the National Center for Charitable Statistics database. All variables are in thousands of dollars, except PRICE, AGE, and Y.

N=2,633	Mean	Standard deviation
GOV	$7,864	$41,351
PRICE	1.29	0.40
FR	$1,306	$4,915
NONGOV	$61,477	$204,647
AGE	39	19
WEALTH	3.27	4.85

GOV is governmental funding (revenue)
PRICE is donation price (the reciprocal of "program spending") which is total expenses / program expenses
FR is fundraising expense
AGE is years since first filing a Federal tax form
NONGOV is non-governmental revenue; i.e., total revenue – governmental revenue
WEALTH is (net assets) / (total expenses - fundraising expenses)

Table 2

Regression coefficients from testing the following models in levels form.

$$\ln GOV_{i,t} = b0 + b1\ln PRICE_{i,t-1} + b2\ln FR_{i,t-1} + b3\ln AGE_{i,t} + b4\ln Y_{i,t} + b5\ln (NONGOV)_{i,t-1} + u_{i,t}$$

PRICE	-1.11***
p value	.000
FR	0.40***
p value	.000
AGE	-0.14**
p value	.013

WEALTH	-0.33***
p value	.000
NONGOV	0.17***
p value	.000
INTERCEPT	6.69***
p value	.000
ADJ. R SQ.	0.27

***, **, and *, significant at the 1%, 5%, and 10% levels (two-tailed), respectively.
PRICE is total expenses / program expenses
FR is fundraising expenses (in dollars)
AGE is years since first filing a Federal tax return
WEALTH is (net assets / (total expenses - fundraising expenses))
NONGOV is non-governmental revenues (total revenues - governmental revenues)