

Do Government Grants to Private Charities Crowd Out Giving or Fund-raising?

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Economists have long observed that crowding out of government grants to private charities is incomplete. The accepted belief is that givers treat the grants as imperfect substitutes for private giving. We theoretically and empirically investigate a second reason: the strategic response of a charity will be to reduce fund-raising efforts after receiving a grant. Employing panel data from arts and social service organizations, we find that government grants cause significant reductions in fund-raising. This adds a new dimension to the policy discussions—analysts should account for the behavioral responses of the charity, as well as the donors, to government grants. (JEL H00, H32, H50)

When the government makes a grant to a private charitable organization, does it displace private giving? This is one of the fundamental policy questions in public finance, and much theoretical and empirical research has been devoted to understanding the relationship between private donations and government funding. The hypothesis underlying these studies is that givers, who are also taxpayers, will use their tax-financed donations as a substitute for their voluntary donations, thus reducing the net effectiveness of the grants. This has been called the crowding-out hypothesis.¹ Recently, new research has begun to examine the role that fund-raising plays on the solicitation and receipt of donations by studying the theoretical structure of fund-raising and the marginal effectiveness of fund-raising expenditures.² There is a

natural question that falls between these two literatures, namely, what is the behavioral response by charitable fund-raisers to receiving a government grant? Do they increase or decrease fund-raising efforts? If they decrease these efforts, perhaps this behavioral effect by fund-raisers, rather than a direct behavioral response by individuals, could be responsible for the crowding out observed. In other words, could grants to charities be crowding out the fund-raisers rather than the givers?

We explore this question theoretically and empirically. The theoretical model examines the role that fund-raising plays in attracting private donations and the effect that government grants have on the incentives, in equilibrium, to raise more donations. We predict that an increase in government funding should decrease fund-raising efforts of the organizations, and that this alone could generate the incomplete crowding-out that has been observed.

We then examine this prediction with extensive empirical research. We analyze data on tax returns of 534 social service organizations and 233 arts organizations between 1982 and 1998. These two types of charitable organizations differ in both the nature of the services they provide and in their reliance on private donations

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¹ For recent contributions see Richard Steinberg (1991); Jyoti Khanna et al. (1995); Payne (1998, 2001); Cagla Okten and Burton A. Weisbrod (2000).

² See, e.g., Susan Rose-Ackerman (1982); Steinberg (1986, 1994); Weisbrod and Nestor D. Dominguez (1986);

Andreoni (1998, 2001); Howard P. Tuckman and Cyril F. Chang (1998); Patrick Michael Rooney (1999); Richard Romano and Huseyin Yildirim (2001); John Straub (2001); and Lise Vesterlund (2003).

and government grants. The arts organizations, on average, rely more on private donations. Average annual private donations in constant dollars are \$6.1 million whereas average government grants are \$1.3 million; average fund-raising expenditures are \$637,000. Grants to these organizations are likely to be tied to specific events, such as an exhibit or performance. Social service organizations are quite different. They rely far more on government grants. Average annual private donations are \$2.4 million, average government grants are \$2.2 million, and average fund-raising expenditures are \$360,000. Moreover, many grants to social service organizations often look quite similar to government contracts to serve certain needy populations. These organizations often have well-staffed fund-raising offices to apply for and administer these extensive grants and contracts. By considering very different structures of these two types of nonprofit organizations, we can get a broader view of the questions at hand.

Our empirical results confirm the theory. First, we look at the effect of government grants on aggregate fund-raising expenditures. For the arts organizations, under a two-stage least-squares specification, the results suggest an additional \$1,000 in government grants decreases fund-raising expenditures, on average, by \$265, suggesting an average decline of more than 50 percent. The results for the social service organizations, in contrast, suggest that \$1,000 in government grants decreases aggregate fund-raising expenditures by \$54, suggesting an average decline of less than 35 percent. Second, we disaggregate fund-raising expenditures into three areas: fees paid to professional fund-raising services, salaries of the organization's officers devoted to fund-raising, and other fund-raising staff and salaries. Looking at these three types of expenditures separately underscores the overall effect found for the arts organizations and the social service organizations for expenditures devoted to professional fund-raising and the fund-raising salaries of staff. A \$1,000 increase in grants to social service organizations decreases spending on professional services by \$19 and decreases the cost attributable to staff salaries by \$11. The effect of grants on the salaries of the organization's officers devoted to fund-raising is not statistically significantly dif-

ferent from zero. A \$1,000 increase in grants to arts organizations decreases spending on professional services by \$53, decreases the cost attributable to officers' salaries by \$21, and decreases the cost attributable to staff salaries by \$153. Hence, contributions to charities may indeed fall when they receive a grant, but our results suggest that the reason may lie with the charities' fund-raising efforts, not solely with the givers.

This paper is organized as follows. Next we present our theoretical model, showing the equilibrium response of charities to government grants. Section II describes the data and Section III sets out our empirical specification. Section IV presents the estimation and Section V provides a conclusion and discussion of policy implications.

I. Theoretical Model

Models on crowding out have typically assumed that individuals have complete information on the menu of charities available and express their demands for the public goods through their donations.³ In developing a theoretical model of fund-raising, therefore, one must first ask why fund-raisers are necessary. In the model we present below, we appeal to an often-cited fund-raising technique called "the power of the ask." That is, individuals and charities alike report that givers give primarily because they are asked. Stated differently, givers seem to have latent demands to donate. Until they are asked, this demand goes unexpressed.

The model we present is based on models of advertising that reduce or eliminate prohibitive search costs. In these models, when a salesperson calls or sends a solicitation, the search costs are eliminated and the purchase is made. In our framework, individuals who may have "always wanted to donate" but "didn't know the address" will be able to donate when solicited by the charity.

Suppose that charities differ qualitatively in the services they provide. For instance, one group that serves disaster victims may focus on providing more food than medicine and another

³ See, for instance, Theodore Bergstrom et al. (1986), and Andreoni (1988).

may put more emphasis on medicine than food. Likewise, individuals differ in the quality of charity they prefer, with some preferring the charity that provides more medicine and the other preferring the charity that provides more food.

Next, we assume that individuals face high costs of finding the names and addresses and qualities of charities. Or, equivalently, they have good intentions to give to the charity but procrastinate in doing so.⁴ When a charity solicits a contribution from an individual, it reduces this transaction (or procrastination) cost to zero for the giver. For the sake of modeling, we assume that individuals will not give unless they are solicited by the charity. If they are solicited then they will give, but how much they give will depend on how close the charity is to their ideal quality. If they are solicited by more than one charity, we assume that they give solely to the charity nearest to their ideal.⁵ Note that we only preclude giving without being solicited as a convenience for modeling purposes. If some people give without being solicited, then this is a windfall to the charity that can easily be absorbed into our model. Fund-raising is needed as long as some people need to be asked.

We assume charities move first in setting their fund-raising levels; that is, by selecting the number of households to solicit. Charities move simultaneously. Given the solicitations received, givers move second and play a standard Nash equilibrium giving game.

Let x_i be an individual's consumption of pri-

vate goods, and let y_{ij} be i 's contribution to charity j , where $y_{ij} \geq 0$ for all i and j . Let θ_j be the probability that an individual is solicited by charity j . We assume that higher θ costs more in fund-raising expenditures and that the marginal cost is increasing. The costs of fund-raising are designated as $F_j(\theta_j)$, where $F' > 0$ and $F'' > 0$. Finally, let G_j be the level of government grants received by charity j . Thus, we can define the level of the charitable services provided as

$$(1) \quad C_j = \sum_{i=1}^n y_{ij} + G_j - F_j(\theta_j).$$

We treat the quality indicator of a charity as a real number located along a line segment of length one. Use $L_j \in [0, 1]$ to indicate the location of charity j . Individuals have a most favored quality, say $L_i^* \in [0, 1]$. If $d(L_i^*, L_j)$ is some distance function, then we assume that the utility an individual i gets from giving to charity j will be increasing in $\ell_{ij} = 1 - d(L_i^*, L_j)$. In particular, we assume preferences are of the form

$$(2) \quad U_i = u_i(x_i, C_j; \ell_{ij}),$$

where utility exhibits the single crossing property with respect to ℓ_{ij} :

$$\frac{\partial u_i(x, C; \ell_{ij})/\partial C}{\partial u_i(x, C; \ell_{ij})/\partial x} \geq \frac{\partial u_i(x, C; \ell_{ik})/\partial C}{\partial u_i(x, C; \ell_{ik})/\partial x}$$

if $\ell_{ij} \geq \ell_{ik}$.

All else equal, this will imply that not only will an individual prefer to give to a charity that is closer to her ideal quality, but she will also want to give more to it than one farther away.⁶

Fund-raising has two effects on donations.

⁴ This assumption has precedence in the literature on advertising, which often assumes that an individual will not exercise their demand for a good unless they receive an advertisement from a seller. This can also be justified from models of procrastination (Ted O'Donoghue and Matthew Rabin, 1999a, b), since a commitment to a charity may yield a "warm-glow" to the giver before they actually mail the check. Hence the benefits can flow before the costs are paid, which is the prescription for procrastination identified by O'Donoghue and Rabin.

⁵ This assumption is for simplicity. A giver with convex preferences could be better off giving to a convex combination of all who solicit, but of course giving the most to the charity closest to his/her ideal. All the results presented here follow with the more complex and realistic assumption. The important aspect of the model is that more fund-raising by one charity will reduce the effectiveness of fund-raising by other charities.

⁶ Notice also that (2) implies individuals only get utility from the charity they give to, not from the charities to which they do not give, despite the fact that all charities are public goods. If we assume preferences are separable in all charities, so that the marginal rate of substitution between the charity one gives to and those one does not is independent of the level of charity raised by the others, then all of the results that follow extend to this case as well. Nonetheless, this is an obvious avenue for generalization in later work.

On the extensive margin, it increases the number of people who give to the charity by increasing the number of givers solicited. On the intensive margin, it increases the average value of ℓ among givers by matching them more closely to their ideal quality, thus tending to raise the amount given. We assume that, although charities do not know the L^* of any individual, they know the proportions of each type in society. Hence, we can think of fund-raising as a random solicitation of individuals, such as through mailings or telephone calls, and so any individual is equally likely to be solicited by the charity.⁷

Next, what are the objectives of the fund-raisers? If the providers of charity care about producing charitable services, then they may be net revenue maximizers, choosing θ to maximize C , taking as given the fund-raising of other competing charities. On the other hand, managers of charities may see fund-raising as a “necessary evil” that they need to endure to provide services they value. That is, the objectives of the charity may be better described by a function $V_j = v_j(C_j, \theta_j)$ where $\partial v/\partial C > 0$ and $\partial v/\partial \theta < 0$, so that charities may not choose the level of fund-raising to maximize net revenues. There is evidence this model of fund-raising aversion may be more appropriate for many organizations.⁸ We can simplify this expression by assuming that fund-raisers maximize

$$V_j = C_j(\theta_j) - s_j\theta_j$$

where $s_j \geq 0$ represents the disutility to the charity managers of engaging in fund-raising.

To simplify the exposition, assume there are only two charities, 1 and 2, and two types of individuals. For the n_1 type 1 individuals $\ell_{11} = 1$, and for the n_2 type 2 individuals $\ell_{22} = 1$. For

a given (θ_1, θ_2) we know that the number of givers of type 1 to charity 1 will be $n_{11}(\theta_1, \theta_2) = \theta_1 n_1$ and the number of type 2 givers to charity 1 will be $n_{21}(\theta_1, \theta_2) = \theta_1(1 - \theta_2)n_2$. Similarly, $n_{22}(\theta_2, \theta_1) = \theta_2 n_2$ and $n_{12}(\theta_2, \theta_1) = \theta_2(1 - \theta_1)n_1$. Given these numbers, and their own solicitations received, individuals will maximize utility (2) subject to the budget constraint $x_i + p_i y_{ij} = m_i$, where $0 < p_i \leq 1$ is the price of a giving, which may be less than one due to the charitable deduction from income taxes, and m_i is i 's after-tax income. Solving this maximization, and assuming identical individuals within types, it is easy to find equilibrium contribution levels of the form

$$y_{11}^* = f_{11}(\theta_1, \theta_2; G_1)$$

$$y_{21}^* = f_{21}(\theta_1, \theta_2; G_1)$$

where $\partial f_{i1}/\partial \theta_1 \geq 0$, $\partial f_{i1}/\partial \theta_2 \leq 0$, and $\partial f_{i1}/\partial G_1 \leq 0$ for $i = 1, 2$. Similar results hold for charity 2. That is, in equilibrium, own fund-raising increases own revenues but decreases a competitor's revenues. Likewise, higher G will partially “crowd out” individual contributions.

We can turn next to the game among the charities. The total contributions received by a charity will be increasing in its own fund-raising and decreasing in the fund-raising of the competing charity. Thus, we assume that each charity will maximize

$$(3) \quad V_j = C_j(\theta_j, \theta_k; G_j) - s_j\theta_j,$$

where $C_j(\theta_j, \theta_k; G_j)$ is the equilibrium outcome of the subgame among givers. This will lead to best-reply functions by the charities of

$$\theta_j^* = \theta_j^*(\theta_k; G_j),$$

$$\text{with } \partial \theta_j^*/\partial \theta_k < 0, \text{ and } \partial \theta_j^*/\partial G_j \leq 0.$$

These derivatives of the best-reply function can be gleaned from a total differentiation of (3). Note that

$$\frac{\partial \theta_j^*}{\partial \theta_k} = - \frac{\partial^2 C_j / \partial \theta_j \partial \theta_k}{\partial^2 C_j / \partial \theta_j^2}.$$

By the second-order conditions on maximizing (3), the denominator above is negative. What

⁷ This is, of course, a simplification. We could alternatively assume that each individual is targeted by the charity to be solicited in a certain order and that this ordering is chosen strategically as well. As long as there is a set of givers that the charity is competing over, which is likely given incomplete information on donor preferences, adding this assumption would only complicate the analysis without providing any additional richness to our predictions.

⁸ Among other evidence, many charities appear not to be net-revenue maximizers. See Weisbrod (1988, 1998) for more discussion.

about the numerator? Recall that θ has two effects. First is the extensive margin, by bringing people into giving that otherwise would not give, and second is the intensive margin, in moving givers from the other charity to their more favored charity. As the other charity solicits more, the extensive margin will become less important. As it becomes more likely that any one person is solicited by the other charity, it becomes less likely that they will give to your charity. Hence, any solicitation is less productive. Therefore, $\partial^2 C_j / \partial \theta_j \partial \theta_k \leq 0$ and $\partial \theta_j^* / \partial \theta_k < 0$. We will also assume that $-1 < \partial \theta_j^* / \partial \theta_k$. This is similar to the types of stability conditions often invoked in duopoly models. These assumptions lead to the existence of a unique subgame-perfect Nash equilibrium. This is illustrated in Figure 1.

It is also easy to see that $\partial \theta_j^* / \partial G_j \leq 0$. In particular, by total differentiation we know that

$$\frac{d\theta_j^*}{dG_j} = - \frac{\partial^2 C_j / \partial \theta_j \partial G_j}{\partial^2 C_j / \partial \theta_j^2}.$$

Since individuals will be “crowded out” by government grants, we know that when they are solicited they will give less when G is higher. Hence, $\partial^2 C_j / \partial \theta_j \partial G_j < 0$ and $d\theta_j^* / dG_j \leq 0$. This yields Proposition 1.

PROPOSITION 1: *As government grants to a charity increase, fund-raising efforts by that charity will decrease.*

This proposition is also illustrated in Figure 1. Here $G'_1 > G_1$ and the best-reply function for firm 1 shifts toward the origin.⁹ Will crowding out be complete or incomplete? Suppose that the charity kept its fund-raising constant in response to a government grant. Then, because the grant is partially paid for by those who do not give to the charity, there will be an income effect that will increase the total supply of the public good (see Bergstrom et al., 1986). We just saw, however, that since marginal fund-

⁹ If we were to add the realistic assumption that there is increasing disutility to fund-raising by the charitable organization (since they prefer spending time providing the charitable services than fund-raising), this shift would be accelerated. Hence, the greater this increasing disutility, the more fund-raising will decline as grants go up.

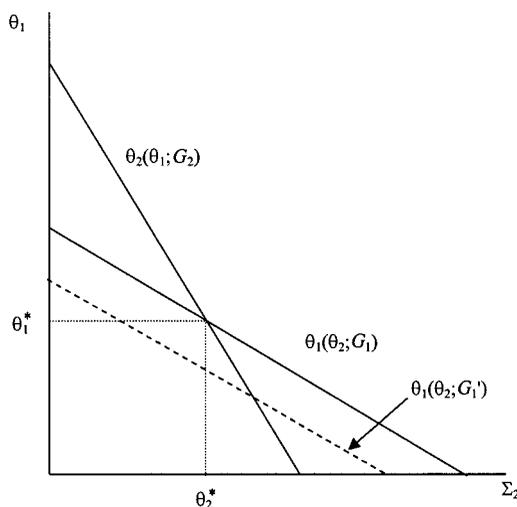


FIGURE 1. EQUILIBRIUM IN A MODEL OF FUND-RAISING

raising is less productive after the grant, the charity will reduce θ , leading to a decline in giving. Will the charity ever reduce θ so much that total C after the grant is lower than it was before the grant? The answer is no, and can be seen with a revealed-preference argument. In particular, it would have been possible for the charity to put less effort into fund-raising before the grant, thus raising less charity, which it did not choose. So given an opportunity to get at least as much C with less effort θ , the charity will surely take it. Hence, government grants will be incompletely crowded out in the presence of fund-raising. This gives us the following proposition:

PROPOSITION 2: *If the government increases its grant to a charity, the total level of charitable services will always rise, although not by the full amount of the grant. This is due to a combination of reduced fund-raising and classic crowding-out.*

Note that we have assumed that there is no “warm-glow” from giving (Andreoni, 1989, 1990). All the results generalize, however, to an assumption of impure altruism in which people give partly for the private pleasure of giving.¹⁰

¹⁰ Here we can see that the strategic responses of charities to government grants could lead to crowding-out even

Finally we turn to the issue of what determines government grants. To complete this model we would need to present a formal political model of democracy and policy formation, such as Timothy Besley and Stephen Coate (1997). In such a model the political process would suggest that charities that are more in favor of the electorate are more likely to receive government grants. Given the greater demand, they are more likely to engage in fund-raising. Hence, there should be a strong correlation between G_j and $\sum_i y_{ij}$ and F . This means that G , while exogenous to any one giver, is endogenous to the equilibrium level of C in the economy. This simultaneity will be a factor in the empirical work.

II. Nonprofit Data Set

The data on nonprofit revenues and expenses come from federal tax returns filed by IRS Section 501(c)(3) organizations for the period 1982 to 1998 (excluding 1984).¹¹ Representing the largest part of the nonprofit sector, 501(c)(3) nonprofits are those organizations whose purposes are religious, charitable, educational, scientific, or related to public safety testing.¹² The tax returns identify the amount the nonprofit received in private donations, government grants, and fund-raising expenditures for the year for which the return was filed. Private donations may come from individuals, estates, corporations, and/or other nonprofit organiza-

tions. Government grants include grants received from all levels of government, excluding reimbursements for services provided by the nonprofit under a government contract.¹³

The organizations have been classified in the National Taxonomy of Exempt Entities. We constructed two unbalanced panel data sets for organizations sampled by the IRS for more than three years located in the 48 contiguous United States. The first data set covers the following arts organizations: art museums, other types of museums, performing arts groups (theater, dance, etc.), and music groups.¹⁴ The second data set covers social service organizations that are concerned with: family or children, poor or homeless, elderly or disabled, crime or delinquents, employment issues, the environment, and other types of human services and housing-related services.¹⁵

We picked these two groups of organizations

¹³ These types of payments are reported on a nonprofit's tax return under program service revenue. Program service revenue, however, is not limited to payments by the government; it covers any payment received by the nonprofit for the services provided.

¹⁴ The organizations include those classified under the 2-digit NTEE codes of A5 and A6. We exclude, however, those organizations classified under the 3-digit codes of A61 and A6E. The organizations classified at A61 are performing arts centers which may or may not identify the entire funding received by the organization to conduct a performance at the center. For example, the Lincoln Center for Performing Arts in New York is treated as one organization, whereas the music society which is housed within the center is treated as a separate organization. As such, the tax return for the music society may not fully reflect the support the organization receives given it benefits from being housed within the Lincoln Center complex. The organizations classified as A6E are performing arts schools, which represent a type of nonprofit organization that is distinctly different from the arts organizations studied. By focusing on the organizations classified as A5 or A6, we excluded organizations such as professional societies, historical societies, cultural organizations, arts councils, film, video, radio and other media organizations, and commemorative events organizations.

¹⁵ The organizations include those classified under the 1-digit NTEE codes of C, I, J, K, L, P, and S. We exclude those organizations with the code of less than 19 (e.g., C01 to C19, I01 to I19) because these organizations include such things as professional societies, management and technical assistance, research institutes, and specific fund-raising organizations. Thus, their missions are not geared towards directly providing services. We also exclude organizations classified as P86 or P87. These organizations represent institutes for the blind (P86) and the deaf or hearing impaired (P87).

if people care only for a warm-glow and, as a result, would not substitute involuntary for voluntary gifts. If the charities dislike the act of fund-raising, then the income effect of a government grant means they can reduce the unpleasant fund-raising efforts.

¹¹ The data may be obtained from the Urban Institute's National Center for Charitable Statistics. For a given year, the returns are for firms whose accounting period ended between November of that year and October of the following year. The sample is stratified based on the asset size of the nonprofits. Most of the returns tracked are for nonprofits with assets that exceed \$500,000. For each year, IRS randomly sampled the nonprofit firms within each asset level. As IRS's budget for this study increased, the number of nonprofit organizations tracked for a given year also increased. Data for 1984 were not collected for budgetary reasons.

¹² An organization is required to file a tax return if its annual gross receipts are greater than \$25,000 and it is not a religious organization.

for several reasons. First, they represent different types of charitable goods and services insofar as the sectors of the population served. As such, the type of private donor attracted to giving to these different goods may also differ. Second, the reliance on government funding and private donations differs across these types of organizations. Third, given the structure of the arts organizations in the United States, these organizations are more likely to be less multidimensional in their missions than many of the social service organizations. For example, a dance troupe is concerned about performing dance and creating new dance pieces for the dance troupe to perform. A given social service organization may provide several types of services such as providing food, shelter, and some level of community reintegration for the homeless. Although all three services are complementary, the sources of funding for each of these services may be different. For example, in the area of social services, the government has become more involved in contracting out government-provided services to nonprofit and other types of organizations. Thus, one of the activities for a social service organization may involve performing services under a government contract that may be more regulated than the services that would be provided if the organization received a government grant.

As other authors have found, the IRS sample of nonprofit tax returns requires extensive data cleaning. There are four major reasons for this need. First, there are many zeros reported in the measures of interest. Given we are incorporating organization fixed effects in the regression specification, it is important to have measures that change over time for each organization as we will be measuring the average within effect across the organizations. Moreover, we are interested in studying those organizations that actively seek private donations and government grants as well as report the expenditures associated with fund-raising.

Second, there are divergent accounting practices among organizations that raise concern about the comparability of the tax returns. This stems from the fact that there is extensive heterogeneity in the size and level of professionalism in charitable organizations. This also stems from the fact that despite a requirement to file a

tax return, a nonprofit is not taxed on revenues raised primarily for the goods and services it provides. Thus, charitable organizations, relative to for-profit organizations, are treated differently by the IRS. In studying the returns, the most incongruous aspect we discovered with respect to the reporting of donations, grants, and fund-raising expenses, was that some organizations consistently reported positive private donations but no fund-raising expenses.

Third, as with any data set, there are anomalies in the data that must be addressed. Given the purpose of our study, we are interested in studying organizations that exhibit positive private donations, fund-raising expenditures, and government funding during the sample period. We, therefore, used the following rules to exclude organizations from the sample (followed sequentially):¹⁶

1. All organizations with three or fewer years of observations in the sample (236 arts organizations; 3,169 social service organizations).
2. All organizations that report zero government grants for all years for which the organization is in the sample (61 arts organizations; 1,662 social service organizations).
3. All organizations that report zero private donations for all years for which the organization is in the sample (0 arts organizations; 200 social service organizations).
4. All organizations that report zero fund-raising expenditures during the sample period (24 arts organizations; 545 social service organizations).
5. All organizations that have three or more occurrences of reporting a zero fund-raising expenditure and positive private donations in two consecutive years in the sample or report three consecutive years of reporting a zero fund-raising expenditure and positive private

¹⁶ We also excluded organizations that are a national chapter of local organizations. We identified these organizations by searching for the word "national" or "America" in the name. We then confirmed these organizations were the national chapter of local organizations by reviewing their mission statements as obtained from their web sites. We include in the analysis, however, organizations that may have a national scope in their mission.

TABLE 1—SUMMARY STATISTICS

	Number of firms	Number of observations	Mean (\$1,000s)	Standard deviation	CV	Median	75th percent
Arts organizations	233	2,417					
Fund-raising expenditures			636.9	950.4	1.49	358.8	800.5
Professional fund-raising	157	1,667	48.3	132.5	2.74	0.0	34.3
Officers' salaries toward fund-raising	114	1,276	28.9	56.2	1.95	0.0	33.9
Others' salaries toward fund-raising	212	2,280	253.0	310.0	1.23	164.9	336.7
Private donations			6,102.7	11,032.5	1.81	2,770.8	7,218.0
Government grants			1,256.3	3,065.3	2.44	323.6	992.6
Program service revenue			4,539.1	7,794.0	1.72	1,487.4	5,333.8
Donations + grants			7,359.0	12,408.9	1.69	3,509.9	8,844.7
Donations + grants + service			11,898.1	17,763.9	1.49	6,099.3	14,743.6
Social service organizations	534	4,954					
Fund-raising expenditures			359.7	1,059.6	2.95	104.2	313.4
Professional fund-raising	267	2,720	31.4	139.2	4.44	0.0	4.0
Officers' salaries toward fund-raising	247	2,565	20.1	54.1	2.69	0.0	17.0
Others' salaries toward fund-raising	451	4,383	128.4	289.9	2.26	51.1	131.1
Private donations			2,430.7	6,186.9	2.55	605.3	2,008.9
Government grants			2,156.6	8,232.8	3.82	145.0	1,150.8
Program service revenue			4,643.8	11,940.9	2.57	717.0	4,304.3
Donations + grants			4,587.3	10,409.0	2.27	1,431.8	4,005.8
Donations + grants + service			9,231.1	16,492.8	1.79	3,683.9	9,860.2

Notes: All dollars are constant (\$1996) and reported in thousands. Private donations cover donations from all private sources; government grants cover grants from all levels of government (excludes monies received from government contracts). CV = Coefficient of Variation = Standard Deviation/Mean.

donations (61 arts organizations; 321 social service organizations).

6. Miscellaneous organizations that display some evidence of suspicious observations (e.g., in the later years we can compare the values in the data set with the organizations' tax returns; in most instances the values do not match what was reported on the return) (1 arts organization; 6 social service organizations).

This leaves 2,417 observations and 233 organizations for the arts data set and 4,954 observations and 534 organizations for the social services data set. These organizations are located in the 48 contiguous states with the majority of organizations located in New York, California, Ohio, Illinois, Pennsylvania, Florida, and Texas.

Table 1 reports summary statistics for the arts and social services organizations, respectively. The amounts reported are in constant dollars

(1996 in the base year). For the arts organizations, the average fund-raising expenditures represent an average of 10 percent of average private donations.¹⁷ For the arts organizations, average private donations received by the arts organizations are \$6.1 million; art museums reported the highest average amount. Average government grants are \$1.3 million; art museums reported the highest average amount. Average fund-raising expenditures are \$637,000; music organizations reported the highest average amount. In addition to private donations and

¹⁷ In recent years, it has become more common to use the relationship between fund-raising expenditures and a nonprofit's total revenues as a measure of whether a nonprofit "efficiently" provides its goods or services. As such, this could result in the nonprofit underreporting its fund-raising expenditures to keep this ratio low. To the extent the nonprofit adopts a consistent method of reporting its fund-raising expenditures during the sample period, the organization fixed effects will help to control for this anomaly.

government grants, program service revenue plays an important role in the financing of these organizations. Unfortunately, the tax returns do not identify the sources of the program service revenue. Our speculation regarding the source of these monies is that the bulk is derived from ticket sales and not from government contracts.

For the social service organizations, evaluated at the mean, private donations play a slightly larger role in their funding than government grants. Evaluated at the median, however, private donations play a much bigger role than government grants. Across all organizations, the average program service revenue is quite high, representing, on average, 54 percent more revenue than government grants and 48 percent more revenue than private donations. Given the nature of the nonprofit organizations under study, we speculate that a large percentage of these revenues are derived from government contracts. We also suspect that the organizations that rely heavily on program service revenue may offer several types of goods and services and that the goods provided using program service revenue are complementary to the goods provided using government grants and/or private donations. Thus, the role and source of program service revenue for the social service and arts organizations appear to be different.

Average private donations are \$2.4 million; human service organizations reported the highest average amount. Average government grants are \$2.2 million; community service organizations reported the highest average amount. Average fund-raising expenditures are \$360,000; environmental organizations reported the highest average amount. On average, fund-raising expenditures represent 15 percent of total private donations.

Comparing the summary statistics for the arts and social service organizations, there are several salient points. First, the emphasis on private donations or government grants is different for these organizations. Second, although the emphasis on funding sources is different across the two types of organizations, the average total of these three sources of revenues for the arts organizations is slightly larger than the average for the social service organizations. The average for the arts organizations is \$11.9 million and the average for the social service organizations is \$9.2 million. The average of

the sum of private donations and government grants, in contrast, is \$7.4 million for the arts organizations and \$4.6 million for the social service organizations. Thus, the arts organizations rely more on private donations and government grants than the social service organizations. Third, the coefficient of variation on the measures is greater for the social service organizations suggesting a greater amount of heterogeneity across the social service organizations.¹⁸

Figures 2 and 3 depict the average level of fund-raising expenditures, government funding, private donations, and program service revenue by year for the sample period for the arts and social service organizations, respectively. Given fund-raising expenses are substantially lower than the other measures, fund-raising expenses are reported on a different scale (along the right vertical axis). For the arts organizations, Figure 2, average private donations fell slightly in the early to mid-1980's. Subsequent to 1987, private donations grew, especially post-1993. Government grants have remained fairly flat. Fund-raising expenditures have also grown steadily over the sample period, at a rate that is similar to the rate of growth for the private donations.

For the social service organizations, Figure 3, at the beginning of the sample period, all four measures were declining, reaching the lowest average level around the time of the 1986 tax reform. After the 1986 tax reform, average government grants and private donations increased slowly and similarly. The sharpest growth is seen in program service revenue, especially between 1991 and 1996. For most of the period, average fund-raising expenditures grew faster than government grants and private donations but not as fast as program service revenue.¹⁹ For both figures, there is no strong evidence that as government grants have increased over time, fund-raising expenditures have declined.

We have also collected data at the state level

¹⁸ The coefficient of variation, defined as the standard deviation divided by the mean, measures the relative dispersion in the data.

¹⁹ Figures 2 and 3 illustrate a potential difference in the reactions by donors and the government to the Tax Reform Act of 1986 and/or other policy changes such as changes in federal welfare policy.

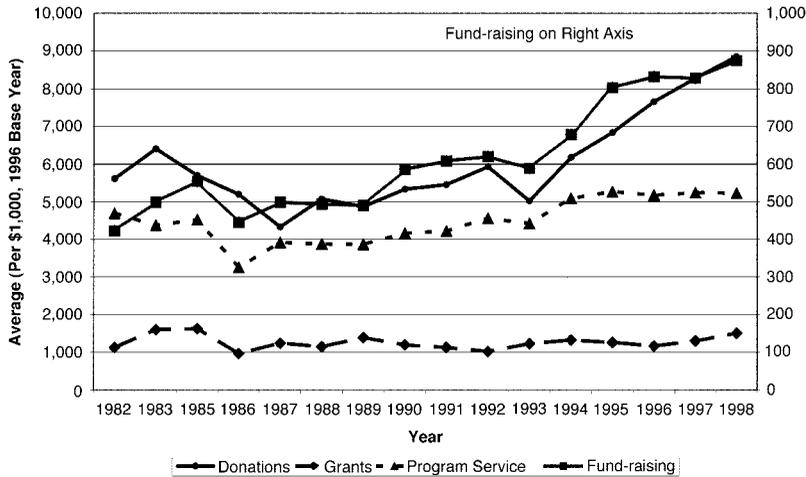


FIGURE 2. ARTS ORGANIZATIONS
AVERAGE FUNDING PER ORGANIZATION PER YEAR

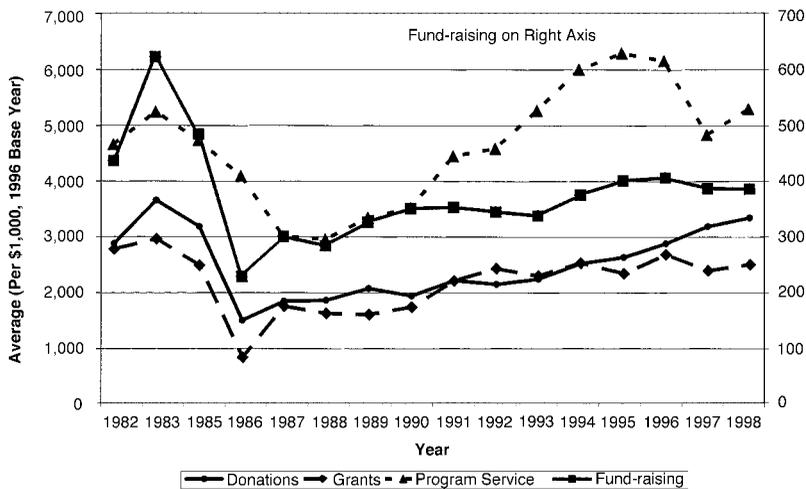


FIGURE 3. SOCIAL SERVICE ORGANIZATIONS
AVERAGE FUNDING PER ORGANIZATION PER YEAR

to proxy the political, economic, and demographic conditions under which the organizations operate. All measures are publicly available from various government publications. The measures reflecting the political conditions under which a nonprofit operates identify the political party composition of the state legislature and U.S. Congress, as well as the political party of the state's governor and the number of members on the U.S. Congressional

Appropriations committees (Senate and House) representing the area in which the nonprofit is located.²⁰ The political measures proxy the

²⁰ We hand collected data on the membership of the appropriations committees for both chambers of the U.S. Congress. For the Senate, we use the state represented by the Senator to identify whether a nonprofit organization located within that state has a member on the committee. For the House of Representatives, we identify by state

sentiment of the voters in a given state and are expected to address the distribution of government funding across the organizations. The state-level economic and demographic measures identify such things as per capita income, the unemployment rate, the population, the percentage of the population between the ages of 45 and 59, the percentage of the population between the ages of 60 and 64, and the percentage of the population over 65. These measures are proxies of the need for the goods and services provided by the organizations as well as the potential for giving to these organizations.

We also collected measures that identify the level of government transfers to individuals or nonprofit organizations. The individual transfers reflect payments related to: retirement and disability, Medicare, Medicaid, income maintenance (SSI, AFDC, food stamps), unemployment insurance benefits, veterans benefits, and federal education and training programs. The transfers to nonprofit organizations reflect the payments by the federal and state governments to nonprofit organizations.

III. Empirical Specification

We use the data to test Proposition 1. We utilize the following empirical model:

$$(4) \quad F_{ist} = \alpha_i + \gamma_t + \beta G_{ist} \\ + \mathbf{O}_{ist}\eta + \mathbf{Z}_{st}\lambda + \varepsilon_{it}$$

where F is the real level of fund-raising expenditures spent in year t by nonprofit i located in state s , G is the real level of government grants in year t received by the nonprofit, \mathbf{O} is the vector of revenue and/or expenditure measures at the nonprofit level, and \mathbf{Z} is the vector of economic, demographic, government transfers to individuals, and/or political measures for the state in which the nonprofit is located. We estimate this specification under an ordinary least-

squares (OLS) and two-stage least-squares (2SLS) framework.

The parameter β captures the effects of government funding on fund-raising expenditures. We allow government funding to be measured in the same period as the fund-raising effort under the assumption that there is a lag between seeking government funding and actually receiving the funding. Because we have a panel data set, we include organization and year fixed effects. The organization fixed effects are designed to capture the time-invariant heterogeneity in the organizations such as their reputation, age, type, and/or method of operation that affects the collection of funding and the use of fund-raising expenditures. The year fixed effects control for macro-level time-varying shocks that affect all of the organizations similarly.

In addition to the above measures, we included various measures at the nonprofit organization level to help control for time-varying changes at the organizational level. For the arts organizations we included three types of measures: program service revenue, the beginning of the year value of investment securities, and dues and assessments. Program service revenue represents revenue that is collected by the organization for services provided. This covers a range of activities such as admission fees, sales of products, and funding from government contracts. The value of investment securities represents a measure of wealth of the organization that is derived from activities unrelated to the mission of the charitable organization. Dues and assessments represent the revenue received from "members" of the organization. If a museum provides special privileges for patrons that pay an annual fee, this would be included on the tax return as "dues and assessments."

For the social service organizations, we included the two measures of program service revenue and beginning of the year value of investment securities. Instead of including the measure of dues and assessments, we included a measure reflecting payments made to individuals from the organization's program service revenue. While there are various other time-varying measures we could include in the analysis, for the most part, the coefficient on the government measure does not change significantly when other measures at the organiza-

whether there is at least one member serving on the House appropriations committee. In addition, we identified whether there is at least one member in the Senate or House of Representatives serving on the appropriations committees that represent the states that are physically contiguous to the state under study.

tional level are included in the regression. This is likely due to the fact that we are including the organization and year fixed effects in the analysis.

A. *Measurement Issues*

As other authors have noted, although the data set we are using in this paper is rich given the large number of firms we can study over time and the ability to segregate the organizations into types of goods provided, the data set is not without problems. There are four potential problems that we will address in our analysis. First is timing. The data are reported on a yearly basis. The timing of government funding, private donations, and the efforts expended towards fund-raising, however, may not fall within the same one-year period. This raises the question of whether we should lag government funding or modify the data such as taking a moving average of the measures. Although we only report results using current dollars, the results are robust regardless of whether we use a lag or a two-year moving average in government funding.

A second issue concerns the uses of the organization's fund-raising expenditures. To properly test the theory, the fund-raising expenditures should only be used towards the collection of private donations or funding unrelated to government grants. The reporting instructions to charities, however, define fund-raising as "the total expenses incurred in soliciting contributions, gifts, grants, etc." Hence, a nonprofit may include the costs associated with applying for government funding as a fund-raising expenditure or, worse, the costs of reporting and complying with the conditions of the grants. If this is the case, the coefficient on the fund-raising measure in equation (4) will have a positive bias. We can address this by looking separately at the components of fund-raising costs reported by the charities. There are three main components. First are "professional fund-raising fees" which are payments to outside organizations for conducting fund-raising or for consulting on fund-raising. These expenses most cleanly represent the notion of fund-raising expenses intended in the theoretical model. Second is the portion of officers' salaries allocated to fund-raising. We presume that the

officers would prefer to spend effort on the nonprofits services rather than on fund-raising. Hence, we expect this expense to decline as grants are received. Third is the portion of overall salaries and wages allocated to fund-raising. If this item were measured accurately, we would expect this also to decline as grants are received. We fear, however, that this item may also include expenses related to maintaining a "grants office" that also administers grants once they are received. To the extent these activities are included in this measure the coefficient may be positively biased.²¹

A third issue concerns the fact that some government grants may be in the form of a matching grant, whereby the nonprofit organization is expected to raise funding from other sources to qualify for the government funding (or vice versa). Given the nature of the data set, we do not know if the government funding is tied to the charitable organization receiving a matching grant. To the extent that a given nonprofit organization consistently receives matching grants, the organization fixed effects would control for this type of phenomenon. In addition, to the extent that there is a uniform switch in grant awards by all government agencies during the period under study, the year fixed effects would control for this type of phenomenon. If there are matching grants that vary over time and within the firms, then the fixed effects will be of little use in this regard and the coefficient on the fund-raising expenditures will have a positive bias.

Fourth, given that fund-raising expenditures are skewed towards zero, an OLS framework may not be the best framework to use. We, therefore, also use a Tobit specification to

²¹ To explore these issues further, we divided the data into three groups: those observations for which there are positive private donations but zero government grants; those observations for which there are positive government grants but zero private donations; and those observations for which there are positive government grants and positive private donations. On average, fund-raising expenditures are higher for the observations that report no government funding than for the observations that report no private donations. Fund-raising expenditures are only slightly higher for the observations that report both positive private donations and government funding. Across all three groups of observations, the ratio of fund-raising expenditures to total revenues collected by the nonprofit is the same (0.01).

TABLE 2—RELATIONSHIP BETWEEN FUND-RAISING AND GOVERNMENT GRANTS, OLS

Dependent variable	Arts organizations		Social service organizations	
	OLS	Tobit	OLS	Tobit
Fund-raising expenditures	(1)	(2)	(3)	(4)
Government funding (\$1,000s)	13.39 (5.50)	13.16 (4.05)	7.32 (2.73)	7.11 (1.57)
Program revenue (\$1,000s)	18.34 (6.15)	18.62 (3.00)	11.96 (3.05)	12.01 (0.73)
Dues and fees (\$1,000s)	212.06 (50.16)	213.01 (16.58)		
Investment securities (beginning of year, \$1,000s)	2.94 (0.95)	2.89 (0.30)	-0.88 (0.86)	-0.90 (0.19)
Assistance to individuals (\$1,000s)			5.16 (8.87)	5.06 (7.77)
<i>F</i> -statistic on state economic measures (<i>p</i> -value)	1.88 (0.08)	1.55 (0.16)	2.90 (0.01)	6.56 (0.00)
<i>F</i> -statistic on state political measures (<i>p</i> -value)	2.31 (0.03)	1.85 (0.09)	2.53 (0.02)	2.28 (0.03)
<i>F</i> -statistic on state transfer measures (<i>p</i> -value)	0.82 (0.55)	1.22 (0.29)	0.90 (0.50)	1.36 (0.23)
<i>R</i> ²	0.8728		0.9194	
Fixed effects	Organization and year	Organization and year	Organization and year	Organization and year
Number of observations	2,417	2,417	4,954	4,954
Number of firms	233	233	534	534

Notes: All regressions incorporate organization and year fixed effects. All numbers in parentheses are robust standard errors unless otherwise noted. A bold coefficient is significant at $p < 0.05$. Economic, political, and transfer measures are at the state level. Economic measures: real per capita income, state unemployment rate, percent of population between 45 and 59, percent of population between 60 and 64, percent of population over 65, and state population. Political measures: percent of members in state upper legislature that are democratic, percent of members in state lower legislature that are democratic, measure of political competition in state legislature, dummy variable equal to one if state governor is democratic, percent of members in U.S. House of Representatives that are democratic, number of U.S. senators that are democratic. Transfer measures: payments to individuals for retirement and disability, Medicare, Medicaid, income maintenance (e.g., SSI, AFDC, food stamps), unemployment insurance, and veterans' benefits.

control for this problem. We report the results for the Tobit specifications that are similar to the OLS specification. Overall, the coefficients on the government funding measures are similar in the two specifications. As such, we do not report the results under the Tobit 2SLS specification.

IV. Estimation

In estimating equation (4) we expect to encounter problems of endogeneity. In particular, if the services of an organization are in high demand, such as the Red Cross after a hurricane, we might expect demands for both private and public contributions to be high. And, naturally, if both demands are high, these organizations should increase their pursuit of both public grants and private donations. In other words,

unmeasured influences may be increasing both government grants and fund-raising. To correct for this positive bias we choose to use instrumental variables. In this section we first report results without controlling for endogeneity, and then turn to results using a two-stage least-squares regression methodology.

A. OLS and Tobit Regressions

Table 2 reports estimates of equation (4) from the OLS regressions and the fixed-effects Tobit specification for the arts and social service organizations. In each specification reported, we regressed fund-raising expenditures on government grants, the other organization-level measures, state political, economic, demographic, and government transfer measures, and year and organization fixed effects. In columns (1) and

(3) we report the results from an OLS specification. In columns (2) and (4) we report the results from the Tobit specification. In all of the specifications, we divided government funding and the other organizational-level measures by one thousand. Thus, the coefficient on government funding represents the dollar increase in fund-raising expenditures per \$1,000 of government funding.

Across all four specifications, the results suggest that an increase in government funding increases fund-raising expenditures. On average, a \$1,000 increase in government grants increases fund-raising expenditures by \$7 for social service organizations and \$13 for arts organizations. Using the mean of government funding and fund-raising expenditures across all organizations, these coefficients represents an average increase between 3 and 4 percent.

The results reported in Table 2 reflect the estimation when organizational fixed effects are included in the specification. If we do not include the fixed effects, the coefficient on the government grant measure is very different for both the arts and social service organizations. For the arts organizations, the coefficient in the specification without the fixed effects is higher (21.7), suggesting that the fixed effects help to control for reputational effects across the various organizations. Interestingly, for the social services organizations, the coefficient in the specification without the fixed effects is lower (1.2) and not statistically significantly different from zero. This suggests that within the social services organizations, there may be shocks that affect government funding and private donations to the organizations similarly for which the other measures have not controlled in the OLS specification.

B. *Two-Stage Least-Squares Estimation*

As discussed above, there are several issues that suggest the OLS results may be biased due to endogeneity or omitted variables in the specification. To address these issues, we estimate equation (4) using a 2SLS specification. Under 2SLS, in the first stage, we predict the level of government funding based on a set of exogenous measures used as instruments that are not directly correlated with the fund-raising mea-

asures. In the second stage, we use the predicted level of government funding to measure β .

In searching for a set of instruments, one is interested in a set of measures that explain government grants directly but not fund-raising. We identified several potential sources of instruments. The first set of instruments measures the transfers to all nonprofit organizations by state and federal governments, measured at the state level. These measures help control for the size of the government budget that has been spent on nonprofit activities, thus proxy the size of the pie for which a nonprofit organization competes. The second set of measures identifies whether the area in which the organization is located has a member on the United States Senate and/or House of Representatives appropriations committees. In the U.S. Congress, the appropriations committee is charged with developing the budget that must be approved by the entire Congress and the President. A member on the committee, thus, has some influence over the distribution of discretionary funding across the agencies. The third set of instruments measures total research funding to the universities in the state from the National Institutes of Health, lagged by one year. This measure identifies government resources that are being devoted to things other than the charitable organizations under study, thus, providing a proxy for the level of resources that may be available from the government for distribution for purposes other than health research. The measure also identifies the research intensity of universities in a state with respect to health research and, thus, providing a proxy for a level of the population that may be more highly educated and, potentially, a patron of the arts.²²

To test whether these measures are suitable instruments we looked at the results of two tests. First, the *F*-statistic on the set of instruments in the first-stage regression. This

²² In earlier versions of this paper we considered additional sets of instruments, described as follows: the dollars spent on hotel lodging within a state, a proxy for the level of tourism in the states; the amount of government grants to state arts agencies, a proxy for the level of government funding devoted to supporting state arts agencies. Unfortunately, these instruments were not that powerful in predicting government funding in the first stage and so we did not explore these instruments further.

tests the strength of the instruments to predict government funding. Second, the overidentification test from the second-stage regression. This tests the exogeneity of the instruments insofar as the test identifies whether the instruments can be used to help explain the dependent variable (fund-raising expenditures) after the instruments have been used to predict the level of government funding. In addition, we examined whether the coefficient for the government grants term in the second-stage regression was precisely measured and significantly different from the OLS coefficient using a Hausman test (Jerry A. Hausman, 1978).

For both types of organizations, we interacted the various measures we tested as instruments with a set of dummy variables representing the type of organization. For the arts organizations, we divided the organizations into four types: art museums, other museums, performing arts groups (theater, dance, opera), and music organizations (e.g., orchestras). For the social service organizations, we divided the organizations into five types: human services organizations, organizations concerned with children and/or families, organizations concerned with the poor, housing, and/or food distribution, organizations concerned with the environment, and other types of organizations (community service, employment, crime related).

For both types of organizations, overall, the strongest instruments were those that identified the level of research funding to universities by the NIH. The instruments representing the government transfers to nonprofit organizations at the state level were also reasonably strong. With the exception of one specification (portion of officer salaries devoted to fund-raising efforts for the arts organizations), the congressional measures were rather weak.

Table 3 reports the results from the 2SLS regressions when overall fund-raising expenditures is used as the dependent variable. We report the results for the set of instruments that reflect the NIH funding to universities located in the same state as the organization, and the set of instruments that reflect federal and state grants to nonprofits in the state. Columns (1) and (2) report the results for the arts organizations, while (3) and (4) report the results for the social service organizations. The top panel reports the results from the second-stage regression. The

middle panel reports the *F*-statistic on the instruments from the first-stage regression. The bottom panel reports the results from the overidentification and Hausman (1978) tests. The three tests we use to evaluate the strength of the instruments are strongest for the set of instruments that reflects the NIH funding.

Looking first at the arts organizations, the results suggest a negative relationship between government funding and fund-raising efforts. Using the NIH funding as the instrument, the results suggest that, on average, a \$1,000 increase in government grants decreases fund-raising expenses by \$264. These results suggest that given the average government grant to an organization is \$1.3 million, fund-raising expenditures decrease, on average, by \$353,600 representing a decline of 52 percent of average fund-raising expenditures.

Turning next to the social service organizations, the results for these organizations are reported in columns (3) and (4) of Table 3. The estimates also suggest a negative relationship between government grants and fund-raising efforts. The impact of the government funding, however, is smaller for these organizations. The coefficients suggest that an additional \$1,000 in government grants decreases fund-raising expenditures by \$54. Given the average government grant is \$2.2 million, this would represent a decrease in fund-raising expenditures by \$105,000, or a decrease in average fund-raising expenditures by 32 percent.

What could explain the difference in impact of government funding across the two types of charitable organizations? First, it is important to note that we have found that the analysis of the social service organizations is somewhat sensitive to the inclusion or exclusion of certain organizations. In contrast, the results for the arts organizations are very robust. With respect to the social service organizations, we suspect that given the organizations are very heterogeneous, as demonstrated by the coefficient of variation reported in Table 1, the results may be sensitive to a possible outlier. To test this, we ran the 2SLS regressions sequentially excluding one group of the organizations by the 3-digit NTEE classification code. The coefficient on the government grants measure ranges between -24 and -69 . The biggest variation is attributable to the inclusion/exclusion of the organizations

TABLE 3—RELATIONSHIP BETWEEN FUND-RAISING AND GOVERNMENT GRANTS, 2SLS

Dependent variable in second stage Fund-raising expenditures	Arts organizations		Social service organizations	
	(1)	(2)	(3)	(4)
Government funding (\$1,000s)	-264.70 (113.77)	-142.93 (64.26)	-53.75 (20.97)	-19.35 (13.55)
Program revenue (\$1,000s)	32.91 (11.77)	26.53 (9.05)	6.90 (5.64)	9.75 (4.16)
Dues and fees (\$1,000s)	158.57 (86.41)	181.99 (67.75)		
Investment securities (beginning of year, \$1,000s)	4.44 (1.83)	3.78 (1.38)	-0.95 (0.90)	-0.91 (0.88)
Assistance to individuals (\$1,000s)			53.56 (23.72)	26.30 (15.87)
R^2 on second stage	0.6144	0.7911	0.8915	0.9141
<i>Results from first stage</i>				
Instrument set	NIH grants to universities in state one-year lag	Federal transfers to nonprofits one-year lag	NIH grants to universities in state one-year lag	Federal transfers to nonprofits one-year lag
F -test on instruments (p -value)	4.72 (0.00)	2.55 (0.01)	5.75 (0.00)	3.92 (0.00)
Overidentification test (degrees of freedom) (p -value)	2.35 (3) (0.50)	14.08 (7) (0.05)	1.34 (4) (0.85)	12.51 (8) (0.19)
Hausman test (p -value)	19.89 (0.00)	11.53 (0.00)	22.03 (0.00)	4.47 (0.03)
Fixed effects	Organization and year	Organization and year	Organization and year	Organization and year
Number of observations	2,417	2,417	4,954	4,954
Number of organizations	233	233	534	534

Notes: Robust standard errors are reported in parentheses. A coefficient in bold is significant at $p < 0.05$; a coefficient in bold italics is significant at $p < 0.10$. Other regressors include political, economic, and transfer measures at the state level (see notes to Table 2). The overidentification test tests the exogeneity of the instruments in the second-stage regression. The Hausman test determines whether the coefficient from the second-stage regression is statistically different from the coefficient in the first-stage regression. The instruments are measured at the state level and are interacted with a set of dummy variables that indicate the type of organization within the group of organizations under study (e.g., art museum, theater, music organization). NIH grants to universities measures the average federal government grant awarded to the universities located within the state by the National Institutes of Health. The federal transfers to nonprofit organizations are total transfers by the federal and state government to all nonprofits located within the state.

providing services related to the environment. If all organizations pertaining to the environment are excluded from the analysis (47 organizations), the coefficient on the government grant measure is negative but imprecisely measured.

To explore further the differences in the impact of government funding on fund-raising efforts, we explored several other aspects of the social service organizations. First, we considered the choice to instrument only the government funding measure and not the program service revenue measure. If we also instrument the program service revenue, the coefficient on the government grant measure does not change

dramatically for the social service organizations.²³ Second, we explored whether using observations for the years around the 1986 tax reform affected the results. As Figure 3 suggests, around the time of the tax reform, donor, government, and fund-raising behavior for the social service organizations changed

²³ For the arts organizations, when we treat program service revenue (and/or dues and fees) as endogenous, the coefficients on the government funding and the program service revenue measures are imprecisely measured, providing no additional information about the relationship between fund-raising and government grants.

dramatically, presumably in anticipation of the reform. We, therefore, excluded those observations for the period 1986 and before, but the results do not change appreciably, suggesting the year effects in the specification adequately control for the changes in behavior that occurred around 1986.

Finally, we hypothesized that the structure of the development offices of arts and social service firms may be quite different. We know that social service organizations rely more on government grants than do arts organizations. Moreover, the nature of these grants is different across the two organizations. Arts organizations primarily raise money for specific short-term projects, such as an exhibit or a performance, while grants to social service organizations are sometimes the defining characteristic of their mission. Moreover, grants to social service organizations often look similar to contracts in which government restrictions and oversight regulations apply. According to *The Nonprofit Handbook*,²⁴ "Some federal 'grant' programs are really contracts for services and not 'granted' funds in the purest sense of the definition. Direct payments are provided to ... private organizations to support a specific service or activity that the federal government wants to provide to benefit the citizenry." It further states that, "Some of these direct payment programs are based on former successful competitive grant projects that have become institutionalized." Hence, social service organizations with larger grants may also have larger expenses for administration of these grants, and these expenses could be reported as costs of fund-raising, even though they would not meet the definition intended in our theoretical model. This would lead to an artificially posi-

tive (or less negative) coefficient on grants in equation (4).

Fortunately, our data set allows us to separate the costs of fund-raising into three component parts, representing, on average, more than 50 percent of total fund-raising expenditures. First are fees paid to independent fund-raisers and consultants. This is the purest form of fund-raising expense and is clearly what was intended in the theory. Second is the portion of officers' salaries attributable to fund-raising for accounting purposes. This number is prone to variation due to different reporting practices. Some nonprofits may keep a diary of each executive's time, or have officers whose sole task is fund-raising, while others may apply a formula that is a function of the actual funds raised or other costs incurred.²⁵ Hence, this cost measure likely is less reliable than the first, but to the extent it is accurately measured it too should be negatively related to government grants. Third are the salaries and wages of others besides officers devoted to fund-raising. This would be precisely measured if organizations maintained separate fund-raising and development offices. This is where we expect the largest difference between arts and social service organizations. We expect many of the costs of administering and complying with government "grants" may be included here for social service organizations. If this is true, then government grants may have a positive influence on this category for social service organizations.

Table 4 presents the OLS and 2SLS regressions for the arts organizations, using the three component parts of fund-raising expenditures as the dependent variable. As expected, these three fund-raising costs are negatively related to government grants. The coefficients for the 2SLS specifications using professional fund-raising fees and officers' salaries as the dependent variables, however, are significant at only the 10-percent level. Thus, the strongest impact of government funding on fund-raising efforts is with respect to the salaries of other employees. The results suggest, on average, an additional increase of \$1,000 in government funding de-

²⁴ James M. Greenfield, *The Nonprofit Handbook: Fundraising, Third Edition* (2001, pp. 698–99). This publication is sponsored by the Association of Fundraising Professionals, and is a reference book for many administrators of nonprofits. It also describes "formula grants" that are awarded based on predetermined eligibility requirements. The nonprofit would report them as grants, but application would be more in the form of paperwork requirements. Examples of these are Community Service Block Grant Discretionary Awards, Community Food and Nutrition, Housing Opportunities for Persons with AIDS, HOME Investment Partnerships, and Special Programs for the Aged.

²⁵ See Greenfield, *The Nonprofit Handbook: Fundraising, Third Edition*, Ch. 49, "Accounting for Contributions," and Ch. 50, "Reading the Internal Revenue Service Form 990."

TABLE 4—REGRESSIONS USING FUND-RAISING CATEGORIES, ARTS ORGANIZATIONS

Dependent variable	Professional fund-raising		Officer salaries		Other salaries	
	OLS (1)	2SLS (2)	OLS (3)	2SLS (4)	OLS (3)	2SLS (4)
Government funding (\$1,000s)	-1.79 (1.02)	-52.98 (28.20)	-0.46 (1.05)	-18.47 (11.05)	7.42 (3.31)	-152.97 (60.25)
Program revenue (\$1,000s)	-0.63 (1.11)	2.47 (2.09)	1.48 (0.45)	2.98 (1.38)	5.04 (1.93)	13.44 (5.61)
Dues and fees (\$1,000s)	-0.31 (4.18)	-14.15 (14.66)	-2.23 (3.12)	-7.76 (6.48)	62.01 (15.61)	30.37 (40.99)
Investment securities (beginning of year, \$1,000s)	0.02 (0.08)	0.36 (0.35)	0.04 (0.05)	0.14 (0.12)	1.38 (0.34)	2.24 (0.95)
<i>Results from first stage</i>						
Instrument set		NIH grants to universities in state one-year lag		Congressional representation		NIH grants to universities in state one-year lag
<i>F</i> -test on instruments (<i>p</i> -value)		5.75 (0.00)		2.47 (0.04)		4.7 (0.00)
Overidentification test (degrees of freedom) (<i>p</i> -value)		11.80 (3) (0.01)		0.67 (3) (0.88)		1.38 (3) (0.71)
Hausman test (<i>p</i> -value)		4.8 (0.03)		4.47 (0.03)		42.78 (0.00)
Fixed effects	Organization and year	Organization and year	Organization and year	Organization and year	Organization and year	Organization and year
Number of observations	1,667	1,667	1,276	1,276	2,280	2,280
Number of organizations	157	157	114	114	212	212

Notes: Robust standard errors are reported in parentheses. A coefficient in bold is significant at $p < 0.05$; a coefficient in bold italics is significant at $p < 0.10$. Other regressors include political, economic, and transfer measures at the state level (see notes to Table 2). See also notes to Table 3.

increases fund-raising expenses associated with the salaries of other employees by \$153. Given that the portion of fund-raising expenditures devoted towards other salaries is, on average, 41 percent, this result should not be that surprising. Evaluated at the mean, this represents a decline in other salaries of 85 percent.

Table 5 presents similar regressions for the social services organizations. These results now confirm our predictions. Professional fund-raising fees are negatively and significantly related to government grants at the 10-percent level. A \$1,000 increase in government grants leads to a decrease in professional fund-raising expenses of \$19. The effect on the officer's salaries is negative and statistically significant in the OLS specification but not in the 2SLS specification, suggesting a small impact. Other salaries and wages are also negatively related to

government grants. A \$1,000 increase in grants leads to a \$11 decrease in these costs. Thus, the impact on this type of fund-raising expenditure is smaller for the social service organizations than for the arts organizations. Evaluated at the mean, the decline in other salaries is only 20 percent, even though this type of fund-raising expenditure represents 39 percent of total fund-raising efforts. Thus, it appears that the limited effect of the government funding on other salaries is attributable to a smaller effect seen in the prior regressions for social services.²⁶

²⁶ Note that many firms reported zero expenses from professional fund-raisers or from officers' salaries, but most social services firms reported positive amounts for other salaries. Hence, even though the coefficients on grants in Table 5 add up to a negative number, when weighted by the number of observations for each, the average is positive.

TABLE 5—2SLS REGRESSIONS USING FUND-RAISING CATEGORIES, SOCIAL SERVICE ORGANIZATIONS

Dependent variable	Professional fund-raising		Officer salaries		Other salaries	
	OLS (1)	2SLS (2)	OLS (3)	2SLS (4)	OLS (5)	2SLS (6)
Government funding (\$1,000s)	-0.08 (0.62)	-18.76 (11.03)	-0.43 (0.24)	-1.82 (1.80)	4.15 (1.51)	-10.75 (5.26)
Program revenue (\$1,000s)	-0.13 (0.52)	-3.01 (2.33)	-0.10 (0.30)	-0.44 (0.40)	6.97 (2.11)	5.75 (2.63)
Investment securities (beginning of year, \$1,000s)	0.01 (0.04)	0.003 (0.04)	-0.01 (0.06)	-0.03 (0.06)	0.13 (0.13)	0.11 (0.12)
Assistance to individuals (\$1,000s)	-0.63 (2.38)	10.57 (7.06)	-1.65 (1.53)	-0.69 (2.06)	-5.69 (2.92)	6.03 (5.97)
<i>Results from first stage</i>						
Instrument set		Federal transfers to nonprofits lagged one year		NIH grants to universities in state one-year lag		NIH grants to universities in state one-year lag
F-test on instruments (p-value)		3.77 (0.00)		4.25 (0.00)		5.66 (0.00)
Overidentification test (degrees of freedom) (p-value)		13.06 (9) (0.16)		5.35 (4) (0.25)		11.15 (4) (0.02)
Hausman test (p-value)		4.81 (0.03)		0.56 (0.46)		10.51 (0.00)
Fixed effects		Organization and year	Organization and year	Organization and year	Organization and year	Organization and year
Number of observations	2,720	2,720	2,565	2,565	4,383	4,383
Number of organizations	267	267	247	247	451	451

Notes: Robust standard errors are reported in parentheses. A coefficient in bold is significant at $p < 0.05$; a coefficient in bold italics is significant at $p < 0.10$. Other regressors include political, economic, and individual transfer measures at the state level (see notes to Table 2). See also notes to Table 3.

Taking these three regressions together, the data are consistent with a hypothesis that government grants to social service organizations crowd out true fund-raising efforts of the organizations, as they do for arts organizations, but grants also increase the administrative costs of the fund-raising offices of the social service nonprofits.

V. Conclusion

When a charitable nonprofit organization receives a grant from the government, contributions to charities could fall for two reasons. First, under the classic crowding-out hypothesis, donors let their involuntary tax contributions substitute for their voluntary contributions. This paper raises the prospect of a second reason: that the strategic response of the charity will be

to pull back on its fund-raising efforts after receiving a grant.

We explore this idea in two ways. First, we develop a theoretical model to show that a charity that chooses its level of fund-raising strategically will reduce fund-raising in response to government grants. If the charitable organizations find fund-raising onerous, then the effect is heightened even more and can happen even if individuals themselves are not crowded out.

Second, we examine this hypothesis empirically. We use a rich panel data set of nonprofit organizations, observed for up to 15 years. We focus on two types of organizations: arts and social services. The arts organizations, such as museums or performances groups, get the majority of their funding from private donations and from program service revenue, such as ticket sales, and only a relatively small fraction

from the government. The social service organizations are concerned with families, children, the elderly, the disabled, criminals, delinquents, the poor, and the environment. By contrast, these groups rely primarily on government grants to fund their operations. These two very different types of nonprofits provide anchors for our research into the question of whether government funding crowds out fund-raising as well as giving.

When looking at the component parts of fund-raising expenses, we find that indeed there is strong evidence that government grants to nonprofits are causing significant reductions in fund-raising efforts. This finding is important for two reasons. First, it means that the behavior of the nonprofit organizations is consistent with the predictions of an economic model within a strategic environment. This suggests that more sophisticated models of fund-raising and competition in "charity markets" could bear fruit. Second, and more importantly, it adds an important new dimension to the policy discussions on the effectiveness of government grants to increase the services of charitable nonprofit organizations. Charities are not passive receptacles of contributions, as they have so often been treated in the past, but are active players in the market for donations. When the government gives charities a grant, we should take into account the behavioral response of the charity itself, as well as the behavioral responses of the individual donors.

What do our results suggest for policy? Our findings could provide a rationale for a policy of awarding so-called matching grants in which a recipient of a government grant is required to show increased fund-raising revenue in order to qualify for additional funds. Such a policy could directly counteract the negative effects of the grants on fund-raising. On the other hand, a conclusion that government dollars are allowing a reduction in fund-raising expenses may be seen as socially beneficial. In particular, fund-raising generates deadweight loss, much as advertising that does not generate demand but rather displaces it to competing brands might do. Depending on whether the deadweight loss of taxation is more or less than the deadweight loss of fund-raising, then displacing fund-raising could possibly improve efficiency.

How should our findings affect future study?

The obvious next question is to ask how government grants affect donations both directly through classic crowding-out and indirectly through reduced fund-raising. Such a study would help inform theoretical models of giving and of charitable fund-raising and would help formulate better policy toward both givers and nonprofit organizations. Also, what are the social costs and benefits of fund-raising? Is fund-raising a purely wasteful activity or does it provide benefits, such as presenting information and education to an electorate? A deeper understanding of the costs and consequences of fund-raising could be quite valuable for scholars and policy makers.

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