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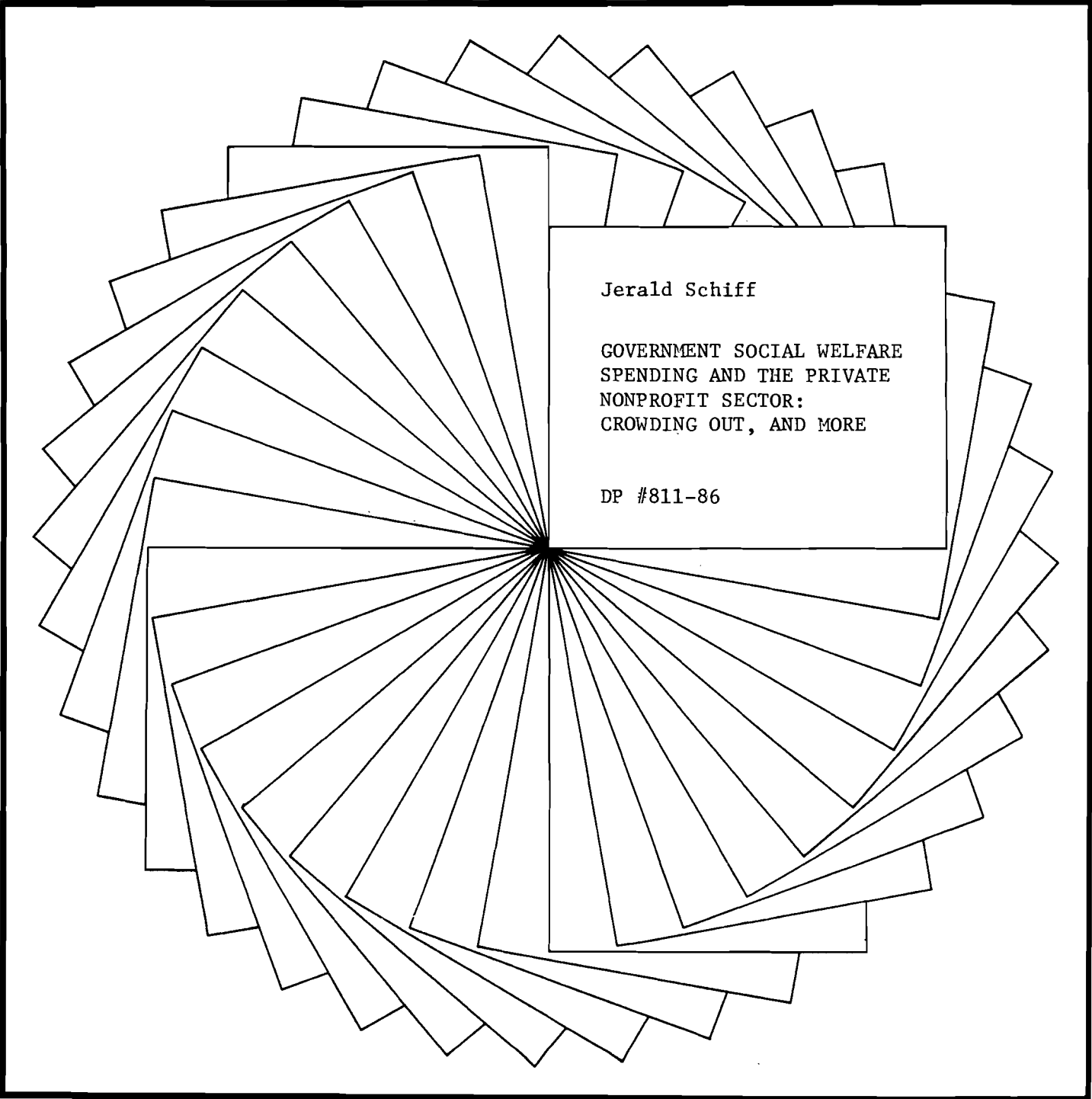
Jerald Schiff

GOVERNMENT SOCIAL WELFARE
SPENDING AND THE PRIVATE
NONPROFIT SECTOR:
CROWDING OUT, AND MORE

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Government Social Welfare Spending and the Private Nonprofit Sector:

Crowding Out, and More

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Abstract

Recent reductions in government social welfare expenditures have generated considerable interest in the relationship between such expenditures and the ability of the private nonprofit sector to provide goods and services to the needy. Research by economists has focused on the link between government spending and charitable giving by individuals--i.e., whether government welfare expenditures "crowd out" private donations. And yet donations are not the sole source of nonprofit revenues, and changes in governmental expenditure policy influence the nonprofit sector in a number of other ways, as shown in this paper.

I model social welfare nonprofit organizations (nonprofits) as maximizing an objective function defined over two goods--a charitable good and a private good--subject to the constraint that the organizations break even. Nonprofits are hypothesized to prefer to produce the charitable good, financed by private donations and purchases by government, but they may resort to selling private output in order to cross-subsidize charitable production.

Within this framework, we can see a number of potential effects of government expenditures on nonprofit organizations: (1) a "direct revenue" effect--a reduction in government welfare spending implies a direct loss in revenue for many organizations, since they rely on government grants or purchases of service for support; (2) a "crowding-out" effect of government spending--private donations may increase or decrease depending on whether government spending and nonprofit output are substitutes or complements; (3) revenue source substitution effects--losses in revenue from private donors or government can cause nonprofits to

increase sales of their less preferred private output; and (4) fund-
raising effects—changes in government spending will influence the
optimal level of solicitation expenditures by nonprofits, further
influencing private donations.

Utilizing data from tax returns of over 11,000 social welfare nonpro-
fit organizations active between 1973 and 1976, I estimate the impact of
changes in various categories of government welfare spending—cash trans-
fers, vendor payments to private agencies, other state welfare expen-
ditures, and local welfare spending—on several variables, including the
number of nonprofits, as well as contributions and grants received, and
sales and solicitation expenditures per nonprofit organization.

The results indicate that government spending does exert a significant influence
on the nonprofit sector, and that each of the effects described above
occurs. Overall, however, the nonprofit sector is unlikely to compensate
for reductions in government spending. A reduction in government cash
transfers to the poor will reduce private donations to nonprofits, indi-
cating that nonprofit output and cash transfers are complements. Cuts in
cash transfers also appear to lead to reductions in nonprofit sales,
owing perhaps to the reduced ability of the needy to buy nonprofit ser-
vices.

A fall in vendor payments from government reduces the number of
nonprofit organizations and causes the remaining agencies to attempt to
replace the lost government revenues with sales to individuals. Thus,
cuts in either cash transfers or vendor payments cause the social welfare
nonprofit sector to shrink, not expand.

The nonprofit sector compensates, however, for a sizable portion of
cuts in government expenditures on social services; a reduction in such

spending will increase donations to and sales by nonprofits, although not in amounts that fully offset the decrease in government spending.

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1. INTRODUCTION

Recent reductions in government social welfare expenditures have generated considerable interest in their effect on the private nonprofit sector. If nonprofits can compensate for much of the reduction in government activity, then the net impact of budget cuts will not be severe. If, on the other hand, the nonprofit sector shrinks as government reduces its role in the provision of social services, the impact of spending reductions on the needy is exacerbated. The likelihood of continued social welfare spending reductions makes this issue particularly relevant.

Research by economists in this area has focused on the link between government spending and charitable giving by individuals.[1] The key issue addressed in this literature is the extent to which government expenditures, particularly transfers, "crowd out" private donations. While this issue is clearly important for predicting the response of nonprofit organizations to social welfare budget cuts, I argue that the focus of past studies is too narrow. Contributions are not the sole source of revenue for nonprofits. In addition, changes in government spending will influence nonprofits in ways other than by affecting these contributions, causing organizations, for instance, to increase solicitations in an attempt to raise donations, inducing them to turn to other revenue sources such as sales, or causing entry into or exit from the nonprofit sector.

This research provides a conceptual framework within which the overall impact of changes in government spending on the private nonprofit sector can be analyzed. Data from the tax returns of nonprofit organizations are used to estimate the magnitudes of the various effects. This enables us to predict the overall response of the nonprofit sector to government spending cuts, and so better understand the impact of these cuts on the needy. I find that, although government expenditures do exert a significant effect on the number and size of nonprofit social welfare organizations, they do so in a far more complex way than suggested by the simple "crowding-out" theory. The results imply that the nonprofit sector does not compensate for cuts in government programs for the needy.

Section 2 presents the analytical framework used to pinpoint the various ways in which the nonprofit sector is influenced by government spending changes. Section 3 describes the data and the model specification. In Section 4, I discuss the empirical methodology and present results.

2. GOVERNMENT SPENDING AND THE NONPROFIT SECTOR: CONCEPTUAL FRAMEWORK

We view the nonprofit welfare organization, or its manager, as maximizing utility defined over the quantity and type (or quality) of output produced.[2] Some types of output provide greater utility to the organization than others, and some types may provide negative utility. The utility function is maximized subject to a constraint that revenue from all sources must equal the costs of production as well as the costs of attracting revenue (solicitation expenses). Nonprofits will produce

other than their most preferred type of output in order to raise revenue to finance the preferred type. The nonprofit's choice of output mix, then, represents a compromise of sorts between its own preferences and those of its revenue sources, mainly government and private individuals. Nonprofits are able to satisfy their own preferences, to some extent, because the nondistribution constraint[3] they face mitigates the effect of entry by new organizations.[4]

Suppose that a nonprofit organization can produce only two possible goods--a charitable, or public, good, Q_1, and a private good, Q_2. Production of the charitable good provides positive utility to the nonprofit manager, while production of the private good provides either zero or negative utility. Despite this, the agency may provide some Q_2 in order to raise the revenue necessary to produce Q_1--i.e., it may engage in cross-subsidization.[5]

The public good produced by the nonprofit may be a social service, such as job-training or counseling, or it may simply be redistribution of income. Note also that the private good may be the same physical good as the public one, but provided to a different group of clients, or financed in a different manner. For instance, a nonprofit organization may provide free counseling to the poor, financed by charitable contributions, and may also sell counseling to either the poor or nonpoor. The counseling sold in this manner is considered private output in our model.

The organization has four potential sources of revenue: (1) private donations to finance the public good, Q_1; (2) purchases, by individuals, of Q_2; (3) government purchases of Q_1 with government acting as purchasing agent for the needy, and (4) government grants, which are

assumed, for now, to be unconditional, i.e., without "strings attached."[6]

All four of these are important revenue sources for welfare nonprofits.

In 1980, private donations accounted for 30 percent of revenue, while

private sales, dues and other receipts accounted for 36 percent, and

governmental revenues (grants and purchases) for the remaining 34 percent

(see Hodgkinson and Weitzman, 1984, p. 45).

The maximization problem for a given nonprofit organization can,

then, be written as

Maximize $U(Q_1,Q_2)$, subject to

$$D(S,W) - S(W) + G(W) + P_1(W)Q_1 + P_2Q_2 - C(Q_1,Q_2) = 0 \qquad (1)$$

where D is private donations received and S represents solicitations

expenditures, so that (D - S) represents net donations. C is a cost

function for producing the two goods, and P_1 and P_2 are the prices paid

by government and individuals respectively for collective and private

output. Wisconsin total government welfare spending and G is government

grants. We assume that $\partial U/\partial Q_1 > 0$ and $\partial U/\partial Q_2 \leq 0$, so that the nonprofit

prefers to produce Q_1.

We can use this framework to analyze the various effects of govern-

ment spending policy on the nonprofit sector. (Comparative static

results are given in the Appendix.) Total government welfare expen-

ditures, W, equal

$$W = \Sigma_i G^i + \Sigma_i P_1 Q_1^i + Z, \qquad (2)$$

where $\Sigma_i G^i$ is the sum of government grants to all i nonprofits, $\Sigma_i P_1 Q_1^i$

is the sum of government purchases from the nonprofit sector, and Z is

direct government provision of social services—i.e., welfare spending
not channeled through the private nonprofit sector. This output includes
cash transfers directly to the needy and will not, in general, be a per-
fect substitute for nonprofit output, Q_1.

We turn now to a discussion of the impact of an overall reduction in
government welfare spending on the revenues, expenditures, and number of
nonprofit welfare organizations.

A. Impact on Revenues of Nonprofits

1. <u>Direct Revenue Effect</u>. A reduction in government social welfare
spending will generally imply direct losses in revenue for nonprofit
organizations, since many of these organizations rely on government for a
significant proportion of their revenue. As government welfare spending
falls, both government grants and government purchases per organization
will fall (holding constant, for now, the number of nonprofit agencies).
Thus, there is a tendency for the nonprofit sector to shrink as govern-
ment expenditures are cut.

This "direct revenue effect" has become more important since the
beginning of the War on Poverty, as many of the social services funded by
legislation of the 1960s and 1970s have been provided by either grants
to, or government purchases from, the nonprofit sector. Approximately 40
percent of federal and 35 percent of state welfare programs have provi-
sions for making grants to, or purchasing services from, private organi-
zations.[7] In addition, the proportion of nonprofit social welfare
revenue from governmental sources increased from 28 percent in 1974 to 31
percent in 1977 and 34 percent in 1980.[8]

One must be careful, however, in interpreting this direct effect. A reduction in nonprofit revenues due to this effect does not imply a loss in services provided to the needy in addition to the losses represented by a reduction in government spending. Rather it reflects the fact that many of the services are financed by government but provided by non-profits.

2. Crowding Out of Private Giving. We allow, in our model, donations to depend on W as well as S. Reductions in government welfare spending may encourage individuals to increase their donations to nonprofits, allowing these organizations to compensate for the loss in government expenditures. This may, at least in part, offset the direct revenue loss by nonprofits.

Suppose there is an exogenous reduction in government provision of social services, Z. Schiff (1985) shows that total donations by individuals will necessarily rise if the following conditions hold: (1) donors view government output and the charitable output financed by their donations as substitutes, and (2) donors view output financed by their donations and other individuals' donations as substitutes.[9] Only under very special circumstances, however, will donations increase by a dollar for each dollar reduction in Z—donors have to view government output, charitable output financed by their contributions, and charitable output financed by others as perfect substitutes. Note that contributions will finance output of the collective good, Q_1, and not Q_2, in our model because an increase in donations shifts out the revenue constraint facing an organization, and allows it to increase output of the preferred good.

When government reduces its purchases of social services from, or grants to, the nonprofit sector, the analysis of crowding out is compli-

cated. The output foregone will likely be a close, or even perfect, substitute for donor-financed output, but private donations may still fall. As Rose-Ackerman (1980) discusses, government support of nonprofit organizations—in the form of grants or purchases—may affect not only the level but the type, or "ideology," of output produced by the recipient organizations. Thus, a cut in government support may alter the nature of Q_1, which can cause private giving to either rise or fall. In addition, reduced government support may be accompanied by reduced monitoring of nonprofits, and this may decrease donations, particularly given the very imperfect information often possessed by donors.

Results of a survey of organizations in the Greater New York United Way (Hartogs, 1978) indicates that government support does, in fact, change the type of services provided. Half of the organizations questioned indicated that their government-funded program was "somewhat different" and 10 percent said it was "completely different" from their non-government-funded one. As Gronbjerg (1982) points out, one change in activity that often accompanies government support is standardization of benefits. Many private welfare agencies serve clients who are exclusively or predominantly of a particular racial or ethnic group. This is generally not possible when selling a social service to the needy via government. Such a change may well reduce contributions from members of the ethnic or racial group previously served, but increase donations from others.

We assume here that corporate and foundation contributions respond to government spending changes in ways similar to individuals. While this need not be the case, note that individual contributions account for over

80 percent of all private donations received by the nonprofit sector (Hodgkinson and Weitzman, 1984, p. 19).

3. <u>Revenue Source Substitution Effects.</u> Changes in the level of government welfare expenditures may also influence nonprofit organizations by inducing them to change the type of output produced—as between Q_1 and Q_2—which will be reflected in the <u>composition</u> of their revenues.

A reduction in government grants, G, or revenues earned by nonprofits from sales to government, $\Sigma_i P_1 Q_1^i$, produces an effect on the organization analogous to an income effect for consumers. With its budget constraint shifted in, the nonprofit cuts back its production of its preferred collective good and, if production of Q_2 provides negative utility, increases its output of the private good. Thus, sales of Q_2 may increase as government support falls (see Appendix). Such sales may reflect increased user charges—payment by the needy for services provided them—or purchases of private output by the non-needy.

To the extent that nonprofits are successful in generating sales of Q_2, they will offset the direct revenue losses suffered. However, because sales represent revenues from private output, they will not, in general, benefit the needy. The more a nonprofit is able to earn a profit on its sales of Q_2, and then use that profit to cross-subsidize its production of Q_1, the more the needy will benefit. The mere fact, however, that welfare nonprofits are able to maintain their total revenues in the face of budget cuts need not imply that the clients of these organizations are unaffected.

There is, in addition, a "once-removed" version of this revenue shift. Changes in government expenditures will, as noted, influence the ability of the nonprofit to attract private donations. This change in

donations will also shift the nonprofit's revenue constraint, causing the organization to move toward or away from sales of Q_2. So, for instance, if an exogenous reduction in government grants leads to an increase in private donations, sales of private output will tend to fall. This will offset, in part, the initial increase in sales caused by the grant reduction. However, it will not completely offset that increase as long as the rise in private giving is less than the loss in grant revenue.

Note, finally, that cuts in government social welfare spending will make the needy worse off and so force them to decrease their purchases of nonprofit output. So, for instance, if the government decreases cash transfers to the poor, we may see sales by nonprofits to these poor fall.

B. Impact on Soliciations by Nonprofits

We have seen that exogenous changes in government expenditures will influence the size of nonprofit organizations and the composition of their output. These changes may also influence the level and composition of solicitation expenditures. Changes in solicitations influence the amount of revenue raised, but also reduce the resources available for use by the nonprofit to serve the needy. If, for example, government budget cuts cause a nonprofit firm to spend more on soliciting for private contributions, this might enable them to increase donations. However, only the increase in donations net of solicitations would represent an increased ability to provide charitable output, Q_1.

Solicitations by nonprofits may be viewed as providing some combination of information and social pressure to contribute. In any case, we would expect that donations received by a nonprofit would be influenced by its solicitation expenditures.[10] Each organization will,

in our model, determine its optimal level of solicitations so as to maxi-
mize its net revenue--the difference between contributions raised and
solicitations expenditures--setting $D'(S) = 1$.[11] Changes in government
expenditure levels may change optimal solicitation expenditures by
affecting the marginal impact of a dollar spent on solicitations. This,
in turn, will influence private donations raised.

The direction of the effect of government spending on solicitations
is not certain, however, since it depends on the effect on the marginal
productivity of solicitations (MPS). It appears that nonprofit organiza-
tions increased their solicitations following the first round of Reagan
budget cuts,[12] indicating that the MPS had increased, but this need not
be the case.

Nonprofit organizations also use resources to attract grants and
purchases of service by government, and these expenditures may be
influenced by government spending as well. A decrease in the level of
grants available, for instance, may cause a nonprofit agency to expend
more resources to attract a share of the shrinking pool of money. One
difference between this case and that of soliciting for private donations
is that while all nonprofits may simultaneously increase solicitations
and private contributions, not all organizations can be successful in
raising more from this shrinking pool of grants.[13]

C. Impact on Entry and Exit of Nonprofit Firms

We have assumed, until this point, that the number of nonprofit
organizations providing social services is fixed, and have examined the
impact of changes in government spending on a typical organization. In
the long run, however, changes in government expenditure levels will

encourage entry into, or exit from, the nonprofit sector. So, for example, we predict above that a reduction in government spending will lead to a fall in the grant revenue received by a typical nonprofit (the direct revenue effect). If, however, this fall in government grants caused a significant number of nonprofit agencies to exit, the average grant revenue for the remaining nonprofits could actually rise. Similarly, we noted that decreased government production of Z will encourage private donations. If this increased ability to attract contributions induced new nonprofit welfare agencies to enter, donations per organization could remain constant or even decline.

If the charitable output of each nonprofit is identical, then total donations or revenues from government are simply spread over fewer or more organizations as exit or entry occurs. If, however, nonprofits produce differentiated goods, the analysis is complicated. In that case, an increase in the number of nonprofits will imply that the typical individual will be able to find an organization that produces output closer, or at least as close, to his or her preferred type than before entry. Thus total contributions to the sector may increase as a result of entry, although contributions per organization may still decline. When we turn to the empirical estimation, below, we attempt to measure the effect of government spending on both the number of organizations in the sector and the average revenues and solicitation expenditures per organization.

The notion that an increased ability to raise revenue will cause entry is consistent with the assumption that nonprofit managers maximize utility defined over output. However, it would also be consistent with a number of other assumptions, for example that nonprofit organizations behave as "for-profits in disguise," attempting to maximize profits.[14]

In Table 1, we summarize the expected effects of changes in the various components of government welfare spending—grants to and purchases from the nonprofit sector, and government spending on its own social services—on revenues and solicitations per nonprofit (holding the number of organizations constant) as well as on the number of nonprofits. Next we turn to the data with which those predictions are tested.

3. DESCRIPTION OF DATA AND MODEL

A. Data

The data used here consist of tax returns (Internal Revenue Service Form 990) filed by each tax-exempt nonprofit welfare organization that was active (had at least $5,000 in revenues) for at least one year between 1973 and 1976. Each organization indicates the nature of its activities by reporting up to three "activity codes" which indicate, for example, whether it provides aid to the handicapped (code 160), legal aid to indigents (462), etc. Instructions to the organization ask that its most important activity be listed first. With this information, we can estimate the impact of changes in government spending on both the entire nonprofit welfare sector as well as particular subsectors, or activities.

Considerable information is provided about each organization's assets, liabilities, revenues, and expenses. Revenues are disaggregated by form—contributions, gifts and grants, sales and other receipts, and dues and assessments. Expenses are also disaggregated into spending on solicitations and other categories.

Finally, we know each organization's zip code, so that we can determine the state in which it is located. This enables us to estimate the

Table 1

Expected Signs of Effects of Changes in Government Welfare
Spending on the Nonprofit Sector

	Grants to and Purchases from Nonprofits	Spending on Own Social Services
<u>Revenues</u>		
Direct effect:		
Grants	+	0
Sales	+	0
Crowding-out		
Donations	?	−
Revenue substitution		
Grants	0	0
Sales	−	+
Donations	0	0
<u>Solicitations</u>	?	?
<u>Number of Organizations</u>	+	−

impact of differences in government spending across states and locali-
ties, as well as differences in other state characteristics, on the
nonprofit welfare sector.

B. Dependent Variables

We estimate regression equations for the following: (1) contribu-
tions, gifts and grants received, CONTR; (2) sales, dues and assessments
and other receipts, SALES; and (3) solicitation expenditures, EXPSO. The
unit of observation is the organization, so that each dependent variable
is expressed per firm. In addition, we estimate an equation in which the
dependent variable is the number of nonprofit organizations providing
social services in each state. The unit of observation here is the state
and not the individual organization.

Note that our defintion of the nonprofit welfare sector includes only
those nonprofits that aim specifically to help the poor or handicapped.
So, for example, we include schools for the blind, but not all schools.
In addition to estimating the equations for the aggregate welfare sector,
we do so for the following activities: aid to the handicapped, services
to the aged, supplying goods and services to the poor, and job training.

Recall that the nonprofit sector has four basic revenue sources.
Revenue, R, is equal to

$$R = P_1Q_1 + P_2Q_2 + D + G, \tag{3}$$

where P_1Q_1 is sales of social services to government, P_2Q_2 is sales of
private output, D is donations by individuals, and G is grants from
government. We would, ideally, estimate an equation for each of these
revenue sources. However, data are not available for each revenue source

separately. First, CONTR includes both contributions from private sources—largely individuals, but also foundations and corporations—as well as grants from government. That is, CONTR = D + G. Second, SALES includes both sales of private output to individuals and charitable output to government, $P_1Q_1 + P_2Q_2$.

Since CONTR represents payment only for Q_1 only,[15] the impact on CONTR of a change in government spending can be interpreted as the impact on the ability of nonprofits to serve the needy. SALES, however, includes purchases of both charitable and private output. The impact of government expenditures on SALES, then, will reflect the combined effect on sales of both types of output, only one of which—sales of Q_1 to government—aids the needy. Changes in private sales will not directly reflect changes in services provided to the needy.

Note also that SALES includes user charges, as when charitable output is provided to the needy at a price greater than zero, but below cost, with the difference made up from donations or government revenues or profits from private sales. The portion sold to the needy, however, does not represent charity. Only that portion that is subsidized is considered as charitable here, and that is included in the impact on CONTR.

C. Independent Variables

1. The CONTR Equation. Recall that CONTR is composed of both private donations as well as grants from government. It is hypothesized to be a function of the following factors:

1. Characteristics of the organization. Some nonprofits find it easier, ceteris paribus, to raise contributions than others, owing to reputation effects. These effects are relatively important in the nonprofit sector, as donors often find it costly to gain information about an organization's activities. It is

hypothesized here that the ability to raise contributions increases with the age of an organization, since age may be taken as a signal of quality.[16] Thus AGE is included as an explanatory variable.

In addition, the tax-deductible status of an organization, DEDCD, is included (equal to 1 if donations to the organization are tax-deductible, 0 if not). Tax-deductible nonprofits should have an easier time attracting donations, as the after-tax price of giving to them is lower. Not all nonprofits that engage in welfare activities are eligible for tax-deductible donations. Some organizations may engage in substantial amounts of lobbying, which would cause the loss of deductible status.

2. <u>Solicitation expenditures</u>. The level of donations received will be influenced by spending on solicitations, EXPSO. We also include an interaction term, EXPSO*AGE to capture the possibility that the payoff from soliciting may depend on how well-known a nonprofit is. We discuss, below, the specification of the EXPSO equation, and its relationship to this one.

3. <u>The price of a charitable contribution</u>. The amount that any single donor gives to a tax-deductible organization will be a function of the tax-determined price of giving. Because donations are tax-deductible, the price of giving one dollar to a tax-deductible nonprofit is $(1-t)$ for a tax itemizer, and 1 for a nonitemizer, where t is the marginal income tax rate faced by the individual. The price of contributing to a nondeductible organization is simply 1, whether or not the donor itemizes.

We make the simplifying assumption that nonprofits receive donations only from within the state in which they are located. While this may not be a good assumption for organizations with a national constituency, it may not be a severe problem for welfare organizations, particularly since local chapters of national organizations file their own tax returns. We examine this issue, below, by reestimating our equations for the 100 largest organizations. These large nonprofits are the most likely to have national constituencies.

We proxy the average price of giving in the state by DEDCD*ITEM, where ITEM is the proportion of a state's taxpayers that itemize on their federal income tax. The greater is ITEM, other things equal, the easier it is for a deductible organization to raise donations. However, ITEM is irrelevant for nondeductible nonprofits. We expect the coefficient on DEDCD*ITEM to be positive, since the price of giving falls as DEDCD*ITEM rises.

4. <u>Income of potential donors</u>. We again assume that all potential donors are state residents, and measure INCOME by average household income in the state.

5. State population. INCOME and the average price of giving will
    determine donations per capita, but not total giving. We
    include state population, TOTPOP, in order to account for this.

6. Urbanization. Individuals living in large urban areas may
    contribute more to charity.[17] Therefore, we include the propor-
    tion of the population living in cities with populations greater
    than 250,000 (URBAN) as an explanatory variable.

7. Measures of need. A number of characteristics of the state
    within which a nonprofit organization is located may be used as
    proxies for "need," or perceived need, for social welfare
    programs. We measure need by (a) the proportion of the popula-
    tion living in poverty (POVLEV); (b) the proportion of the popu-
    lation under 18 years old (POP18); and (c) the proportion of
    people over 65 (POP65). The rationale for the latter two is that
    the young and elderly tend to consume a relatively large share of
    social services. In the job-training equations, the state
    unemployment rate (UNEMPRT) is included as well.

8. Government expenditures. The variables of greatest interest to
    us are those measuring government social welfare spending. Three
    variables, representing the three components of total state
    welfare expenditures are included:[18] (a) VENDOR, payments from
    government to private organizations for the provision of services
    to the needy; (b) cash assistance directly to the needy under
    categorical and other welfare programs, CASH, and (c) other
    public welfare spending and spending on state welfare institu-
    tions, WELFARE. In addition, (d) social welfare spending by
    local governments, LOCAL, is included. State government trans-
    fers to local governments, for welfare programs, are included in
    LOCAL. Note that CASH includes general relief, which is wholly
    financed by state and local sources, as well as payments under
    categorical programs--Old Age Assistance, Aid to Families with
    Dependent Children, and Aid to the Blind and Disabled--in excess
    of, or supplementary to, those financed with federal par-
    ticipation. VENDOR includes the federally supported Medicaid
    program.

    The coefficients on the government expenditure variables will
    reflect both the direct revenue effect and "crowding out." An
    increase in VENDOR should have no direct effect on CONTR
    received.[19] It will, however, have an impact on private
    giving, thus affecting CONTR. One might expect a rise in VENDOR
    to reduce private giving--the "crowding-out" argument--although,
    as noted, government support may alter the type of output pro-
    duced, and this change can increase private giving. In addition,
    government purchases from the nonprofit sector are often accom-
    panied by increased monitoring by government, possibly inducing
    increased private giving.

    An increase in CASH will also not provide any CONTR directly to
    nonprofits. It will crowd out charitable giving if cash

assistance and nonprofit sector output are substitutes, and increase giving if they are complements. An increase in WELFARE or LOCAL will generally include some grants to the nonprofit sector, which tend to increase CONTR. On the other hand, private giving will be crowded out if governmentally provided social services are substitutes for nonprofit output.

9. Number of social welfare organizations, ORGS. The contributions, gifts, and grants received by any nonprofit agency will depend not simply on the determinants of total grants and donations, but also on the number of competitors the organization faces. We describe, below, how ORGS is itself determined.

2. SALES Equation. SALES will be a function of the same set of

variables that determine CONTR, although our interpretations of their

coefficients will be quite different. As noted, SALES includes revenue

from governmental and private sources. In our model, nonprofits prefer

to produce charitable output, and will sell private output only to raise

revenue for their charitable activities. Sales to individuals, P_2Q_2,

will then depend on both the demand of individuals for Q_2 as well as the

willingness of nonprofits to supply it. Changes in the independent

variables will generally influence both supply and demand. Nonprofits

are assumed, however, to accept all donations and governmental revenue

offered, so that only demand (i.e., of donors and government) need be

considered.[20]   It is difficult to make predictions regarding coefficient

signs in the SALES equation, both because SALES comprises sales of pri-

vate and public output and because at least the private portion will

depend on demand and supply considerations. With this in mind, we turn

to a discussion of the independent variables.

1. Organization characteristics. We hypothesized that donors and government may, given the costs of gathering information about charitable output, use the age of a nonprofit as an indicator of quality. The same may be true for SALES. Thus, the coefficient on AGE will tend to be positive.

On the other hand, as a nonprofit welfare agency ages, it may find it increasingly easy to attract donations and government revenues, and may shift out of producing and selling Q_2. The sign of the coefficient on AGE is, then, uncertain, and the empirical results provide information on the relative strengths of the two offsetting effects.

Deductible status (DEDCD) may similarly have offsetting effects on SALES. Tax-deductible organizations may find it easier to make sales, particularly to government. However, the increased ability of deductible nonprofits to attract donations may induce them to move away from private sales of Q_2.

2. The price of charitable output. An increase in price due, e.g., to a tax policy change, will cause nonprofits to turn to private sales, as donations become more difficult to raise, shifting the industry supply curve for Q_2 to the right. The price of private output will fall and the quantity sold will increase. The coefficient on DEDCD*ITEM, then, will be positive if the nonprofit industry faces an elastic demand curve.[21]

3. Income. Again, both demand and supply will be influenced by changes in income. Demand for Q_2 will rise with income assuming that Q_2 is a normal good. However, increased income may make it easier for a typical nonprofit to raise donations, causing them to switch away from production of Q_2.

4. Population.

5. Urbanization. Recall that it is hypothesized that the more urban is one's place of residence, the more likely he or she is to give to charity. Therefore, as URBAN increases, nonprofits have less need to resort to production of Q_2. If, however, urban residents also have a greater demand for Q_2, this tendency may be offset.

6. Measures of need. As the "need" for charitable output increases, ceteris paribus, nonprofit social welfare agencies should find it easier to attract donations. They will, therefore, switch out of producing private output and toward producing social services. The supply curve for Q_2 will shift, raising the price and lowering the quantity sold of Q_2.

7. Government expenditures. Again, these are the coefficients of greatest interest to us. A change in government expenditure policy will, in general, affect both private sales and purchases by government.

A decrease in VENDOR implies a large "direct revenue" effect on sales to government, $P_1 Q_1$. However, the decrease in government vendor payments will cause nonprofits to switch to private sales. This will tend to offset the increase in sales to government. The net impact of VENDOR or SALES, then, provides information about the strength of the revenue substitution effect.

A decrease in CASH, will, on the other hand, have no direct revenue effect. If private donations increase as a result of crowding out, however, nonprofits will reduce sales of Q_2. In addition, cash transfers make the needy better able to afford to purchase services from the nonprofit sector, which also tends to increase SALES.

Increases in WELFARE will have no direct effect on sales, but may cause the substitution of Q_2 for Q_1, if crowding out occurs. In addition, as WELFARE rises, the poor will have less need to purchase social services, reducing SALES. Finally, an increase in LOCAL will have both a direct effect, increasing sales to local governments, and a revenue substitution effect, causing nonprofits to move away from production and sales of Q_2.

8. Number of nonprofits, ORGS. We hypothesized, above, that as the number of competing nonprofits in a given state increased, CONTR per firm would tend to fall. The overall effect on SALES of an increase in ORGS is, however, less clear. As ORGS rises, and donations and grants become more difficult to raise, firms may turn to sales revenue. Thus, we may see a positive relationship between ORGS and SALES.

9. EXPSO.

3. Solicitation Expenditures. The optimal level of solicitations is a function of all variables that influence the marginal productivity of a dollar spent on solicitations (MPS). All independent variables from the CONTR equation, with the exception of EXPSO itself are, then, included in the EXPSO equation.

4. Number of Organizations. In each of the previous three equations, the dependent variable is expressed per firm. However, changes in government expenditures as well as in other explanatory variables will likely also influence the number of organizations in each state, ORGS. An increase in government grants, e.g., could encourage the entry of new welfare agencies, but decrease the value of grants received per firm.

The number of organizations per state depends on how attractive the nonprofit welfare sector is, relative to other opportunities, to poten-

tial nonprofit entrepreneurs. While no theory of nonprofit entry is presented here (see Schiff, 1986, for such a theory), it seems quite plausible that the number of organizations will be a function of the ability of nonprofits to attract revenue.[22]

Since ORGS is a statewide variable, it does not depend on the characteristics of any single nonprofit, such as AGE. It does, however, depend on the characteristics of the state, which determine the ability of nonprofits to attract revenue for Q_1--donations, grants or purchases by government. A reduction in CASH, then, would encourage entry if CASH and nonprofit output are substitutes. A fall in VENDOR, however, reduces the ability of nonprofits to produce Q_1, and so should reduce ORGS. Finally, the net result of WELFARE and LOCAL on the number of nonprofits is uncertain. Cuts in such spending encourage donations, but reduce grants received.

D. The System of Equations

We have described the specification of four equations, for CONTR, SALES, EXPSO and ORGS. These can be described, in linear terms, as follows:

(1) $\text{ORGS} = a_0 + a_1\text{GVT} + a_2\text{STATE} + e_1$,

(2) $\text{CONTR} = B_0 + B_1\text{GVT} + B_2\text{EXPSO} + B_3\text{AGE} + B_4\text{STATE} + B_5\text{ORGS} + e_2$,

(3) $\text{SALES} = c_0 + c_1\text{GVT} + c_2\text{ EXPSO} + c_3\text{AGE} + c_4\text{STATE} + c_5\text{ORGS} + e_3$,

(4) $\text{EXPSO} = d_0 + d_1\text{GVT} + d_2\text{AGE} + d_3\text{STATE} + d_4\text{ORGS} + e_4$,

where $\underline{GVT}$ is a vector of government expenditure variables, $\underline{STATE}$ is a vector of state characteristics, such as INCOME, POVLEV, etc., and the other variables are as defined previously.

An exogenous change in government expenditures, then, affects the number of organizations in a state, as firms enter and/or exit in response (equation 1). The change in $\underline{GVT}$ will, in addition, affect CONTR and SALES (per firm) both directly and through its effect on the number of competing organizations. Finally, the change in $\underline{GVT}$ may influence the optimal level of EXPSO. This change in EXPSO will affect CONTR and SALES as well.

This is not a simultaneous equations model. Rather, it is analoguous to a system of demand equations, in which all prices and income enter into the demand equation for each good, but in which the quantity purchased of any one good does not appear in the equation for any other. Each of these equations could--ignoring the truncation problem[23]--be consistently estimated via ordinary least squares. We presented the equations above as linear simply to illustrate the relationship between the equations. However, actual estimation is nonlinear (see below).

The individual coefficient estimates are used to construct composite coefficients, which incorporate both direct and indirect effects of the independent variables on the dependent ones. For instance, we can substitute for ORGS and EXPSO in equation (2), and get:

$$(5) \quad CONTR = f_0 + \underline{f_1}GVT + f_2AGE + \underline{f_3}STATE + e^*,$$

where

$$f_0 = B_0 + B_2 d_0 + a_0 (B_5 + B_2 d_4),$$

$$f_1 = B_1 + B_2 d_1 + a_1 (B_5 + B_2 d_4),$$

$$f_2 = B_2 d_2 + B_3,$$

$$f_3 = B_4 + B_2 d_3 + a_2 (B_5 + B_2 d_4),$$

$$e^* = e_2 + B_2 e_4 + e_1 (B_5 + B_2 d_4).$$

Note that the term $B_5 + B_2 d_4$ reappears. This can be thought of as the total impact of a change in the number of organizations on CONTR—B_5 measures the impact of ORGS on CONTR, holding all else constant. However, as ORGS changes, so may EXPSO, further influencing CONTR—this is the term $B_2 d_4$. An increase in GVT of one unit, then, will lead to an increase of f_1 in CONTR, which is composed of

1. B_1, the "immediate" impact, holding EXPSO and ORGS constant;

2. $B_2 d_1$, the impact of GVT on CONTR via the induced change in solicitations, and

3. $a_1 (B_5 + B_2 d_4)$, the impact of GVT on CONTR via the change in the number of competing organizations.

Thus, f_1 represents the total effect of GVT on contributions and grants received by a typical organization. This information can be combined with the estimate of the impact on the number of organizations per state to provide us with an estimate of the overall response of the nonprofit sector. We can derive similar reduced-form expressions for SALES and EXPSO.

4. ECONOMETRIC METHODOLOGY AND RESULTS

A. Methodology

As mentioned above, the data for this study consist of IRS Form 990 tax returns for 11,316 nonprofit organizations for the years 1973-1976, along with government expenditure and other state data matched to organizations by zip code. For two reasons we were, however, unable to take advantage of the panel nature of the data. First, nonprofit organizations are not required to file a tax return for a given year by a particular date. Therefore tax returns from two nonprofit organizations in the same calendar year will generally encompass somewhat different time periods. Owing to this fact, we thought it desirable to average all data over the four years.

Second, the "per firm" dependent variables—CONTR, SALES, and EXPSO—are truncated. That is, they take on zero values for a significant proportion of the observations. Ordinary least squares will, therefore, produce biased results. To account for the truncation, Tobit estimation is employed.[24] Note that fixed-effects Tobit estimation does not produce consistent estimates.[25] This, combined with the problem of overlapping tax years, led us to estimate Tobit equations for the four-year averages.[26] In the ORGS equation, the units of observation are the states. Truncation is not a problem in this case, so least squares estimation was employed.

We turn now to a discussion of the results of this estimation (regression results are presented in the Appendix[27]). First, we present results for the aggregate welfare sector. Following that, we discuss the results for each of the disaggregated activities.

B. Results for Aggregate Welfare Sector

The number of nonprofit organizations in a given state appears to depend most heavily on the state's population and level and pattern of government welfare expenditures, while the revenues per organization are determined largely by the organization's characteristics—age, deductible status and solicitation expenditures—as well as by government expenditures. Neither "need," as proxied by our measures—POVLEV, POP65 and POP18—nor income appear to be important determinants of the size of the nonprofit sector (see Appendix Tables 1 and 6).

Government Spending and the Nonprofit Welfare Sector. Table 2 presents elasticity measures from the Tobit estimation of equations (1) through (4) above. Table 3 presents the composite elasticities for the nonlinear version of the reduced-form equation (5) for CONTR and similar reduced-form equations for SALES and EXPSO. (The ORGS equation is already in reduced form, so that the elasticities in Tables 2 and 3 for that equation are identical.)

Our results imply, in general, that government welfare expenditures do have a significant impact on the number, size, and revenue composition of nonprofit welfare agencies. The impact, however, is small relative to the total government effort in the social welfare area. In addition, the direction of impact depends on the type of government welfare expenditure in question. Therefore, a reduction in total welfare spending by government is unlikely to produce a significant expansion of the nonprofit sector to compensate for such spending cuts.

A fall in CASH has a negative impact on the size of the nonprofit sector—the opposite result from that predicted by a simple

Table 2

Results from Tobit Equations: Selected Elasticity Estimates

Equation	Elasticity with Respect to:						
	CASH	VENDOR	WELFARE	LOCAL	ORGS	EXPSO	AGE*EXPSO
Aggregate							
CONTR	+.07**	+.06*	-.13**	+.03	-.26**	+.04**	0
SALES	+.06**	+.02	-.13**	-.01	-.04	-.01**	+.004**
EXPSO	+.03	-.005	+.15*	+.14**	+.12	-	-
ORGS	-.03	+.16**	-.04	-.04*	-	-	-
Aid to the Handicapped (160)							
CONTR	+.10**	+.01	-.15*	+.03	+.04	+.03**	0
SALES	+.09**	+.05	-.19**	0	+.14	0	0
EXPSO	-.04	-.08	+.36**	+.07	-.29	-	-
ORGS	-.14**	-.01	+.13	-.09**	-	-	-
Supplies to the Poor (560)							
CONTR	+.14*	-.21	-.13	-.01	+.58	+.11**	-.01**
SALES	+.07	-.29	+.08	+.07	+.19	-.03	0
EXPSO	.06	-.11	+.41	+.18	+.76	-	-
ORGS	-.03	+.32**	-.38**	-.04	-	-	-
Services for the Aged (575)							
CONTR	.15**	.15	-.36**	-.01	-.32	+.25**	0
SALES	-.04	-.04	-.03	-.09	+.17	+.03	0
EXPSO	+.01	-.11	+.32	+.08	+.21	-	-
ORGS	0	+.27**	-.30**	+.01	-	-	-
Job Training (566)							
CONTR	+.24*	+.23	-.26	+.30**	-.36*	+.05**	0
SALES	+.10	+.03	-.21	+.13*	-.15	-.02**	+.02**
EXPSO	+.30	+.43	-.04	+.51	-.17	-	-
ORGS	+.22	+.26*	-.05	0	-	-	-
Voc. Rehab.							
	+1.25*						
	+.68*						
	.97						
	-.47						

Note: See text for definitions of the variables.
*Significant at .10.
**Significant at .05.

Table 3

Overall Impact of Government Spending on the Nonprofit Sector:
Composite Elasticities from Tobit Regressions

	Composite Elasticity with Respect to:			
Variable	CASH	VENDOR	WELFARE	LOCAL
Aggregate				
CONTR	+.08	+.02	-.13	+.05
SALES	+.06	+.01	-.13	-.01
EXPSO	-.03	+.01	+.15	+.14
ORGS	-.03	+.16	-.04	-.04
Aid to the Handicapped (160)				
CONTR	+.09	0	-.14	+.03
SALES	+.07	+.05	-.17	+.01
EXPSO	0	-.08	+.32	+.10
ORGS	-.14	-.01	+.13	-.09
Supplies to the Poor (560)				
CONTR	+.13	0	-.34	-.02
SALES	+.06	-.20	-.18	+.06
EXPSO	+.04	+.13	+.12	+.15
ORGS	-.03	+.32	-.38	-.04
Services for the Aged (575)				
CONTR	+.15	.04	-.20	+.06
SALES	-.04	0	-.09	-.09
EXPSO	0	-.05	+.26	+.08
ORGS	0	.27	-.30	+.01
Job Training (566)				
CONTR	+.17	+.16	-.24	+.33
SALES	+.07	0	-.20	+.13
EXPSO	+.26	+.39	-.03	+.51
ORGS	+.22	+.26	-.05	0
Voc. Rehab.				
+1.47				
+.75				
+1.05				
-.47				

"crowding-out" model. Results in Table 3 imply that a 10 percent cut in

CASH by all states--approximately $550 million in total--would lead to

virtually no change in the number of organizations, but would reduce

CONTR (per organization) by approximately $500 and SALES by about $560.

This implies a total loss in nonprofit revenue of about $13.5 million.

The impact on SALES is not unexpected. One interpretation is that a

decrease in cash transfers to the needy reduces their ability to purchase

more nonprofit services, reducing SALES. However, we expected private

donations, and so CONTR, to increase as CASH falls (recall there is no

direct effect associated with CASH) as long as nonprofit output is a

substitute for CASH. It appears, then, that nonprofit services, in the

aggregate, are complementary to cash transfers.[28]

The primary impact of a cut in VENDOR is on the number, rather than

average size, of organizations. A reduction in vendor payments of 10

percent, by all states (a total reduction of $860 million), would reduce

the total number of welfare nonprofits by approximately 180. Despite the

fact that much of VENDOR goes directly to nonprofits as sales revenue,

VENDOR has a relatively small effect on total sales by the nonprofit sec-

tor, implying that private sales rise to replace lost VENDOR sales. Our

results indicate that a fall in VENDOR of $860 million implies a fall in

total SALES by the social welfare nonprofit sector of only approximately

$19 million. Even if only 50 percent of vendor payments go to nonpro-

fits, as opposed to for-profit firms, this still implies that a fall in

vendor payments received of over $400 million causes only an $18 million

fall in total sales. Government purchases for the poor are, in large

part, displaced by sales directly to the poor, and by increased sales of

other output. Thus, while total sales are not much affected by a reduc-

tion in VENDOR, the composition of those sales changes. As a result, the poor are forced to bear a larger proportion of the costs of the services provided them. Despite the fact that relatively little is lost in total revenues, nonprofits exit in significant numbers owing to the change in the composition of revenue. Greater reliance on sales--i.e., on production of the dispreferred good, Q_2--makes the nonprofit sector less attractive to potential entrepreneurs.

CONTR also falls as vendor payments are reduced. A cut in VENDOR of $860 million implies a fall in CONTR of approximately $125 per nonprofit, or $14 million in total (taking into account the rise in the number of organizations). We noted that vendor payments could encourage giving if, for instance, government support was accompanied by monitoring. (It is possible, in addition, that some vendor payments were recorded as grants by nonprofits, thus increasing CONTR. However, this does not alter our basic conclusion that a fall in VENDOR is largely made up by a rise in other sales.)

These results for VENDOR and CASH do not make one optimistic about the ability of the nonprofit sector to compensate for government welfare cuts. As cash transfers and vendor payments fall, the nonprofit sector appears to contract, and to shift from sales of social services to government to sales of other private output and increased user charges to the needy.

A reduction in LOCAL also has, on net, a negative impact on the size of the nonprofit sector. A 10 percent cut in local welfare expenditures in all states--$2,500 million--leads to a reduction in the number of nonprofits by 45 nationally. On the other hand, it allows welfare

nonprofits to raise virtually the same level of CONTR while reducing

EXPSO by $1.7 million.

The results for WELFARE are quite different, and somewhat more sup-

portive of the idea that the nonprofit sector compensates, at least in

part, for cuts in government welfare spending. A reduction in WELFARE of

10 percent per state, or $275 million in total, would lead to an increase

in CONTR of $809 per nonprofit, or $9.2 million in total, and a rise in

SALES of $1218 per firm, or $13.8 million in total. Thus, total nonpro-

fit revenues would rise by $23 million. At the same time, the fall in

WELFARE would reduce EXPSO by approximately $1.8 million ($157 per firm),

further increasing the net CONTR available to provide services.

Approximately 10 percent of the cut in WELFARE, then, is "compensated

for."

The increase in private donations is as predicted by the "crowding

out" hypothesis. However, the increase in SALES may result from the fact

that the needy, facing a reduction in government services, are forced to

purchase those services from the nonprofit sector. Part of the

"compensation" may therefore be illusory, coming directly from the

intended beneficiaries of the government programs.

Other Results

Revenues per firm--both CONTR and SALES--rise with the age of the

organization. The result for CONTR is as predicted, but we suggested

that there were offsetting effects for SALES. The results suggest that

older nonprofits do not move away from sales of private output enough to

offset their increased ability to sell charitable output to government

and, perhaps, private output to individuals. Tax-deductible organiza-

tions, similarly, receive more of both SALES and CONTR. Solicitation expenditures significantly increase CONTR, but decrease SALES, indicating that the more vigorously an organization pursues donations, ceteris paribus, the less likely it is to make sales.

INCOME, while positive and insignificant in the CONTR equation, is positive and significant for SALES. Note also that an increase in the number of ORGS will, as expected, reduce CONTR. It does not significantly affect SALES, however. This is not surprising since, as noted, increased competition for donations may lead nonprofits to turn to SALES as an alternative revenue source.

Tax-deductible organizations spend more on solicitations than do non-deductible nonprofits. In addition, EXPSO, unlike CONTR and SALES, are affected by "need." EXPSO falls as TOTPOP, POP18, and POP65 rise. Therefore, while nonprofits in states with greater need do not have greater revenues, they can attract the same level of revenues with less solicitation. Their net contributions available for provision of services will therefore be greater.

We noted earlier that the preceding analysis rests on the assumption that nonprofit welfare organizations have local, or in-state, constituencies. An organization with a national constituency, however, would likely not find its revenues determined by government spending or other characteristics of the state that it happens to be located in, but may be affected by changes in government spending nationwide.

We examined the importance of this problem by estimating CONTR, SALES, and EXPSO equations for the 100 largest welfare nonprofits--those most likely to have national constituencies--and the aggregate nonprofit

welfare sector less those 100 largest organizations. Complete results are presented in Appendix Tables 7 and 8. Here, we briefly summarize.

There is some evidence that the largest organizations behave differently from the rest of the nonprofits, in two respects. First, those variables--AGE and EXPSO--which were hypothesized to proxy information about, or reputation of, an organization are generally insignificant for the largest organizations. This is reasonable; consumers (donors) apparently know more about big nonprofits, so solicitations are less productive, and age is not used as a signal by consumers.

In addition, government expenditures in the home state are less important for the largest nonprofits, which is consistent with their having national constituencies. For instance, the coefficient on WELFARE is negative and significant for the aggregate sector, but insignificant for the largest nonprofits. Thus, the "crowding out" of giving by "home" state provision of services is less important for those large organizations. Similarly, WELFARE has a significant negative effect on SALES for the aggregate sector, but not for the 100 largest.

The same type of result can be seen by comparing the aggregate welfare sector with that sector less the 100 largest organizations. AGE and EXPSO are highly significant in the restricted sample for both the CONTR and SALES equation. In addition, a number of state characteristics not significant for the entire sector are significant for the sample without the largest nonprofits. Elasticities with respect to government expenditure variables, are, however, quite similar across the two samples.

C. Disaggregate Findings

Results for the particular activities examined separately were quite similar to those for the aggregate sector. Here, we briefly review those results (see Appendix Tables 2-6 for complete results).

Results for Aid to the Handicapped. Nearly five thousand of the 11,316 organizations in the sector provided aid to the handicapped. The number of such organizations depends, as in the aggregate, on population and government expenditures, while the age and tax-deductible status of an organization again appear to be important determinants of its revenues and solicitation expenditures. Older and tax-deductible welfare nonprofits receive more CONTR and SALES, and have higher EXPSO.

Looking more closely at the estimated impact of government spending on nonprofits aiding the handicapped (Tables 2 and 3), we see that the prospects of significant compensation for reductions in government spending are somewhat better than for the nonprofit sector as a whole. A reduction in CASH of 10 percent by all states ($550 million) would increase the number of organizations aiding the handicapped by an estimate of 69 nationally--a sizable increase. However, revenues per organization would fall--CONTR by an estimated $542, and SALES by $1033, per firm. Total revenues of the nonprofit "aid to the handicapped" sector, therefore, would rise by about $6.9 million. Such organizations fare better than the nonprofit welfare sector as a whole, which loses $13.5 million (see above).

A reduction in WELFARE would lead to somewhat more significant compensation by the nonprofits aiding the handicapped. A $275 million reduction in WELFARE would lead to a significant increase in SALES of

$2806 per firm, or $13.9 million in total, and a rise in CONTR of $904

per firm, or $4.5 million total. At the same time EXPSO would fall by

$1.4 million, further increasing net revenues available. The total gain

in net revenues for the subsector, then, would equal approximately 33

million dollars (allowing for the predicted rise in the number of

nonprofits), compared with the estimated $25 million gain for the aggre-

gate sector. Again, these organizations appear to fare somewhat better

than average following government spending cuts. As in the aggregate

case, however, the largest part of the increase comes from SALES. The

needy, who previously consumed government-provided social services,

appear, after the cut in WELFARE, to purchase those services from the

nonprofit sector. Again, fewer services are provided to the needy, in

total, following the cuts, and the poor bear a larger portion of the

costs of those services still provided.

A set of equations for "Aid to the Handicapped" was also estimated

with CASH replaced by two variables specifically representing cash trans-

fers aimed at the handicapped—SSI payments to the blind (SSIBLD) and to

the disabled (SSIDIS). Results (see Appendix Table 9) imply that SSIBLD

"crowds out" CONTR and SALES, but SSIDIS does not.

Results for "Supplies to the Poor". There are 627 organizations in

our sample that list "supplying money, goods and services to the poor" as

their primary activity. The number of such organizations in a state

appears to depend on population and government expenditures, and the age

of an organization again appears to play an important role in determining

revenues and solicitation expenditures per firm. CONTR rises with soli-

citations, but the coefficient on the interaction term, EXPSO*AGE, is

negative and significant, indicating that the marginal productivity of
solicitations is lower for older firms.

Organizations supplying money, goods and services to the poor appear
to fit most closely the usual conception of a charity. Thus it is of
particular interest to note the likely response of such nonprofits to
government welfare spending reductions. A reduction of $550 million in
CASH (10 percent per state) has a significant impact on contributions
received by nonprofits supplying the poor, reducing CONTR by 780 dollars.
This amounts to a total loss in contributions to such organizations of
less than half a million dollars. Organizations supplying money, goods,
and services to the poor do not, therefore, compensate for reductions in
cash transfers and, in fact, they will find it slightly more difficult to
raise contributions.

A reduction in VENDOR has a significant negative impact on the number
of organizations, as expected. A 10 percent cut in VENDOR in all states
($860 million), for instance, will reduce the number of organizations
supplying goods and services to the poor by twenty nationally. VENDOR
has a negative, although insignificant, coefficient in the SALES
equation. Again, the direct revenue effect of a fall in VENDOR is
largely offset by an increase in sales to individuals--either sales of
private output or sales of social services directly to the needy. Thus,
although total SALES falls only slightly following a reduction in VENDOR,
the change in its composition implies a reduction in well-being of the
needy.

WELFARE, on the other hand, has the opposite effect on the number of
organizations supplying the poor. A $275 million reduction in WELFARE

will _increase_ the number of such nonprofits by approximately 24, as pre-
dicted by the "crowding-out" hypothesis.

Results for "Services for the Aged". There were 1326 organizations
active between 1973 and 1976 that listed their primary activity as pro-
viding services for the aged. The number of such organizations in a
state is determined largely by state population, government expenditures,
and need—as measured by the proportion of the population over 65. Older
organizations receive significantly more SALES, while tax-deductible
nonprofits attract more CONTR as well as SALES.

The estimates of the impact of government welfare spending on nonpro-
fits providing services to the aged are qualitatively similar to those
for the other activities. That is, reductions in CASH and VENDOR reduce
the size of the nonprofit subsector, while cuts in WELFARE increase
nonprofit revenues.

A decrease in CASH of $550 million leads to a reduction in total
CONTR for nonprofits serving the needy of $850 thousand. Again, dona-
tions do not compensate for cuts in governmental cash transfers and, in
fact, appear to decline slightly with such cuts.

Changes in VENDOR again affect the nonprofit sector mainly via their
impact on the number of organizations. An $850 million reduction in
vendor payments to nonprofits leads to a fall in the number of nonprofits
serving the elderly of approximately 36. SALES per firm are left largely
unchanged by cuts in vendor payments (although total sales by the sector
rise, owing to the increase in the number of organizations), suggesting,
as above, that nonprofits switch to private sales when sales to govern-
ment are reduced.

Reductions in WELFARE, however, have a positive impact on the number

and average size of organizations serving the elderly. A $275 million

reduction in WELFARE, for instance, would induce entry of approximately

40 organizations serving the elderly and would increase CONTR by $824

per firm. At the same time, EXPSO per firm would fall by $296, implying

a gain in net contributions per firm of $1120. Thus, the nonprofit sub-

sector serving the aged would find its net contributions rising by $2.6

million.

A set of equations was estimated in which CASH was replaced by SSI

payments to the elderly (SSIAGE). Results (see Appendix Table 10) indi-

cate that increases in SSIAGE do crowd out CONTR for nonprofits serving

the elderly, but have no significant effect on SALES.

Results for Job Training. In our estimation of equations for nonpro-

fits engaged in job training and vocational counseling, two additional

independent variables were included. First, the state unemployment rate

(UNEMPRT) was added as a measure of the need in a state for job training

or counseling. Second, state and local government expenditures on voca-

tional rehabilitation (VOCREHAB) were included. We would expect that

such spending, in general, includes revenue that goes directly to the

nonprofit sector—either as SALES or CONTR—so that it would induce a

direct revenue effect. In addition, increased VOCREHAB may crowd out

private giving and may also affect nonprofit sales directly to the con-

sumers of the service.

There were 2,015 nonprofits engaged in job training and vocational

counseling in the years 1973-76. Results indicate that the number of

such organizations in a given state are sensitive only to VENDOR—the

greater are vendor payments by government, the more nonprofits engaged in

job training will enter the market. In particular, the coefficient on UNEMPRT was positive, but not significant.

Tax-deductible organizations receive more CONTR and have higher EXPSO. Increased solicitation expenditures appear to increase CONTR, but decrease SALES (at least for young organizations--the coefficient on EXPSO*AGE is positive and significant). In addition, CONTR falls the greater is the number of competing organizations providing job training or counseling.

The size of a state's nonprofit job training industry can be seen to be quite sensitive to changes in government expenditures, particularly in VOCREHAB. A decrease in CASH will, as for all other activities considered, decrease CONTR to job training organizations. A $550 million cut in CASH, for instance, will lead to a decrease in CONTR of $1207 per organization, or $2.4 million in total. A reduction in VENDOR again has a negative impact on the number of organizations. A cut of $850 million in vendor payments reduces the number of nonprofits engaged in job training by approximately 52.

Local government welfare expenditures can also be seen to have a significant impact on the number of organizations here, unlike the other cases. A 10 percent cut in LOCAL--$2,500 million in total--impies a reduction in total CONTR of $5.9 million, a fall in total SALES of $2.6 million, and a cutback in total EXPSO of $1.6 million. Thus, net revenues fall by approximately $7 million.

Finally, reductions in state and local spending on vocational rehabilitation would have a strong negative effect on the nonprofit effort in that area. A reduction in VOCREHAB of 10 percent in all states, or $150 million, implies a fall in total CONTR of $24.7 million and a reduction

in total SALES of $12.6 million, for a total loss in revenue of over $37 million. It appears quite unlikely, then, that government spending reductions in the area of job training would be compensated for by the nonprofit sector.

6. CONCLUSIONS

We have examined, both theoretically and empirically, the relationship between government social welfare expenditures of various types and the activities of the nonprofit sector. Our model predicts that changes in government spending will have several effects on nonprofit revenues and expenditures: (1) a direct effect on revenues due to the fact that a significant proportion of government welfare spending goes to nonprofits as purchases of service or grants; (2) a crowding-out effect, increasing private donations when government spending falls, if governmental and nonprofit outputs are substitutes, and decreasing donations if they are complements, and (3) a revenue substitution effect--nonprofits may switch to less preferred sources of revenue, such as sales to individuals, when more preferred revenue, such as government grants or purchases, becomes more difficult to raise.

Our empirical analysis suggests that each of these effects operates to some extent. The focus of the earlier literature on the "crowding-out" effect has, therefore, been too narrow. We find that the impact of a reduction in government expenditures will depend on the type of expenditure cut, but that in any case the nonprofit sector is very unlikely to compensate for such spending reductions to any significant degree. While results vary somewhat from activity to activity, several conclusions emerge:

1. Reductions in cash transfers lead to decreases in private contributions in the aggregate and for each activity examined. This result is the opposite of that suggested by the "crowding-out" hypothesis, but can be explained within that context if nonprofit output and cash transfers by government are complements. In most cases, cuts in cash transfers also reduce sales by nonprofits. We interpret this as resulting from the decreased ability of the needy to purchase nonprofit output as cash tranfers fall.

2. Reductions in vendor payments significantly reduce the number of organizations in the aggregate and for three of the four activities examined. This is as expected—the decreased availability of government revenues induces exit by nonprofits. However, the estimated effect of vendor payments on total nonprofit sales—to government and individuals—is quite modest, despite the fact that most vendor payments go directly to nonprofit organizations. This suggests that a reduction in purchases of nonprofit output by government is, in large part, offset by nonprofit sales to individuals. While revenues do not change significantly, such a change in composition will have adverse effects on the needy.

3. The impact on nonprofits of government provision of social services is quite different than that of cash transfers or vendor payments, and somewhat more supportive of the notion that the nonprofit sector can compensate for social welfare budget cuts. Cuts in provision of social services have a positive impact on contributions in all cases (significant in three of five), as the simple crowding-out model predicts. Thus, government provision of social services appears to substitute for nonprofit output while cash transfers, as noted, do not. Reduced provision of social services also increases nonprofit sales,

perhaps to the needy. Some of the reduction in government services, then, is compensated for, but the needy bear a larger portion of the costs.

Our results suggest that government expenditure policies do influence the nonprofit sector, though in more complex ways than generally realized. Private nonprofit activities can be affected by changing not only the level, but also the mix, of government welfare spending. We cannot, however, rely on the private nonprofit sector to take over a significant portion of government's role as a provider of social services. It is simply too small and too reliant, itself, on government for revenues.

Note, finally, that we assume throughout our analysis that changes in government expenditures are exogenous. In the future, however, it would be desirable to model government spending, donor, and nonprofit sector decisions as occurring simultaneously. It may be the case, for instance, that the existence of a large nonprofit sector in a state may encourage the use of vendor payments by that state's government, or cause it to reduce government's role altogether.

Notes

[1]See, e.g., Abrams and Schmitz (1978, 1984), Steinberg (1984) and Schiff (1985).

[2]It is possible to add other maximands to the utility function without influencing the conclusions of this analysis. We could, for instance, assume that nonprofit managers get utility from output and from the size of the surplus, or discretionary budget, of the firm (see Mique and Belanger, 1974). The three effects that government is seen to have on nonprofit revenue would still occur in that case.

[3]Nonprofits may not distribute their profits to owners. Nonprofit entrepreneurs are limited to "reasonable compensation."

[4]This set-up is similar to that suggested by organization theory. In that literature, the behavior of organizations is seen as determined by its "mission"—i.e., its utility function—as well as its environment, or the constraints imposed on the organization (see Sosin, 1986).

[5]See James (1983) for a discussion of cross-subsidization in the nonprofit sector. My model is similar to the one employed there. Cross-subsidization may be made possible by tax advantages granted nonprofits, which may allow them to earn positive profits despite competition from the for-profit sector.

[6]As discussed below, this is not always the case. Grants are often accompanied by constraints on the recipient organization.

[7]See Gronbjerg (1982), p. 15.

[8]See Hodgkinson and Weitzman (1984), p. 45.

[9]There is also an income effect of an increase in government spending that will be positive or negative depending on whether the consumer is undersatisfied or oversatisfied with the initial level of spending. We ignore that effect here. As long as government spending levels are close to that preferred by the median voter, the income effect for the typical consumer will be small.

[10]Weisbrod and Dominguez (forthcoming) find this to be the case for a number of nonprofit industries.

[11]This is consistent with the view that organizations maximize a utility function over output provided, but may be consistent with other utility function arguments as well. It is consistent, e.g., with the discretionary manager view of nonprofit behavior in Mique and Belanger (1974).

[12]New York Times, December 12, 1982, p. 48: "Charity Appeals Sharply on the Rise."

[13]There are also costs associated with administering any grants received, and survey information indicates that they may be significant (see Hartogs, 1978). These costs should be subtracted from grant revenues to determine the resources available to the nonprofit sector for the provision of charity. In our empirical work, however, we look only at the determinants of one expenditure category—solicitation expenditures.

[14]See Schiff (1986) for a discussion of entry and exit by nonprofits with various objective functions. In some cases, it is shown that an increase in demand for nonprofit sector output will cause entry by new nonprofits, with no change in average firm size.

[15]This ignores the possibility that nonprofits may cheat donors with imperfect information and illegally appropriate the donations as profits.

[16]Weisbrod and Dominguez (forthcoming) find this to be the case.

[17]Sosin (1986) argues that this is the case.

[18]Data were obtained from State Government Finances (U.S. Department of Commerce, Bureau of the Census) for the years 1973-76.

[19]VENDOR is defined as payments made directly to private purveyors for services provided under welfare programs. We expect that vendor payments received are recorded as sales by the recipient organization. It is possible, however, that some of VENDOR is included as grants, thus appearing in CONTR. There may, then, be a small direct revenue effect.

[20]This is true only of donations and government revenues not accompanied by constraints.

[21]The nonprofit sector likely faces an elastic demand for Q_2 since it must compete with for-profits producing similar output.

[22]From 1971 to 1976, e.g., the number of tax-deductible nonprofit welfare organizations increased by 60 percent, while government support of the nonprofit sector was growing rapidly as well (Weisbrod and Schiff, 1982).

[23]I.e., the dependent variables take on values of zero a large proportion of the time. We deal with this in the section on econometric methodology.

[24]See Tobin (1958) for a description of this estimation technique.

[25]See Heckman and Macurdy (1980) for a discussion of this problem.

[26]For the four-year averages, CONTR takes on a zero value 38 percent of the time, SALES 29 percent, and EXPSO 77 percent for the aggregate welfare sector.

[26]For the four-year averages, CONTR takes on a zero value 38 percent of the time, SALES 29 percent, and EXPSO 77 percent for the aggregate welfare sector.

[27]OLS regressions were also run. Results were qualitatively similar, although estimated elasticities with respect to the government expenditure variables were consistently larger in the OLS case.

[28]As Rose-Ackerman (1980) notes, Family Services of America is an example of a nonprofit which seemingly has positioned itself as a complement to government welfare programs. As the role of government in the social welfare area grew historically, FSA switched from direct provision of goods and services to advocacy, representing the needy in their dealings with the government.

APPENDIX

Derivation of Results: Government Spending and Nonprofit Output

The nonprofit's maximization problem is to choose Q_1, Q_2 and S to maximize

$U(Q_1, Q_2)$ subject to

$$D(W, S) - S(W) + G(W) + P_1(W) Q_1 + P_2 Q_2 - C(Q_1, Q_2) = 0,$$

where $U_1 > 0$, $U_2 \leqslant 0$. W is government welfare spending, 0 is donations, G is government grants, S is solicitation expenditures, and C is a cost function.

First-order conditions are:

(1) $U_1 + \lambda(P_1 - C_1) = 0,$

(2) $U_2 + \lambda(P_2 - C_2) = 0,$

(3) $D_S - 1 = 0,$

(4) $D(W, S) - S(W) + G(W) + P_1(W) Q_1 + P_2 Q_2 - C(Q_1, Q_2) = 0.$

We can see, then, that since $U_1 > 0$, Q_1 is produced beyond its profit-maximizing point--i.e., beyond the point at which $P_1 = C_1$. Q_2 will be produced at its profit-maximizing point if $U_2 = 0$, and below that point if $U_2 < 0$. Note also that solicitations are made to the point at which the last dollar spent raises just a dollar ($D_S = 1$).

We are particularly interested in the impact of government welfare spending, W, on output of collective and private output, Q_1 and Q_2. We can write those effects as

$$(5) \quad \frac{\partial Q_1}{\partial W} = \frac{\partial Q_1}{\partial G} \frac{\partial G}{\partial W} + \frac{\partial Q_1}{\partial P_1} \frac{\partial P_1}{\partial W} + \frac{\partial Q_1}{\partial D} \frac{\partial D}{\partial W} + \left[\frac{\partial Q_1}{\partial D} \frac{\partial D}{\partial S} - \frac{\partial Q_1}{\partial S}\right] \frac{\partial S}{\partial W} \, ,$$

$$(6) \quad \frac{\partial Q_2}{\partial W} = \frac{\partial Q_2}{\partial G} \frac{\partial G}{\partial W} + \frac{\partial Q_2}{\partial P_1} \frac{\partial P_1}{\partial W} + \frac{\partial Q_2}{\partial D} \frac{\partial D}{\partial W} + \left[\frac{\partial Q_2}{\partial D} \frac{\partial D}{\partial S} - \frac{\partial Q_2}{\partial S}\right] \frac{\partial S}{\partial W} \, .$$

We have assumed that $\frac{\partial G}{\partial W} > 0$ and $\frac{\partial P_1}{\partial W} > 0$, so that when government increases its welfare spending, it increases both grants to nonprofits and prices paid to nonprofits for Q_1. In addition, we stated conditions under which $\partial D/\partial W < 0$, i.e., under which "crowding out" takes place. Finally, we know that the sign of $\partial S/\partial W$ is indeterminate. We are particularly interested here in the signs of $\partial Q_1/\partial G$, $\partial Q_1/\partial D$, $\partial Q_1/\partial P_1$, $\partial Q_2/\partial G$, $\partial Q_2/\partial P_1$ and $\partial Q_2/\partial D$.

Differentiating (1)-(4) and setting other changes to zero, we can derive the following expression for $\partial Q_1/\partial G$ (see James, 1983):

$$\frac{\partial Q_1}{\partial G} = \frac{(U_{12} - \lambda C_{12})(P_2 - C_2) + (U_{22} - \lambda C_{22})(P_1 - C_1)}{|A|} \, ,$$

where $A = \begin{bmatrix} (U_{11} - \lambda C_{11}) & (U_{12} - \lambda C_{12}) & (P_1 - C_1) \\ (U_{12} - \lambda C_{12}) & (U_{22} - \lambda C_{22}) & (P_2 - C_2) \\ (P_1 - C_1) & (P_2 - C_2) & 0 \end{bmatrix}$.

We know that $|A| > 0$ by second-order conditions, so $\partial Q_1/\partial G$ has the sign of

$$(U_{12} - \lambda C_{12})(P_2 - C_2) + (U_{22} - \lambda C_{22})(P_1 - C_1).$$

We assume that $U_{22} < 0$ and $C_{22} > 0$. If there are no "inter-good"

effects--i.e., $U_{12} = C_{12} = 0$--then $\partial Q_1/\partial G$ has the sign of

$(U_{22} - \lambda C_{22})(P_1 - C_1)$, or of $- (P_1 - C_1)$. We know that, since $U_1 > 0$,

then $(P_1 - C_1) < 0$ in equilibrium, and $\partial Q_1/\partial G > 0$. The analysis is the

same for Q_2, except that $U_2 \leqslant 0$. If $U_2 = 0$, then $\partial Q_2/\partial G = 0$, so that the

firm continues to produce the profit-maximizing level of Q_2. If $U_2 < 0$,

then $\partial Q_2/\partial G < 0$. So, following a rise in G, sales of Q_2 may well fall.

The expressions for $\dfrac{\partial Q_1}{\partial D}$ and $\partial Q_2/\partial D$ are identical to those above.

Suppose, now, that P_1 increases as a result of a rise in W. In that

case, if there are no inter-good effects,

$$\frac{\partial Q_1}{\partial P_1} = \frac{\lambda (P_2 - C_2)^2 + (P_1 - C_1) \, Q_1 \, (U_{22} - \lambda C_{22})}{|A|} \, .$$

The first term in the numerator, which is a substitution effect, is

always non-negative. The second term is an income effect--the impact of

the nonprofit's relaxed budget constraint on Q_1. This effect will be

positive if $U_1 > 0$. So, $\partial Q_1/\partial P_1$ must be positive. Note, however, that

for the less preferred good, the income effect is negative, so $\dfrac{\partial Q_2}{\partial P_2}$ can be

less than zero.

Finally, the cross-price effect, $\dfrac{\partial Q_2}{\partial P_1}$, can be written as

$$\frac{\partial Q_2}{\partial P_1} = \frac{\lambda (P_1 - C_1)(P_2 - C_2) + (P_2 - C_2) \, Q_1 \, (U_{11} - \lambda C_{11})}{|A|} \, .$$

The first term in the numerator is always positive. However, the second

term is negative if $U_2 < 0$. Thus, the sign of $\partial Q_2/\partial P_1$ is uncertain.

However, we know that $\partial Q_1/\partial P_2 > 0$.

Appendix Table 1

Tobit Regression Results: Aggregate Welfare Sector

| Variable | Equation: | | | | | |
| | CONTR | | SALES | | EXPSO | |
	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
AGE	.233+004	.608+003	.317+005	.376+004	.376+002	.211+003
EXPSO	.181+001	.972–001	–.162+001	.777+000	—	—
AGE*EXPSO	.115–002	.842–002	.147+000	.593–001	—	—
DEDCO	.567+006	.650+005	.921+006	.415+006	.133+006	.227+005
DEDITEM	–.421+004	.190+004	–.157+005	.122+005	–.812+003	.665+003
INCOME	.113+005	.140+005	.206+006	.906+005	–.481+004	.483+004
TOTPOP	.120+005	.751+004	.305+005	.475+005	–.474+004	.260+004
URBAN	.288+003	.485+003	.305+004	.311+004	.378+002	.167+003
POVLEV	.323+004	.337+004	.977+004	.216+005	–.248+003	.116+004
POP18	–.115+005	.710+004	–.553+004	.460+005	–.552+004	.246+004
POP65	–.123+004	.598+004	.386+005	.386+005	–.416+004	.207+004
CASH	.168+003	.584+002	.902+003	.374+003	.144+002	.203+002
VENDOR	.716+002	.442+002	.148+003	.284+003	–.119+001	.152+002
LOCAL	.255+002	.230+002	–.776+002	.146+003	.261+002	.808+001
ORGS	–.265+003	.135+003	–.265+003	.862+003	.252+002	.463+002
WELFARE	–.635+003	.249+003	–.403+004	.160+004	.159+003	.876+002
CONSTANT	–.325+006	.319+006	–.443+007	.207+007	.333+005	.110+006
Estimate of (1/SIGMA)	.154–005		.230–006		.554–005	
Standard Error of (1/SIGMA)	.131–007		.182–008		.807–007	
Number of Observations	11,316					

Appendix Table 2

Tobit Regression Results: Aid to the Handicapped

Variable	CONTR		SALES		EXPSO	
	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
AGE	.286+004	.101+004	.252+005	.745+004	.334+003	.176+003
EXPSO	.216+001	.377-000	.184+000	.307+001	—	—
AGE*EXPSO	-.126-001	.167-001	.113+000	.134-000	—	—
DEDCD	.789+006	.121+006	.189+007	.909+006	.578+005	.216+005
DEDITEM	-.754+004	.368+004	-.235+005	.277+005	.422+003	.660+003
INCOME	.453+005	.308+005	.573+006	.232+006	-.667+004	.545+004
TOTPOP	-.732+003	.177+005	-.566+005	.129+006	.471+003	.316+004
URBAN	.384+003	.953+003	-.145+004	.713+004	.252+003	.168+003
POVLEV	.848+004	.758+004	.899+005	.566+005	-.243+004	.136+004
POP18	-.945+004	.140+005	-.126+005	.105+006	.120+003	.247+004
POP65	-.389+004	.110+005	.573+005	.824+005	.132+003	.195+004
CASH	.318+003	.134+003	.243+004	.100+004	-.107+002	.236+002
VENDOR	.207+002	.587+002	.643+003	.438+003	-.103+002	.104+002
LOCAL	.400+002	.511+002	.325+002	.379+003	.764+001	.912+001
ORGS	.107+003	.560+003	.347+004	.406+004	-.741+002	.100+003
WELFARE	-.896+003	.496+003	-.932+004	.372+004	.192+003	.879+002
CONSTANT	-.964+006	.633+006	-.998+007	.471+007	-.783+005	.112+006
Estimate of (1/SIGMA)	.123-005		.156-006		.864-005	
Standard Error of (1/SIGMA)	.156-007		.183-008		.187-006	
Number of Observations	4,938					

Appendix Table 3

Tobit Regression Results: Supplying Money Goods and Services to the Poor

	Equation:					
	CONIR		SALES		EXPSO	
Variable	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
AGE	.131+005	.417+004	.584+004	.163+004	.380+004	.248+004
EXPSO	.185+001	.228+000	-.160+000	.139+000	—	—
AGE*EXPSO	-.114-000	.547-001	.284-002	.306-001	—	—
DEDCD	.439+004	.101+006	-.133+005	.412+005	.111+006	.664+005
DEDITEM	.122+004	.281+004	.112+003	.115+004	-.887+003	.178+004
INCOME	-.130+005	.190+005	-.979+003	.781+004	.843+004	.118+005
TOTPOP	-.304+004	.854+004	.733+003	.348+004	-.782+004	.532+004
URBAN	-.468+003	.701+003	-.108+003	.289+003	-.690+002	.442+003
POVLEV	.633+003	.420+004	.364+003	.172+004	.147+004	.262+004
POP18	-.261+004	.101+005	.156+003	.419+004	.712+004	.634+004
POP65	-.484+004	.723+004	.205+004	.299+004	-.104+003	.450+004
CASH	.168+003	.976+002	.273+002	.387+002	.227+002	.614+002
VENDOR	-.926+002	.755+002	-.418+002	.306+002	-.158+002	.479+002
LOCAL	-.278+001	.332+002	.734+001	.135+002	.198+002	.214+002
ORGS	.393+004	.249+004	.435+003	.100+004	.171+004	.155+004
WELFARE	-.280+003	.435+003	.594+002	.175+003	.286+003	.271+003
CONSTANT	.158+006	.465+006	-.528+005	.191+006	-.511+006	.291+006
Estimate of (1/SIGMA)	.456-005		.115-004		.885-005	
Standard Error of (1/SIGMA)	.165-006		.478-006		.532-006	
Number of Observations	627					

Appendix Table 4

Tobit Regression Results: Services to the Aged

	Equation:					
	CONIR		SALES		EXPSO	
Variable	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
AGE	.565+003	.495+003	.707+004	.688+003	-119+004	.114+004
EXPSO	.173+001	.602-001	.263-001	.626-001	—	—
AGE*EXPSO	.269-002	.946-002	.841-002	.136-001	—	—
DEDCD	.586+005	.270+005	.962+005	.390+005	.280+005	.618+005
DEDITEM	.440+003	.805+003	.129+004	.115+004	.220+004	.184+004
INCOME	.773+003	.616+004	.371+004	.903+004	-.338+005	.147+005
TOTPOP	.208+004	.259+004	.160+004	.374+004	-.843+003	.592+004
URBAN	.135+002	.198+003	.225+003	.286+003	-.775+003	.463+003
POVLEV	.148+004	.146+004	.396+004	.218+004	-.530+004	.336+004
POP18	-.445+004	.275+004	.377+004	.408+004	-.748+004	.635+004
POP65	-.394+003	.257+004	.497+004	.378+004	-.117+005	.603+004
CASH	.739+002	.278+002	.269+002	.397+002	.515+002	.635+002
VENDOR	.294+002	.219+002	.988+001	.313+002	-.270+002	.501+002
LOCAL	-.213+001	.986+001	.169+002	.140+002	.148+002	.228+002
ORGS	-.324+003	.135+003	.337+002	.193+003	.347+003	.303+003
WELFARE	-.478+003	.354+003	.309+003	.507+003	.368+003	.810+003
CONSTANT	.636+005	.131+006	.633+005	.195+006	.574+006	.304+006

Estimate of (1/SIGMA)	.100-004		.703-005		.542-005	
Standard Error of (1/SIGMA)	.255-006		.186-006		.220-006	
Number of Observations	1,326					

Appendix Table 5

Tobit Regression Results: Job Training and Counseling

| | Equation: | | | | | |
| | CONTR | | SALES | | EXPSO | |
Variable	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
AGE	-.132+004	.211+004	.552+004	.852+003	-943+003	.115+004
EXPSO	.179+001	.198+000	-.499+000	.148+000	—	—
AGE*EXPSO	.209-002	.245-001	.559-001	.142-001	—	—
DEDCD	.859+006	.255+006	.131+006	.114+006	.405+006	.136+006
DEDITEM	-.328+004	.732+004	-.214+004	.328+004	-.384+004	.390+004
INCOME	.310+005	.578+005	.532+005	.233+005	.855+004	.311+005
TOTPOP	-.854+005	.494+005	-.261+005	.194+005	-.387+005	.286+005
URBAN	.250+004	.196+004	.152+004	.792+003	.531+003	.108+004
POVLEV	.969+004	.123+005	.141+004	.502+004	.181+005	.695+004
POP18	-.293+005	.336+005	-.831+004	.136+005	-.318+005	.194+005
POP65	-.368+004	.282+005	-.246+003	.113+005	-.153+005	.159+005
CASH	.502+003	.282+003	.137+003	.114+003	.190+003	.162+003
VENDOR	.257+003	.168+003	.225+002	.677+002	.143+003	.957+002
LOCAL	.277+003	.110+003	.813+002	.434+002	.142+003	.645+002
UNEMPRT	.926+004	.271+005	-.553+004	.109+005	.150+005	.152+005
WELFARE	-.122+004	.119+004	-.648+003	.489+003	-.518+002	.695+003
ORGS	-.150+004	.658+003	-.419+003	.279+003	-.218+003	.353+003
VOCREHAB	.214+005	.115+005	.766+004	.456+004	.500+004	.659+004
CONSTANT	-.409+006	.153+007	-.443+006	.621+006	.244+006	.849+006

Estimate of (1/SIGMA)   .114-005   .237-005   .274-005

Standard Error
of (1/SIGMA)   .266-007   .425-007   .114-006

Number of Observations   2,015

Appendix Table 6

OLS Regression Results: ORGS Equation, Aggregate and by Activity

Variable	Aggregate		Aid to the Handicapped		Supplies to the Poor		Services to the Aged		Job Training	
	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
CONSTANT	-10.30	240.44	70.10	113.74	18.01	22.31	-20.08	47.77	-86.34	140.37
ITEM	1.55	2.01	.19	.95	.23	.19	-.67	.40	.32	1.17
INCOME	-6.13	10.48	-8.69	4.86	-.15	.97	1.09	2.08	-.47	6.34
TOTPOP	45.77	6.04	27.33	2.86	2.23	.56	4.42	1.20	10.33	7.62
URBAN	-.25	.40	-.18	.19	.015	.04	.03	.08	-.09	.24
POVLEV	-5.38	2.94	-4.16	1.38	.17	.27	-.79	.58	-.26	1.84
POP18	1.48	5.95	1.95	2.81	.76	.55	.70	1.18	1.84	3.44
POP65	7.41	4.59	.70	2.17	.43	.43	2.21	.91	.29	2.80
CASH	-.07	.09	-.13	.04	.003	.01	.001	.02	.08	.06
VENDOR	.21	.05	-.01	.02	.02	.005	.04	.01	.06	.035
LOCAL	-.05	.03	-.06	.01	.003	.003	-.002	.006	-.002	.02
WELFARE	-.18	.37	.23	.18	.09	.03	-.15	.07	-.04	.24
UNEMPRT									3.86	3.45
VOCREHAB									-1.18	1.72
R^2	.96		.95		.88		.86		.79	
Number of Observations	50									

Appendix Table 7

Tobit Regression Results: 100 Largest Organizations

Variable	CONTR		SALES		EXPSO	
	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
AGE	.536+004	.413+005	.746+006	.331+006	-.109+005	.101+005
EXPSO	.107+001	.110+001	.158+001	.998+001	--	--
AGE*EXPSO	-.525-001	.105+000	-.674+000	.863+000	--	--
DEDCD	.266+008	.994+007	.726+008	.603+008	.128+008	.856+011
DEDITEM	-.527+006	.248+006	-.181+007	.164+007	-.138+006	.103+006
INCOME	.789+006	.165+007	.165+008	.132+008	.359+006	.453+006
TOTPOP	-.881+006	.899+006	-.440+007	.679+007	-.900+006	.374+006
URBAN	.973+005	.671+005	.438+005	.516+006	-.188+005	.169+005
POVLEV	.195+006	.319+006	.195+007	.248+007	.187+006	.990+005
POP18	.352+006	.971+006	.624+007	.729+007	-.521+006	.241+006
POP65	.659+006	.888+006	.522+007	.696+007	-.411+006	.221+006
CASH	.141+005	.441+004	.840+005	.352+005	.375+004	.196+004
VENDOR	.118+005	.506+004	.327+005	.398+005	-.114+004	.130+004
LOCAL	.613+004	.258+004	.191+005	.182+005	.248+004	.112+004
ORGS	-.101+005	.157+005	.258+005	.126+006	.136+005	.618+004
WELFARE	-.102+005	.200+005	-.134+006	.160+006	.652+004	.668+004
CONSTANT	-.393+008	.416+008	-.483+009	.328+009	.652+007	.856+011

Estimate of (1/SIGMA) .215-006   .264-007   .996-006

Standard Error
of (1/SIGMA)   .162-007   .202-008   .132-006

Number of Observations   100

Appendix Table 8

Tobit Regression Results: Aggregate Less 100 Largest Organizations

Variable	CONTR		SALES		EXPSO	
	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
AGE	.492+003	.133+003	.268+004	.141+003	-.942+002	.147+003
EXPSO	.116+001	.350-001	-.163+000	.444-001	--	--
AGE*EXPSO	.978-002	.286-002	.349-001	.345-002	--	--
DEDCD	.156+006	.140+005	.858+005	.154+005	.941+005	.154+005
DEDITEM	-.110+004	.413+003	-.108+004	.455+003	-.662+003	.454+003
INCOME	.248+004	.304+004	.729+004	.337+004	-.162+004	.328+004
TOTPOP	.409+004	.162+004	.275+004	.176+004	-.268+004	.177+004
URBAN	.701+001	.105+003	.254+003	.115+003	.104+003	.114+003
POVLEV	.141+004	.732+003	-.143+004	.808+003	-.349+003	.798+003
POP18	-.451+004	.153+004	-.755+003	.171+004	-.234+004	.168+004
POP65	-.116+004	.129+004	.262+004	.143+004	-.172+004	.141+004
CASH	.442+002	.126+002	-.766+001	.139+002	.573+001	.139+002
VENDOR	.149+002	.960+001	.180+002	.105+002	.669+001	.104+002
LOCAL	.532+001	.499+001	.285+001	.545+001	.151+002	.551+001
ORGS	-.786+002	.293+002	-.713+002	.321+002	-.116+001	.315+002
WELFARE	-.178+003	.541+002	-.478+002	.597+002	.100+003	.598+002
CONSTANT	.398+004	.692+005	-.137+006	.770+005	-.479+005	.754+005

Estimate of (1/SIGMA) .710-005   .617-005   .812-005

Standard Error
  of (1/SIGMA)   .620-007   .501-007   .121-006

Number of Observations 11,216

Appendix Table 9

Tobit Results: Aid to the Handicapped, with SSIBLD and SSIDIS Replacing CASH

Variable	CONTR		SALES		EXPSO	
	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
AGE	.261+005	.745+004	.301+004	.101+004	.339+003	.177+003
EXPSO	.291+000	.307+001	.218+001	.377+000	—	—
AGE*EXPSO	.107+000	.134+000	-.135-001	.167-001	—	—
DEDCD	.150+007	.935+006	.727+006	.124+006	.577+005	.223+005
DEDITEM	-.106+005	.285+005	-.551+004	.379+004	.462+003	.678+003
INCOME	.103+006	.264+006	-.101+005	.352+005	-.530+004	.622+004
TOTPOP	.113+006	.105+006	.176+005	.142+005	-.232+004	.249+004
URBAN	-.520+004	.746+004	-.254+002	.995+003	.233+003	.175+003
POVLEV	.331+005	.555+005	.165+004	.741+004	-.170+004	.132+004
POP18	-.960+005	.121+006	-.201+005	.162+005	-.973+003	.288+004
POP65	.302+005	.912+005	-.546+004	.122+005	-.432+003	.217+004
VENDOR	.319+004	.141+004	.362+003	.189+003	-.961+001	.331+002
LOCAL	-.166+003	.682+003	.157+002	.914+002	.109+002	.160+002
ORGS	-.142+004	.196+004	-.308+003	.266+003	.184+002	.465+002
WELFARE	-.449+004	.301+004	-.271+003	.402+003	.173+003	.706+002
SSIBLD	-.208+006	.876+005	-.269+005	.116+005	-.578+003	.204+004
SSIDIS	.398+004	.676+004	.580+003	.898+003	.230+002	.157+003
CONSTANT	-.128+007	.597+007	.745+005	.801+006	-.615+005	.142+006

Estimate of (1/SIGMA) .157-006   .123-005   .865-005

Standard Error
  of (1/SIGMA)   .183-008   .157-007   .188-006

Number of Observations 4,938

Appendix Table 10

Tobit Regression Results: Services to the Aged, with SSIAGE Replacing CASH

Variable	CONTR		SALES		EXPSO	
	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
AGE	.534+003	.497+003	.710+004	.689+003	-.119+004	.114+004
EXPSO	.173+001	.603-001	.259-001	.626-001	--	--
AGE*EXPSO	.318-002	.948-002	-.854-002	.136-001	--	--
DEDCD	.580+005	.270+005	.951+005	.390+005	.276+005	.618+005
DEDITEM	.465+003	.806+003	-.127+004	.116+004	.221+004	.184+004
INCOME	.311+003	.630+004	.162+004	.927+004	-.353+005	.152+005
TOTPOP	.269+004	.259+004	.137+004	.373+004	-.436+003	.591+004
URBAN	.258+002	.199+003	.244+003	.287+003	-.743+003	.469+003
POVLEV	.197+004	.164+004	-.289+004	.241+004	-.450+004	.371+004
POP18	-.451+004	.282+004	-.497+004	.420+004	-.806+004	.650+004
POP65	-.229+003	.258+004	.476+004	.378+004	-.115+005	.603+004
VENDOR	.543+002	.325+002	.191+002	.465+002	.883+001	.755+002
LOCAL	.233+001	.116+002	-.830+001	.166+002	.228+002	.271+002
WELFARE	-.137+003	.108+003	-.132+003	.156+003	.463+003	.243+003
SSIAGE	-.185+003	.113+003	-.108+003	.165+003	-.206+003	.262+003
ACT575	-.436+003	.354+003	.317+003	.508+003	.381+003	.809+003
CONSTANT	.594+005	.133+006	-.117+005	.200+006	.595+006	.310+006

Estimate of (1/SIGMA) .100-004   .703-005   .543-005

Standard Error
  of (1/SIGMA)   .255-006   .187-006   .221-006

Number of Observations 1,326

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