LV13010

Do Donors Implicitly Ignore Fixed Assets when Assessing Nonprofit Organizational Wealth?

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Abstract

One of the nonprofit "watchdog" agencies publishes a measure of nonprofit organization (NPO) wealth specified as: net assets / (total expenses – fundraising expenses). Developed theory holds that donations to an NPO are negatively related to NPO wealth because high levels of wealth signal that an NPO takes a long time to spend a donation. Some empirical evidence supports this theory. However, NPOs with capital intensive operations could spend donations immediately on needed fixed assets, but still have high levels of wealth. Donors might recognize this flaw in the measure of wealth and adjust wealth to exclude fixed assets. On the other hand, there also is empirical evidence of a positive relation between wealth and donations. This could be because donors might view high NPO wealth as providing a greater financial "cushion". However, fixed assets provide less financial "cushion" than other more liquid assets. Donors may recognize this and adjust wealth to exclude fixed assets. This paper examines whether donors implicitly adjust NPO wealth to eliminate the effect of fixed assets, by testing wealth and then testing modified wealth (by subtracting fixed assets from the numerator of wealth) in a comprehensive model of donations at the organizational level. Five types of NPOs are tested. Results suggest that for one of the types, education, donors do adjust the measure of NPO wealth to eliminate the effect of fixed assets, but not for the other four types – arts, health, human services, and philanthropy.

Introduction

The nonprofit organization "watchdog" agency American Institute for Philanthropy (AIP) publishes a measure of nonprofit organization (NPO) wealth called "years of available assets". This measure is defined as net assets / (total annual expenses - fundraising expenses) and is calculated from publicly-available accounting disclosures of NPOs. AIP views high levels of NPO wealth negatively, stating that NPOs with high levels of wealth are not as "needy" as NPOs with low levels of wealth. Presumably, AIP is implying that an NPO with high levels of wealth has used its donations to accumulate investments, cash and perhaps other assets, that do not currently further the NPO's objectives.

Marudas (2004) develops theory for why NPO wealth could negatively impact donations and tests wealth in a comprehensive model of donations at the organizational level, finding mixed results: for some types of NPOs, donations are negatively associated with NPO wealth, and for other types of NPOs, donations are positively associated with NPO wealth. His theory holds that donors prefer that an NPO spend donations to further the objectives of the NPO sooner

rather than later, and the delay between when the NPO receives a donation and when it spends the donation to further its objectives is increasing in the level of the NPO's wealth. In other words, donors perceive an NPO with a high level of wealth to take longer to spend a donation to further its objectives than an NPO with a low level of wealth. However, this assertion is not necessarily true; NPOs could spend donations, immediately after receipt from donors, on fixed assets. While this would be an immediate expenditure of donations, because fixed assets are included in the calculation of NPO wealth, such expenditures would increase wealth, seemingly, but incorrectly, implying to the donor that his or her donations have not been timely spent and that the NPO has "idle" donations. Clearly, NPOs with capital intensive operations would have to spend donations on fixed assets and such expenditures would not represent idle funds (or delays in using donor funds toward furthering the objectives of the NPO.)

It may be that donors recognize this flaw in the specification of wealth publicized by the watchdog agencies; i.e., that fixed assets should be excluded from net assets in the definition of wealth. Donors might recognize and implicitly adjust the calculation of wealth to eliminate the effect of fixed assets. This would manifest itself in the empirical results as a stronger negative association between donations and adjusted wealth (by subtracting fixed assets from the numerator in calculating wealth) than the negative association between donations and unadjusted wealth (in which fixed assets are included in the numerator in calculating wealth). If donors do not adjust the calculation of wealth for fixed assets, then NPOs with inherently capital-intensive operations would be penalized by donors by lower donations, ceteris paribus. However, if donors do adjust wealth for fixed assets, then NPOs with inherently capital-intensive program operations; i.e., those with high levels of fixed assets would not be penalized by donors through lower donations, ceteris paribus. Knowing whether donors implicitly ignore fixed assets would be useful information to managers of capital intensive NPOs; these managers may be less

reluctant to increase fixed assets for sound operational reasons if they knew that donors do not penalize them for such increases.

On the other hand, if donors associate increased NPO wealth with sounder financial conditions, consistent with a positive relation between donations and NPO wealth, then donors may prefer donating to an NPO with higher rather than lower wealth. However, NPOs with high levels of wealth stemming from a high proportion of total assets in the form of fixed assets would, in fact, not be as financially sound, ceteris paribus, as NPOs with higher wealth stemming from a high proportion of total assets in the form of more liquid assets than fixed assets. Donors might recognize and implicitly adjust the calculation of wealth to eliminate the effect of fixed assets. This would manifest itself in the empirical results as a weaker positive association between donations and adjusted wealth (by subtracting fixed assets from the numerator in calculating wealth) than the positive association between donations and unadjusted wealth (in which fixed assets are included in the numerator in calculating wealth).

This paper advances the literature on determinants of donations at the organizational level by testing whether donors implicitly eliminate fixed assets from the calculation of NPO wealth. A comprehensive model of donations at the organizational level is tested first with the standard specification of NPO wealth: net assets / (total annual expenses - fundraising expenses) and then tested with a modified specification of wealth that eliminates the effect of fixed assets on wealth: (net assets - fixed assets) / (total annual expenses - fundraising expenses). Data on NPO industry samples, such as arts, education, health, etc. are tested.

For industry samples for which wealth is significantly negative associated with donations, results showing that donations are significantly more strongly negatively associated with the modified specification of wealth than with the standard specification of wealth would be consistent with the notion that donors do take into account the capital intensiveness of NPO

operations when assessing NPO wealth. Alternatively, for industry samples for which wealth is significantly positively associated with donations, results showing that donations are less strongly positively associated with the modified specification of wealth would also be consistent with the notion that donors do take into account that fixed assets are less liquid (and therefore, do not provide the same financial "cushion") than more liquid assets. Results that show there is no significant difference in the association between donations and the modified and unmodified specifications of wealth would be evidence that donors do not take into account the capital intensiveness of NPO operations nor the lower liquidity of fixed assets relative to more liquid assets when assessing NPO wealth. This result would suggest that capital intensive NPOs are "penalized" with lower donations because of their spending on fixed assets. The remainder of this paper is organized as follows: the relevant literature is reviewed in section 2, empirical specifications are discussed in section 3, the data are discussed in section 4, results are discussed in section 5, and a summary and limitations are presented in section 6.

2. Literature Review

No prior studies examine whether donors take into account, implicitly or explicitly, the capital intensiveness of NPO operations in assessing the wealth of an NPO. Therefore, the current paper is considered to be an initial investigation into this research question, and the literature review describes the studies that examine the organizational characteristics of NPOs that affect organization-level donations. The studies reviewed here are important because they develop the underlying model of donations used in this paper.

Weisbrod and Dominguez (1986) model organization-level donations to a particular NPO as a function of the organization-specific factors price, advertising, and quality. They use fundraising expenses to proxy for advertising and age of the organization to proxy for quality.

They define price as 1 / (1 - (f + a)), where f is the proportion of donations spent on fundraising, and a is the proportion of donations spent on administration.

Posnett and Sandler (1989) test 1985 data for a sample of the 300 largest United Kingdom NPOs using a log-log model consisting of price, fundraising expenses, government support, age, autonomous income, and legacies (bequests). They also find fundraising to have a significant positive effect on donations and find, generally, that the other factors also have a significant effect on donations.

Callen (1994) tests the Posnett and Sandler (1989) model, but without legacies, on 1986 data for 72 Canadian health NPOs and also finds fundraising to have a significant positive effect on donations and the other factors to have a significant effect on donations.

Tinkelman (1998) uses the Posnett and Sandler (1989) model, but without legacies because data on legacies is not readily available for U.S. NPOs. He adds to the model ratings from one of the watchdog agencies and total assets as a size control, separates program service revenue from other revenue, and tests data on 191 large U.S. NPOs for 1991 and 1992. He finds that fundraising has a significant positive effect on donations and that the other factors also have a significant effect on donations, except for agency ratings, which are not significant.

Marudas (2004) tests data on 1,239 U.S. NPOs from 1986-94 using the Tinkelman (1998) log-log model but with the addition of "years of available assets," considered to be a measure of NPO wealth. He finds fundraising to have a significant positive effect on donations for the six types of NPOs he tests, and that organization "wealth" and the other factors have a significant negative effect on donations for some of the industry samples he tests.

Marudas and Jacobs (2006) test data on the Nonprofit Times 100 (the 100 largest U.S. NPOs) for 2000-2001 using the Marudas (2004) model and a better specification of wealth.

They also find that fundraising has a significant positive effect on donations and that organization wealth and age have significant negative effects on donations.

Jacobs and Marudas (2009) test a comprehensive model that includes all factors shown in the literature to affect donations and the two accounting measures of inefficiency: PRICE and ADEFF. They find that both ADEFF (-0.12) and PRICE (-0.56) are significantly negatively related to donations in their full sample of a large data set of US NPOs.

Kitching (2009) adds a proxy for auditor quality to a model that includes all factors, except legacies and NPO wealth, known to affect donations but that includes only PRICE as the measure of accounting inefficiency. She finds PRICE to be significantly negatively related to donations (-0.74) in her full sample and finds auditor quality to be significantly positively related to donations. The primary purpose of this paper is to test the hypothesis that auditor quality, proxied by Big 5 versus non-Big 5 auditor, affects donations.

Gordon, Knock, and Neely (2009) model the percentage change in donations as a function of differences in watchdog ratings, PRICE (as the only accounting inefficiency measure), and other control variables, but omit some factors known to affect donations. The primary purpose of their paper is to test whether watchdog agency ratings have additional information content for donors. They find that the positive change in ratings is significantly positively related to donations and also find PRICE to be significantly negatively related to donations.

3. Empirical Specifications

To test whether donors implicitly account for the capital intensiveness of NPO operations, the latest model of organization-level donations as a function of organizational characteristics is used (Jacobs and Marudas, 2009) [1].

$$\ln DON_{i,t} = b_0 + b_1 \ln PRICE_{i,t-1} + b_2 \ln FR_{i,t} + b_3 \ln GOV_{i,t-1} + b_4 \ln PREV_{i,t-1} + b_5 \ln AGE_{i,t} + b_6 \ln Y_{i,t} + b_7 \ln TOTREV_{i,t} + b_8 \ln ADEFF_{i,t-1} + u_{i,t} \quad (1)$$

where i indicates NPO, t indicates year, DON is donations, PRICE is total expenses / program expenses, FR is total fundraising expense, GOV is government support, PREV is program service revenue, AGE is years since first filing a Federal tax return, Y is years of available assets at the beginning of the year, considered to be a measure of wealth and specified as net assets / (total expenses – fundraising expenses), TOTREV is total revenue, ADEFF is administrative inefficiency (administrative expenses / total expenses), and u is error.

This model is tested and then wealth is replaced with a modified specification of wealth that eliminates the effect of fixed assets on net assets. Therefore, the modified model is:

$$\ln DON_{i,t} = b_0 + b_1 \ln PRICE_{i,t-1} + b_2 \ln FR_{i,t} + b_3 \ln GOV_{i,t-1} + b_4 \ln PREV_{i,t-1} + b_5 \ln AGE_{i,t} + b_6 \ln MODY_{i,t} + b_7 \ln TOTREV_{i,t} b_8 \ln ADEFF_{i,t-1} + u_{i,t} \quad (2)$$

[1]This model is identical to that used in the literature except for one modification. Total revenues, instead of total assets, are used to control for size. This is because total assets are affected by choice of accounting method and capital-intensiveness of an NPO's operations, while total revenues are not. For example, NPOs that capitalize art collections would have much greater total assets than NPOs that do not, even if their total revenues are identical, and NPOs that use land or buildings in their operations would also have greater assets than NPOs that do not, even if their total revenues are identical. Furthermore, data on audit firm and watchdog rating, which are included in the models of donations of Kitching (2009) and Gordon, Knock, and Neely (2009), respectively, are not included in the Form 990, the underlying source of the data in the database used in this paper.

where i indicates NPO, t indicates year, DON is donations, PRICE is total expenses / program expenses, FR is total fundraising expense, GOV is government support, PREV is program service revenue, AGE is years since first filing a Federal tax return, MODY is (net assets – fixed assets) / (total expenses – fundraising expenses), modified wealth to eliminate the effect of fixed assets on the calculation of NPO wealth, TOTREV is total revenue, ADEFF is administrative inefficiency (administrative expenses / total expenses), and u is error. TOTREV is total revenue, and u is error.

For industry samples for which the parameter estimate on Y is significantly negative, finding a significantly greater (in magnitude) negative parameter estimate on MODY would imply that donations are more sensitive to MODY than Y. This would suggest that donors ignore fixed assets in calculating wealth and, implicitly, that donors consider spending on fixed assets as equivalent to expenses. On the other hand, finding no significant difference between the parameter estimate of Y and the parameter estimate of MODY would suggest that donors do not ignore fixed assets in calculating NPO wealth and, implicitly, penalize NPOs with high fixed assets.

For industry samples for which the parameter estimate on Y is significantly positive, finding a significantly smaller parameter estimate on MODY would suggest that donors ignore fixed assets in calculating wealth and, implicitly, that donors realize that fixed assets are not as useful a financial cushion than more liquid assets. On the other hand, finding no significant difference between the parameter estimate of Y and the parameter estimate of MODY would suggest that donors do not ignore fixed assets in calculating NPO wealth.

4. 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. Furthermore, only observations with data on the year of tax filing could be used, since years since first filing a tax form is used as the proxy for age of the organization and the database contains no other information on organization age. In addition, following Tinkelman (1999), observations with implausible values – zero fundraising, negative total revenue, and zero program expenses - were deleted. This left a usable sample of 4,633 organizations. Nearly all prior studies test industry samples based on the National Taxonomy of Exempt Entities (NTEE) classification system. The following NTEE industry samples are large enough, in the database used in this paper, to test separately.

Arts – 526 usable observations

Education – 1,482 usable observations

Health - 561 usable observations

Human Services - 580 usable observations

Philanthropic - 358 usable observations

Since the log of zero is undefined, following the prior research, a nominal amount ($1) is added to every zero value of GOV and PREV[2]. Descriptive statistics for the data are provided in Table 1.

[2] While zero values of all the other variables are considered to be implausible (Tinkelman, 1998), it is plausible that NPOs do not receive any governmental support or generate any revenue from the program services they provide.

TABLE 1

DESCRIPTIVE STATISTICS

Descriptive statistics (mean and standard deviation) of the data from the National Center for Charitable Statistics. All variables are in thousands of dollars, except PRICE, ADEFF, AGE, Y, and MODY. Data are from 2000, except for DON and FR, which are for 2001. Y and MODY are as of the end of 2000.

N=4633	Mean	Standard deviation
DON	$10,792	$45,084
PRICE	1.40	1.49
FR	$1,135	$4,416
ADEFF	.15	.11
GOV	$3,921	$28,417
PREV	$24,613	$103,415
AGE	37	19
Y	6.6	37.4
MODY	5.5	36.0
TOTREV	$47,336	$179,709

DON is donations (in thousands of dollars)
PRICE is total expenses / program expenses
FR is fundraising expense (in thousands of dollars)
ADEFF is administrative expenses / total expenses
GOV is governmental financial support (in thousands of dollars)
PREV is program service revenue (in thousands of dollars)
AGE is years since first filing a tax form
Y is net assets / (total expenses - fundraising expenses), considered to be a measure of wealth
MODY is (net assets – fixed assets) / (total expenses – fundraising expenses)
TOTREV is total revenue (in thousands of dollars)

Because of significant heteroscedasticity in all years, White's (1980) consistent variance-covariance matrix estimator is used to develop confidence intervals. Multi-collinearity, measured by condition indices, is moderate in the full sample and all industry samples, based on results from applying the method of Hair, et al. (1995). Cook's distance test indicates no influential outliers in any industry samples. Durbin-Watson *d* statistics indicate no significant autocorrelation.

5. Results

Parameter estimates from testing the model in equation 1, using wealth (Y), are shown in Table 2.

TABLE 2

REGRESSION RESULTS FROM TESTING (UNMODIFIED) WEALTH

$$lnDON_{i,t} = b_0 + b_1 lnPRICE_{i,t-1} + b_2 lnFR_{i,t} + b_3 lnGOV_{i,t-1} + b_4 lnPREV_{i,t-1} + b_5 lnAGE_{i,t} + b_6 lnY_{i,t} + b_7 lnTOTREV_{i,t} + b_8 lnADEFF_{i,t-1} + u_{i,t}$$

	ARTS	**EDU-CATION**	**HEALTH**	**HUMAN SERVICES**	**PHIL-ANTHROPIC**
	N=526	N=1482	N=561	N=580	N=358
lnINTERCEPT	-0.45	0.54*	3.69***	1.96***	1.29***
t stat.	-1.1	1.7	6.0	3.7	3.4
lnPRICE	0.12	-0.47***	-0.44***	-0.30	-0.38**
t stat.	0.8	-3.1	-2.7	-1.4	-2.5
lnFR	0.23***	0.31***	0.48***	0.39***	0.20***
t stat.	6.9	14.3	11.8	12.8	6.2
lnGOV	-0.01	-0.01***	0.03***	0.01	-0.00
t stat.	-0.9	-3.6	2.7	1.3	-0.6
lnPREV	-0.04***	-0.06***	-0.09***	-0.05***	-0.01**
t stat.	-4.3	-12.3	-7.3	-6.0	-2.2
lnAGE	0.03	-0.06	-0.05	-0.14**	-0.04
t stat.	0.5	-1.4	-0.6	2.0	-0.9

lnY	**-0.05**	**0.29*** **	**0.14*** **	**0.24*** **	**-0.12*** **
t stat.	**-1.4**	**10.8**	**3.0**	**6.1**	**-4.8**
lnTOTREV	0.81***	0.68***	0.33***	0.54***	0.76***
t stat.	20.1	24.3	7.2	12.2	21.1
lnADEFF	0.04	-0.00	0.01	0.04	-0.03
	1.1	-0.1	0.3	1.6	-0.9
ADJ. R SQ.	0.82	0.74	0.47	0.63	0.85

***, **, and *, significant at the 1%, 5%, and 10% levels (two-tailed), respectively.
DON is donations (in dollars)
PRICE is total expenses / program expenses
FR is total fundraising expenses less professional fundraising service fees (in dollars)
GOV is governmental financial support (in dollars)
PREV is program service revenue (in dollars)
AGE is years since the organization first filed a tax form
Y is (net assets – fixed assets) / (total expenses – fundraising expenses)
TOTREV is total revenue (in dollars)
ADEFF is administrative expenses / total expenses

Wealth (Y) is significantly positive in three of the industry samples (education, health, and human services), significantly negative in one of the samples (philanthropic), and not significant in one of the samples (arts). Results for the other variables are generally consistent with results of prior studies: price (PRICE) is significantly negative in three of the five samples, fundraising (FR) is significantly positive in all of the samples, and size (TOTREV) is significantly positive across all samples. However, age (AGE) is significantly negative in only one of the samples (human services) and not significant in all other samples. Prior studies generally find age to be significantly negative. Furthermore, governmental support and program service revenues have mixed results –significantly positive for some samples and significantly negative for others, although in all samples, the parameter estimates are small, consistent with results of prior studies.

Parameter estimates from testing the model in equation 2, using modified wealth (MODY), are shown in Table 3.

TABLE 3

REGRESSION RESULTS FROM TESTING MODIFIED WEALTH

$$lnDON_{i,t} = b_0 + b_1 lnPRICE_{i,t-1} + b_2 lnFR_{i,t} + b_3 lnGOV_{i,t-1} + b_4 lnPREV_{i,t-1} + b_5 lnAGE_{i,t} + b_6 lnMODY_{i,t} + b_7 lnTOTREV_{i,t} + b_8 lnADEFF_{i,t-1} + u_{i,t}$$

	ARTS	**EDUCATION**	**HEALTH**	**HUMAN SERVICES**	**PHIL-ANTHROPIC**
	N=526	N=1482	N=561	N=580	N=358
lnINTERCEPT	-0.43	0.63**	3.68***	2.32***	1.27***
t stat.	-1.1	2.0	6.0	4.4	3.3
lnPRICE	0.06	-0.38**	-0.43***	-0.23	-0.38**
t stat.	0.5	-2.5	-2.6	-1.1	-2.5
lnFR	0.24***	0.31***	0.47***	0.40***	0.20***
t stat.	7.1	14.0	11.6	13.2	6.2
lnGOV	-0.01	-0.01***	0.03***	0.01	-0.00
t stat.	-0.8	-3.8	2.7	0.8	-0.6
lnPREV	-0.04***	-0.06***	-0.08***	-0.05***	-0.01**
t stat.	-4.0	-12.3	-6.9	-5.8	-2.3
lnAGE	0.02	-0.04	-0.05	-0.10	-0.04
t stat.	0.3	-1.0	-0.6	-1.4	-0.9
lnMODY	**-0.00**	**0.17*** **	**0.12*** **	**0.24*** **	**-0.11*** **
t stat.	**-0.1**	**10.4**	**3.3**	**6.1**	**-4.7**
lnTOTREV	0.80***	0.69***	0.34***	0.51***	0.76***
t stat.	19.8	24.6	7.4	11.7	21.0
lnADEFF	0.04	-0.00	0.01	0.04*	-0.04
	1.1	-0.3	0.2	1.9	-1.0
ADJ. R SQ.	0.82	0.74	0.47	0.62	0.85

***, **, and *, significant at the 1%, 5%, and 10% levels (two-tailed), respectively.
DON is donations (in dollars)
PRICE is total expenses / program expenses
FR is total fundraising expenses less professional fundraising service fees (in dollars)
GOV is governmental financial support (in dollars)
PREV is program service revenue (in dollars)
AGE is years since the organization first filed a tax form

MODY (net assets – fixed assets) / (total expenses – fundraising expenses)
TOTREV is total revenue (in dollars)
ADEFF is administrative expenses / total expenses

MODY is significantly positive in three of the industry samples (education, health, and human services), significantly negative for one of the samples (philanthropic), and not significant for one of the samples (arts). However, what is relevant to this study is whether the parameter estimate for MODY in the education sample, the health sample, and the human services sample (samples for which the parameter estimates for Y and MODY are significantly positive) is significantly lower than the respective sample parameter estimates for Y. In fact the parameter estimate for MODY (0.17) is significantly lower than the parameter estimate for Y (0.29) at the 1% level. The parameter estimates for MODY in the health and the human services samples are not significantly different from the respective parameter estimates for Y at the 10% level or better.

These results are consistent with the notion that donors to education NPOs implicitly delete or ignore fixed assets when calculating NPO wealth, perhaps recognizing that fixed assets are not as effective of a financial cushion as other more liquid assets. However, this does not seem to be the case for donors to health and to human services NPOs. Furthermore, the parameter estimate for MODY in the philanthropic sample, which is significantly negative, is not significantly different from the parameter estimate for Y, which is also significantly negative. This suggests that donors to philanthropic NPOs do not implicitly ignore fixed assets in calculating NPO wealth.

6. Conclusions and Limitations

This paper examines whether donors implicitly distinguish between fixed assets and other assets when assessing wealth of an NPO. Results are consistent with the notion that donors to

education NPOs do distinguish between fixed assets and more liquid assets in assessing wealth of an NPO but donors to other types of NPOs – arts, health, human services, and philanthropic – do not. Likely, this is because while data on fixed assets is made publicly available by NPOs, watchdog agencies that publish metrics on NPO performance do not distinguish between fixed assets and other assets. Donors may not attend to underlying data on balance sheet disclosures of NPOs.

This paper has some limitations. Donors may be heterogeneous in their interpretation of wealth; one set of donors may view higher levels of NPO wealth negatively, consistent with a belief that NPOs with high levels of wealth are less "needy" – that donations to such NPOs may sit in idle reserves that do not currently further the NPOs' objectives. Another set of donors may view higher levels of NPO wealth favorably, consistent with a belief that NPOs with high levels of wealth are more financially sound. If an NPO receives donations from both sets of donors, the empirical relation between donations and wealth would be attenuated. In other words, one could find no significant relation between donations and wealth because the set of donors with one belief offset donors with the opposite belief. This phenomenon would bias parameter estimates towards zero. Nonetheless, finding a significant relation, whether positive or negative, between wealth and donations, would be a strong indication that one of the sets of donors "dominates" the other.

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