How Could Econometric Analysis Inform Regulatory Policy Given Better Data?

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I. General Data Needs

A. Output Measures.

1. Most studies look at costs and revenue sources in great detail, but lack data on outputs.

2. Output data is often incomplete. Nonprofits produce multiple outputs, only some of which are measured and available for econometric analysis. For example, nonprofit hospitals may produce research, training, and excess capacity as insurance against epidemics and natural disasters as well as care for the medically indigent. Studies which regress only indigent care on the size of tax breaks granted to nonprofits leave out these other outputs financed by tax breaks, producing biased comparisons.

3. Favored use of certain inputs sometimes does dual duty as an output, and if the value of these outputs is ignored, the charity may look inefficient or wasteful of tax breaks (Weisbrod, 1988).

   a. Hiring the handicapped

   b. Hiring and training former drug addicts, criminals, and political campaign advisors.

   c. Overpaying unskilled workers as part of helping the poor.

   d. Using 'less efficient' management techniques as part of accomplishing democratic or non-authoritarian ideals.

4. Available output measures often neglect subtle quality differences (especially convenience and trustworthiness)

5. Expenditures on service provision are sometimes used as a proxy for output (as in fundraising efficiency studies or studies of indigent care by hospitals). This neglects both the subtle service-quality differences above and differences in efficiency of converting expenditures to service delivery at this final output stage.

6. Output measures should be in 'value-added' form to deal with cream-skimming and self-selection.

B. Panel data sets

1. Panels follow a cross-section of the same nonprofits (or donors, or whatever) over several years.

2. All econometric studies leave out potentially-relevant variables, so that inferred causal relations may be spurious. Panel data sets allow one to control for all omitted variables which are constant across time but vary across cross-sectional units (location, mission, accounting procedures, etc.) and all factors which are constant across organizations but vary across time (trend, recession-induced need, etc.) (the two-way fixed effects model) and are therefore more persuasive. A variation (the two-way random effects model) allows one to control for individual and time effects which are not constant but have constant mean, and also produces more persuasive estimates.

3. Panels allow one to estimate spillover effects (i.e., when fundraising by one

charity makes it harder for others to raise funds) and dynamic effects (information lags, habit persistence, proactive strategies based on anticipated future variables).

4.Panels are expensive to maintain and few exist, but have certainly proved their worth in other econometric applications and are beginning to prove their worth here.

C.Uniform accounting, consistent with the needs of the study.

1.The allocation of joint costs is a major ambiguity, with a fairly arbitrary resolution in GAAPs. (i.e., a campaign which educates the public and asks for funds both service provision and fundraising; a chief executive's salary may represent both administration and service delivery; maintenance costs for a university auditorium may represent educational costs and costs related to unrelated business income).

2.There is a similar, less-recognized problem with allocating joint revenues. Revenues from a special event fundraiser are partly contributions, partly payments for unrelated-business services (dinner and a show).

3.There is no reason why the same procedures should be used to allocate joint costs and revenues when determining tax liability as when performing an econometric study. Accounting for tax purposes is primarily an exercise in determining 'taxable income,' secondarily a way of pushing taxable entities into desired behaviors. Neither purpose is well-suited to a study of the determinants of behavior.

II.Data needs for the analysis of tax incentives for donations in the personal income tax

A.Purposes of econometric studies

1.Determine the "treasury efficiency" of tax incentives (Feldstein 1980) - Does induced giving exceed the cost to the treasury of the tax break, so that the alternative of tax-financed grants is more costly?

2.Forecasting donations and the impact of tax reforms on anticipated giving. (Data needs for this goal are to be discussed by other speakers at this conference).

3.Evaluating the efficiency and distributional impacts of proposed tax reforms.

a.Extending the "above-the-line deduction" for nonitemizers.

b.Substituting a tax credit for a tax deduction

c.Excepting deductions for gifts of appreciated property from the imposition of the alternative minimum tax.

d.Substituting a flat tax with no incentives for the current system.

B.Typical approach of econometric studies: Estimate price and income elasticities from regressions which use tax or survey data, where price is the after-tax cost of providing a dollar to a charity.

C.Data needs if a study is to serve any of the above purposes

1.Data which recognizes the many forms of giving and allows one to estimate the interactions among them.

a.Do increased monetary donations come at the expense of donations of volunteer time, or does volunteering amplify cash effects?

(1) Requires one to estimate the cross-price elasticities and direct price and income elasticity for volunteer time.

(2) Some survey data enables one to do this, but existing surveys are weak on needed data (data used by Schiff 1990 or Menchik and Weisbrod 1987 lacks a direct measure of wages; data used by Segal (in progress) lacks monetary donations) and no panel data sets are available.

(3) Consistent measures of volunteering which account for the value of volunteering to the employing organization are needed. The opportunity cost of time (net wage rate), which is appropriate for estimating the price elasticities, is not appropriate for evaluating the induced services provided by volunteers (Steinberg 1990a) because there is no exchange transaction equating the two.

b. Do increased monetary donations during one's lifetime come at the expense of charitable bequests (Watson 1984)?

(1) Requires one to estimate cross-price elasticities.

(2) Requires an inter-vivos panel integrated with bequest data, which is not now available.

c. Do increased cash donations come at the expense of gifts of appreciated property and in-kind donations?

(1) The traditional approach assumes the two are perfect substitutes, and regresses combined gifts on a weighted-average price.

(2) One study attempted to estimate cross-price elasticities (O'Neil, Steinberg, and Thompson 1991) but failed due to the lack of independent sample variation in the proxies for price and asset gifts. Better measures (see below) and panel data for the wealthy (available to government insiders, but not generally) could remedy this.

(3) Current data, measuring the opportunity cost to the donor, is appropriate (if not ideally measured) for estimating elasticities but etermining the value of the gift to the recipient, because there is no exchange transaction to equate the two.

2. Panel data which includes non-itemizers and survey-based panels.

3. Data which allows one to construct measures of giving by "peer groups" for each sample donor.

a. Donors react not only to tax laws, but to each other.

b. A change in the tax law or in average taxable income would cause both direct effects and feedback effects via induced changes in giving by others (Steinberg 1986).

c. Panel data can implicitly remedy this if there is the appropriate sample variation over time, but direct remedies are better.

d. If peer groups are donors in the same region and income class, then confidentiality restrictions for wealthy taxpayers (which force omission of location) impair public-use samples. If peer groups are defined in terms of income only, existing data is sufficient.

D. Data needs for assessing the treasury efficiency of tax breaks.

1.Panels for audited taxpayers.

a.Slemrod (1989) shows that the appropriate test for treasury efficiency requires an estimate of both the direct price elasticity and the "evasion elasticity".

b.He estimates a correction for this problem, and finds it is small.

c.However, his estimate is from a single cross-section and would be more persuasive if a panel were available to confirm the result.

2.Estimates of the crowding-out of donations by government expenditures.

a.Roberts (1987) shows that the appropriate test for treasury efficiency requires an estimate of crowding-out.

b.Problems with deriving such estimates are discussed below.

3.Estimates of marginal transactions costs for tax-financed grants.

a.Treasury efficiency compares stimulated donations under tax breaks with dollars receivable from grants financed by tax-break elimination.

b.Grants are typically more costly for the recipient agency to administer than are donations. Does data on this exist?

c.Grants require administrative expenditures by the granting government agency which reduce the efficiency of the alternative. Does data on this exist?

d.Tax collection under the alternative may affect (either way) the IRS's administrative costs. More thought is needed on data to estimate this effect.

e.Tax collection under the alternative may result in differing excess burden costs (distortionary effects due to a higher effective tax rate). Estimates of some of these effects exist in other studies, but have not been applied to this problem.

E.Data needs for evaluating policy reforms

1.Better measures of the types of donations stimulated by tax incentives.

a.One argument against the current system of tax deductions is that it amounts to an "upside-down subsidy", substantially lowering the price of giving for the rich, moderately lowering it for the middle class, and having no impact for non-itemizers. Substitution of a tax credit for the current system would eliminate this "plutocratic bias".

b.Strnad (1986) argues that deductions do not result in an upside-down subsidy if (1) the rich are more sensitive to tax breaks than are others and (2) the rich give to charities which help the other classes.

c.The first of Strnad's conditions has been verified in most studies. The second cannot be verified without better data.

2.Better measures of the appreciation portion of donated assets.

a.Current practice uses corrections based on averages found in other data sets

b.This practice doesn't allow one to construct accurate measures of price, impairing estimation of both the own and cross-price elasticities for asset gifts.

c.This is important because asset gifts are a major source of revenue for some nonprofits and because available evidence (based on flawed price measures) suggests that asset gifts are much more sensitive to tax treatment than are cash gifts and so, perhaps, deserve further special treatment (O'Neil, Steinberg, and Thompson 1991).

III.Data needs for regulating or assessing executive compensation

A.Current regulations allow denial of tax exemption, etc., if compensation amounts to private inurement.

1.Compensation clearly constitutes private inurement if the executive receives higher pay than she could earn in her next best position.

2.Profit-sharing plans no longer constitute per se inurement, but receive careful scrutiny under current law.

B.It is unclear whether a more stringent or less stringent standard is desirable (Steinberg 1990b).

1.From the nonprofit's perspective, it matters less what the executive could earn in her next best position and more whether a similar quality executive could be retained and properly motivated at a lower level of compensation.

2.Compensation levels affect the quality of applicants (argues for market levels of pay).

3.Compensation levels affect the motivation of executives once retained (argues for above-market levels of pay, i.e., "efficiency wages.")

4.Compensation levels determine the dedication to mission and overall trustworthiness of applicants (argues for below-market levels of pay).

C.Econometric studies could determine the relative importance of some of these conflicting factors.

1.One could regress total revenues, donations, surplus, or direct output measures on measures of executive compensation. A positive sign indicates that higher executive compensation is helpful; a sufficiently large positive coefficient indicates that higher executive compensation more than pays for itself.

2.Ideally, one would want to measure the difference between actual compensation and the compensation this executive could expect elsewhere for this kind of study.

a.The various entrepreneurial sorting and motivation arguments discussed above depend on this difference.

b.Alternative compensation is not available, and it is difficult to imagine how such data could be gathered.

c.Instead, one could simulate a shadow compensation level by applying data on the executive's education, experience, job tenure, etc. to standard econometric estimates of earnings equations. This would require a survey.

3.Good output measures are essential if this study is to be meaningful (see cautions above).

4.One should be cautious interpreting the results of this kind of study, worried about whether higher executive compensation is the cause of good performance or the effect. There are methods for determining the likely direction of causality, and awareness of this problem should guide study design and data collection.

IV. Data needs for analysis of tax breaks for nonprofit organizations.

A. One aspect of the "unfair competition" debate is the extent to which the various tax breaks lead to increases in the nonprofit share of output when nonprofits and for-profits coexist.

B. The best available study (Hansmann, 1987) used cross-sectional data to estimate the elasticity of nonprofit share with respect to differential property, sales, and corporate income tax rates in four nonprofit industries (nursing homes, hospitals, primary and secondary schools, and vocational schools).

C. If better data were available, this approach could be extended to other industries.

1. Hansmann looked only at competition where a for-profit coexisted in the nonprofit's exempt-purpose industry.

2. Much of the current controversy concerns market shares for "unrelated-business income" (income from activities other than the nonprofit's exempt purpose).

3. To replicate Hansmann's study here, one would need data at the state, metropolitan, or regional level on market shares and effective state and local tax rates on unrelated business income.

D. If time series data were available, this approach could be extended to federal tax breaks.

1. Exemption from the federal corporate income tax, loopholes in the unrelated-business income tax, and the provision of tax breaks for donations are likely more important that state and local tax breaks in determining market shares.

2. The size of these tax breaks does not vary across subnational observations in a cross-sectional data set, so the impact of these breaks cannot be estimated.

3. I have not carefully studied available time series data to determine whether this study is currently feasible or requires better data.

V. Data needs for assessment of fundraising

A. Public policies address allegedly excessive fundraising expenditures.

1. It is currently unconstitutional to require that fundraising expenditures not exceed a given percentage of funds raised (or, conversely, that service expenditures exceed a given minimum share of funds raised),

2. However, analysts have suggested that tax breaks can constitutionally be denied to organizations which do "excessive" fundraising. This position may be tested in the case of United Cancer Council v. Commissioner (UCC seeks restoration of tax-exempt status following revocation on the grounds that exempt-purpose expenditures were not "commensurate" with revenue availability) or by several bills now before the Congress and various state legislatures.

B. The proper tests for "excessiveness" require econometric analyses (Steinberg 1989-90 contains a more elaborate justification for this admittedly controversial opinion).

1. Both donors and charities value the services provided through donations.

2. Service provision is maximized (with some technical exceptions detailed in Steinberg 1985) when two tests are met:

a. The fundraising budget selected results in a marginal donative product of fundraising (extra donations resulting from an extra dollar of fundraising expenditure) which equals unity. The budget would be

excessive if the marginal donative product were less than unity.

b.The budget is allocated across alternative solicitation techniques (direct mail; telemarketing, etc.) so as to equate the marginal donative products of employed techniques (extra donations resulting from extra expenditure on each technique). Otherwise, the same donations could be raised with lower fundraising expenditures for a higher net return.

3.The ratio of solicitation expenditures to contributions, determined largely by external forces (age of the charity, controversialness of its cause, level of competition for funds) contains no information which is useful for determining excessiveness.

4.The marginal donative product of fundraising for any particular nonprofit can be simulated using an econometrically-estimated donative revenue function. Basically, regress donations on total fundraising expenditures (alternatives are necessary if the allocation across techniques is imperfect).

5.The marginal donative products of alternative techniques can be simulated using an econometrically-estimated donative production function. Basically, regress donations on expenditures on every technique.

C.Data needs for estimating a donative revenue and production functions.

1.Revenue functions have been estimated (surveyed in Steinberg 1992) using flawed data; Production functions have not been estimated at all.

2.Available data on donations are incomplete

a.No data on value of volunteers attracted through the campaigns.

b.No data on lagged effects beyond 2 years can be calculated without longer panels.

c.The value of donations to the recipient will differ from reported dollar amounts if strings are attached (i.e., the gift is in the form of an endowment).

3.Available data on fundraising costs are incomplete

a.Inconsistent accounting conventions are used, especially on allocation of joint costs.

b.Expenditure on fundraising exaggerates the cost when service provision is an inevitable costless side-effect of fundraising (i.e., when the charitable mission is advocacy or public education, non-response to requests for donations does not necessarily prove waste). One needs data on the alternative cost of securing these side-effects.

4.Available data are generally incomplete

a.Data sets based on form 990 tax data lack information on important environmental variables which vary over both space and time (number of living alumni, level of competition from other charities, etc.) and thus cannot be controlled for using panel data.

b.990 data suffers from a coding problem - missing data is indistinguishable from reported values of zero.

c.Few data sets code expenditures on techniques, and those that do are small and/or use inconsistent definitions.

VI. Data needs for studies of the crowding-out of donations by governmental expenditures.

A. Purposes of econometric studies

1. Assessing the "new federalism." Will the combination of state/local government and charities really take up the slack if federal expenditures are cut?

2. Designing federal grant structures. Do direct expenditures, grants to state governments, grants to nonprofit organizations, and matching grants or various sorts have the same effects on service provision?

3. Assessing the treasury efficiency of tax breaks for donations (see above).

B. General approach toward estimation

1. Most studies regress itemized or surveyed donations and state/local government expenditures on federal grants to that state/community.

2. Some studies are time series, regressing itemized donations nationwide on federal social-service expenditures.

3. One study (Schiff and Weisbrod, 1991) used grants to specific nonprofit organizations to explain donations and net revenues from sales and fundraising.

C. Problems with available data.

1. Donation data is incomplete (see above). Note also that one requires data on corporate and foundation giving for this purpose.

2. Many surveys of giving do not contain geographic identifiers which allow one to match with appropriate government spending.

3. Giving data is categorized across services differently than government spending and grant data, yielding imperfect matches.

4. Available data is not well suited to analyzing the effect of government spending on net donations (donations minus fundraising) or net revenues from other sources (despite the brave attempt of Schiff and Weisbrod).

5. Expenditure levels are a poor proxy for service provision levels. One needs to estimate the differential efficiency of nonprofits and governments in translating expenditures into services, which in turn requires better output measures.

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