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THE IMPACT OF TAX REFORM ON CHARITABLE GIVING: A 1989 PERSPECTIVE

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ABSTRACT

The purpose of this paper is to examine the predicted effects of tax reform in the 1980s (the tax acts of 1981 and 1986) on charitable contributions by individuals and to compare them to the actual and apparent effects, viewed from the perspective of 1989. The paper discusses what the economic models can and cannot be expected to do. Then, using published data from tax returns, the paper compares actual and predicted changes in giving as a result of both of the major tax reform acts. The paper concludes that the changes in contributions are quite consistent with the economic model of giving. As a result of these tax changes, average giving in high income classes declined. These results imply that tax policy should continue to be considered one important determinant of the level of individual charitable contributions.

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It is really going to be devastating to charitable giving.

Bob Smucker, Independent Sector, August, 1986, about the new tax bill.

In 1988 individuals in the United States contributed an estimated $87 billion to tax exempt nonprofit organizations, including churches, community chests, museums, and colleges. This amount was more than seven times the total given by corporations and through bequests. Although not a large number in relation to total tax revenues, charitable contributions loom large for the nonprofit sector, which has come to depend on such giving as a major source of revenue. As debate over tax reform intensified during the 1980s, influential spokesmen for nonprofit organizations came to view such reform as a serious threat to that source of revenue, a view that was bolstered by economic models of charitable giving. Finding it uncomfortable to oppose tax reform itself, the nonprofits nevertheless fought to maintain tax incentives for giving,

with the result that the treatment of charitable contributions provided some of the gloomiest predictions and most heated debate among the provisions involved in tax reform during the 1980s. There were many doubters who thought the sector's jeremiads amounted to little more than crying wolf.

The purpose of this paper is to examine the predicted effects of tax reform in the 1980s on charitable contributions by individuals and to compare them to the actual and apparent effects, viewed from the perspective of 1989. The first section of the paper presents a description of the issues and tax provisions relevant to charitable contributions. The second section focuses on specific characteristics of the models used to predict the effects of tax reform on contributions and asks whether the predictions were in fact warranted by the models and indeed how one would test the models. The paper's third section describes several approaches that can be used to assess the models and data that can be employed for that purpose, and the fourth section compares predicted with actual changes in contributions during the 1980s. The final section draws conclusions from the analysis.

I. The Tax Treatment of Charitable Contributions

The federal tax code accords special treatment to most nonprofit organizations, including exemption from corporate income taxation. For a large subset of nonprofit organizations, it also allows individuals (as well as corporations and estates) a tax deduction for the donations they make to these organizations. The charitable deduction in the income tax, by virtue of the preponderant importance of donations by individuals, is the most important of these deductions. Applying only to taxpayers who itemize their deductions, it is certainly one of the oldest personal deductions in the tax code, having existed almost as long as the income tax itself. An

important effect of this provision is to lower an individual's net cost of making gifts. For example, a taxpayer subject to a marginal tax rate of 30 percent who is able to deduct a contribution of $100 will enjoy a tax reduction of $30, thus reducing the after-tax net cost of the contribution to $70. The taxpayer can be thought of as receiving a discount on the price of making gifts; the deduction reduces the net cost of donating a dollar to 70 cents. State income tax deductions reduce this net cost further, though data on state tax rates are typically not available and thus are usually ignored in statistical analyses.

There is an additional benefit of making contributions in the form of appreciated property such as stock, real estate and objects of art. Donors of such gifts not only receive the tax deduction for the asset's current market value, typically they also avoid paying tax on the capital gains that would otherwise have been associated with the sale of the asset. For example, if the gift described above had not been cash, but rather $100 of stock that had originally been purchased for $50, the tax code's forgiveness of the tax on the capital gain of $50 would further reduce the net cost of giving if the stock would otherwise have been sold. If the capital gains tax were 20 percent, for example, the taxpayer would save an additional $10 that would otherwise have been due had the stock been sold, reducing the net cost of the gift to $60, or 60 cents per dollar. As above, these calculations generally apply only to taxpayers who itemize their deductions.

As a result of this tax treatment, the net cost of contributions comes to depend crucially on two factors: first, tax rates and, second, how widespread the deductibility of gifts is. In general the latter equates to the proportion of taxpayers who itemize their deductions, which depends in turn on the size of the standard deduction and the number and size of other itemized deductions.

B. Tax Reform in the 1980s

Each of the two major tax bills of the 1980s contained provisions that affected taxpayers' net cost of making contributions, and the most important of these are summarized in Table 1. The 1981 act (the Economic Recovery Tax Act of 1981) modified the tax rate schedule by cutting the top marginal tax rate, from 70 to 50 percent and reducing other tax rates proportionally. At the same time the act failed to adjust the tax tables for inflation, thus allowing taxpayers to slide into higher tax brackets and largely nullifying the cut in rates for most people. The cut in the top rate of course meant an increase in the net cost of giving for those with high incomes. Working in the other direction was the likely increase in the number of itemizers that would result from a fixed standard deduction during a period of inflation. Surely the most obvious provision likely to affect contributions was a new charitable deduction for nonitemizers that was to be gradually phased in between 1982 and 1986. However, only in 1985 and 1986, when the very low dollar limits on this deduction were removed, was it likely to have an important effect on contributions.

The 1986 act (the Tax Reform Act of 1986) likewise contained several important changes having implications for charitable contributions. First, it continued the work of the 1981 act in cutting the top tax rate. The highest marginal tax rate was reduced to 33 percent for 1988, and taxpayers in the highest income brackets faced a rate of only 28 percent. Tax rates were not cut for all taxpayers, however. Hausman and Poterba (1987) estimate that only 59 percent of taxpayers saw their marginal tax rates decrease as a result of the new law. Second, the nonitemizer deduction was eliminated from the code after being fully in place for one year. Third, the number of taxpayers who would itemize their deductions would be reduced markedly due to increases in the standard deduction amounts, the elimination of the sales tax deduction, and the curtailment of the personal interest and miscellaneous deductions.

The net effect of these three changes was to increase the net price of giving for virtually all taxpayers either by removing deductibility of gifts or reducing the value of the deduction for those who continued to itemize. A fourth important change related to charitable giving was made in the Alternative Minimum Tax (AMT), a provision applying only to a comparatively small number of very wealthy taxpayers. To the existing list of "tax preference" items in the tax base of the AMT was included the heretofore untaxed appreciation of donated capital assets.[1] As discussed below, the effect of this provision was to diminish the attractiveness of giving away assets whose basis was small in relation to market value. A fifth and less important provision affecting contributions was the taxation of capital gains at regular rates. For taxpayers not subject to the AMT, this provision would in fact increase the relative desirability of giving away appreciated property since the foregone capital gains tax had increased. The 1986 act contained a number of other provisions affecting certain kinds of donations or nonprofit organizations more generally, but these provisions are of lesser importance for individual contributions in the aggregate.[2]

Two ready measures of the impact of the two tax acts on the net cost of making contributions are shown in Table 2. The table shows that the proportion of taxpayers who itemized their returns increased steadily over the period in which the standard deduction was not adjusted for inflation. From 31 percent, the share of itemizers rose to 40 percent before being cut back to 30 percent by the large jump in the standard deduction contained in the 1986 act. The last column in the table chronicles the decline in the tax code's highest rate bracket. For a taxpayer subject to that rate, the cost of making cash donations more than doubled, from 30 to 67 cents per dollar. For those subject to the 28 percent rate in 1986, it increased even more.

II. Assessing the Impact on Charitable Giving

A. Models of Charitable Giving

In the decade between 1975 and 1985 there appeared at least a score of empirical studies of charitable giving based on a common basic economic model of giving. As developed by Feldstein (1975) and modified in subsequent studies, this basic model takes charitable contributions to be a function of after-tax net income (Y), the tax-defined price of contributions (P), and other factors thought to affect charitable behavior (X). Typically this relationship has been estimated using a log-linear specification:

$$(1)\quad \ln G = \mathbf{d} + \mathbf{a}\ \ln Y + \mathbf{b}\ \ln P + \mathbf{c}X + e,$$

where G is defined as contributions plus \$1 or \$10,[3] **d**, **a** and **b** are parameters, **c** is a vector of parameters, and e is an error term. Price is defined as the dollar amount of consumption foregone per dollar of contributions. For donors who receive no tax deduction for their gifts -- nonitemizers in most cases and all those owing no tax -- this price is simply \$1. For an itemizer with a marginal tax rate of m, the price of making ordinary cash contributions is 1-m, since each dollar's worth of giving causes the person's tax liability to be reduced by \$m.

The model implies that taxes affect contributions in two ways -- through net income and through the price of giving. Thus almost any change in the tax rate schedule or in the number of taxpapers who itemize their deductions will tend to have an impact on giving. It is straightforward to use such models to simulate the effects of tax changes on charitable giving. For example, if non-tax factors remain the same, the simple model in (1) implies that contributions will change only as a function of changes in the tax-defined variables. Where **a** and **b** are, respectively, the estimated income and price elasticities, the predicted level of contributions in the second period is

$$(2)\quad G_1^* = G_0 (Y_1/Y_0)^{\mathbf{a}} (P_1/P_0)^{\mathbf{b}}$$

A similar approach can be taken with more complicated specifications. But whatever the exact specification, it is useful to emphasize what an approach of this sort implies about charitable behavior. It is not predicated on the assumption that taxes are the only or the major determinant of charitable giving, but only that they are one influence. If the basic equation is correctly specified and estimated and if non-tax factors are indeed unchanging, an equation such as (2) can be used to predict the effects of tax changes. It is important, however, to consider several issues that complicate the use and interpretation of this simple model.

Estimated elasticities. The simple model given in (1) implies constant elasticities of contributions with respect to both the tax-defined price of giving and net income. Typical estimates for the price elasticity are greater than one in absolute value, which implies that contributions would fall by more than 10 percent in response to an increase in the net price of giving of 10 percent. The income elasticity has most often been estimated to be positive but less than one. In the present paper, I use estimates presented in Clotfelter and Steuerle (1981) to be representative of the empirical studies on this subject: -1.27 for the price elasticity and 0.78 for the income elasticity. The literature on this subject is not unanimous regarding the size or the constancy of these important parameters, however. There is some evidence, for example, that the elasticities differ by income level, with low-income households being less responsive to changes in price than others. And there are a few studies that suggest that both price and income elasticities are quite a bit smaller in absolute value than the majority of studies indicate.[4] In order to reflect these alternative views of charitable giving behavior, the current paper compares the predictive success of the simple constant elasticity model using the above parameters with a variable elasticity model estimated in Clotfelter and Steuerle (1981) as well as a model that incorporates price and income elasticities of zero.

Gifts of appreciated property. In the past it has usually been advantageous for donors to make gifts in the form of appreciated property, such as stock, real estate and works of art, as opposed to giving the same amount in cash, no tax being assessed on the capital gain that would have arisen had the asset been sold. This additional benefit is added to the value of the charitable deduction itself to make the net cost of giving such assets even less than that for giving cash. Because gifts of appreciated property are an important part of contributions for some types of donee organizations and among wealthy taxpayers, it is important to consider what this tax treatment implies for the price of giving. Where g^* is an asset's gain-to-value ratio in the year it is given away, n is the tax rate on capital gains income, and R is a dichotomous variable that takes on the value of 1 if the asset would have been sold immediately if it were not contributed and 0 if the asset would not otherwise have been sold, the net cost of contributing the asset is

$$(3) \quad P = 1 - m - Rg^*n.$$

Note that in the case of an unappreciated asset such as cash, this expression reduces to the 1-m used above.[5] As noted above, the 1986 tax reform act modified this traditional treatment for taxpayers subject to the Alternative Minimum Tax (AMT). For these taxpayers, inclusion of the appreciation portion of the gift as a tax preference placed a penalty on the gift exactly equal to the capital gains tax that would have been due had the asset been sold. For a taxpayer who would have otherwise sold the asset, this penalty was equivalent to reducing the gift's benefit to that of giving cash.[6]

It is important to give attention to gifts of appreciated property for two reasons. First, this tax treatment ought to be integrated into simulations of the impact of tax reform just as it has been integrated into empirical studies of the impact of tax policy on contributions. Accordingly, the calculations given below calculate the price variable as a weighted average of

the prices of giving cash and appreciated property. Following earlier work, the calculations use weights based on the proportion of contributions made in the form of cash in the initial year of observation. The price of giving appreciated property is calculated assuming an asset with a gain-to-value ratio of 50 percent that would have been sold immediately ($Rg^* = 0.5$). A second reason for being attentive to gifts of appreciated property is their potential to reveal another facet of the economic model of giving. If the relative price of making cash and non-cash gifts varies over time, the economic model of giving would suggest that the pattern of giving would also vary accordingly.

To see what kinds of implications the model would have for tax changes in the 1980s, it is useful to examine the calculated net price for two specific cases. Since the tax circumstances of the wealthy were affected most dramatically, I present cases applying to high-income taxpayers. Table 3 shows the price of giving in three years for a hypothetical couple whose real AGI remained at $1 million in 1985 dollars over the period. This couple's marginal tax rate would have been cut sharply as a result of tax reform during the 1980s: from 70 to 50 percent by the 1981 tax act and down to 28 percent by the 1986 act. The result would have been more than a doubling in the price of giving cash, from 30 to 72 cents per dollar. For the net cost of giving an asset which consisted of 50 percent capital gains, the price would almost have tripled. The second example is based on an actual case which has been cited more than once as an example of the 1986 act's supposed discouragement of gifts of art. Having inherited Vincent van Gogh's Irises, valued then at $1.8 million, John Whitney Payson decided to sell the painting in 1987 rather than giving it, as he had planned, to Westbrook College in Portland, Maine. The painting sold in November 1987 for a record $53.9 million. Table 4 summarizes the tax consequences of donating the painting under the previous tax law, the regular tax under the 1986 law and under the AMT provisions of the 1986 law. As a result of the drop in tax rates,

the net cost per dollar of donating the painting under the regular tax increased by almost half as a result of the 1986 act. But because Mr. Payson would probably have been subject to the AMT, the price rose even more than that, from 31 to 79 cents per dollar as compared to selling the painting immediately. Although extreme, this example suggests one implication of the economic model of giving -- that large gifts in the form of appreciated property would be particularly discouraged relative to cash and relative to gifts made before the tax act.

Dynamic elements. The simple model in (1) takes no explicit account of time. Yet it seems reasonable that individual charitable behavior is unlikely to change overnight in response to changes in tax law. One model of charitable giving views equations such as (1) as a representation of the long-run or desired level of contributions. Individuals may not adjust right away to changes in this desired level, however, due to such factors as habit or established levels of solicitation that may be based on previous levels of giving. Applying an incomplete adjustment model to charitable giving behavior yields a model such as

$$(4) \quad G_1 / G_0 = (G^* / G_0)^h,$$

where G* is the desired level of contributions and h is a coefficient of adjustment. A value of h close to one would imply that individuals adjust completely during a time period to changes in the desired level of contributions; values closer to zero would imply a slower response. For the calculations made in the present paper, a value for h for a one-year period of 0.37 is used, based on an estimate given in Clotfelter (1980, p.333). This value implies coefficients of adjustment of 0.60 for two years and 0.84 for four.[7]

B. The Nonprofits' Fear of Tax Reform

Although many of the details of the economic model of charitable giving were not widely understood, the essence of the price responsiveness argument did find its way into the debate over tax reform. Lobbyists for nonprofit organizations cited econometric models in warning of possibly harmful consequences of tax changes while proponents of tax reform raised questions about the models being used. That such a seemingly esoteric piece of economic reasoning would become part of policy debate may seem surprising, but there were several factors that worked in its favor. Among these were the amount of attention that had been paid to tax effects on giving by the prestigious Filer Commission in the 1970s, the prominence of the economist (Martin Feldstein) who undertook econometric work under the Commission's sponsorship, the relatively large number of confirmatory studies that followed the first work, and the easily overlooked fact that the conclusions of the economic studies generally resonated with the everyday experience of many people. The models served to lend specificity to the vague worries of nonprofit organizations about how tax reform might affect them.

Among the features of tax reform plans that were discussed during the 1980s, there were two that most worried leaders of nonprofit organizations. First, any drop in the number of taxpayers who received a charitable deduction was, understandably, seen as a threat to contributions. Not only was the nonitemizer deduction subject to a sunset provision after 1986, but many of the tax reform plans discussed, including the eventual 1986 act, would have reduced the number of taxpayers who itemized their deductions. The second source of concern was a feature common to all of the tax reform plans -- rate reduction. Although few were prepared to speak out against rate reduction,[8] it was not hard to believe that the tax incentive for giving a gift under a 28 percent marginal tax rate, for example, would be a lot less than what existed under the previous 50 percent rate. In terms of the economic model of giving,

both tax rate reduction and restrictions on the deductibility of gifts would raise the net cost of making gifts, but one did not have to be an economist to guess that the outcome would be unfavorable for nonprofit institutions. In addition to these two aspects of tax reform, a third challenge to the nonprofits arose at the eleventh hour of the debate over the 1986 act in the form of an attack on the tax-free status of capital gains in gifts of appreciated property.

Representatives of the nonprofit sector were quick to respond to major tax reform proposals, using economic models of giving to provide specific estimates of likely impacts. In response to the Treasury's first tax reform plan in 1985, Independent Sector, an umbrella group representing nonprofit organizations, criticized that plan's elimination of the nonitemizer deduction and its introduction of a floor for itemized charitable donations, saying that contributions would drop by 20 percent if the plan were enacted.[9] Likewise, spokespersons for the nonprofit sector criticized President Reagan's May 1985 tax proposal, which also eliminated the nonitemizer deduction. They publicized estimates that the proposal would cause contributions from individuals to drop by $10 billion.[10] When the details of the tax act itself were finalized in the summer of 1986, the story was much the same. Nonprofit representatives quoted research suggesting that the number of itemizers would decline as a percentage of all taxpayers from 38 to 20 percent under the new law.[11] Given certain caveats, models implied that contributions under the new law would be on the order of 14 to 16 percent lower than under the previous law.[12] Because of its special provisions affecting colleges and universities and gifts of appreciated property, those who spoke for arts and educational institutions were especially concerned about the bill's negative impact.[13]

III. A Closer Look at the Models

Before considering in detail the predicted and apparent effects of tax reform on charitable giving, it is useful to take a closer look at the economic model and some of its implications.

A. Using the Economic Model: Simulations, Limitations and Caveats

When a simplified model is applied to real-world policy analysis, caveats are usually in order, and this is certainly the case with models of charitable giving. Since behavioral equations such as (1) do not even purport to capture all of the factors that influence donative behavior, the analyst is well-advised to be careful in applying estimated parameters in simulating the likely effects of policy changes and modest in describing the validity of projections. Such care and modesty seldom come naturally, however, and they are furthermore counteracted by the frequent urge on the part of journalists, policymakers and lobbyists to simplify and dramatize. In considering the policy applications of the economic model of contributions, it is useful to review the justification for using estimated models to assess likely policy outcomes.

As has been common practice in a number of applied topics in tax analysis, estimated models such as (1) have been used to simulate the likely effect of various planned or contemplated modifications in tax policy, in this case by translating such modifications into changes in the price and net income terms and using an estimated equation such as (2). What can such an exercise tell us? At most, it can yield predicted levels of contributions for a hypothetical and most likely counterfactual situation, one in which none of the other factors contained in the vector X changes. Needless to say, simulations such as these are rarely described this way in newspaper stories. Because of their counterfactual nature, such projections tend to be inherently immune from factual verification: it is always impossible to

eliminate the possibility that "other factors" have changed at the same time that tax policy has changed, thus confounding any pure tax policy effect. While this may come as a relief to those who produce such projections, it is cold comfort to analysts and policymakers who are concerned about the actual impact of actual policies. Fortunately, it is possible to devise indirect tests of the validity of such simulation models by examining various implications of the model under some reasonable assumptions. Several tests of this sort are discussed below in section B.

Besides their basic counterfactual nature, simulations based on a model such as (1) are subject to a variety of errors, and a policy of full-disclosure requires that these be aired as well. These may include statistical error emanating from the imprecise nature of all econometric estimates, errors associated with predicting such underlying variables as real income or the proportion of taxpayers who will itemize under different tax rules, and errors arising from ignorance of the characteristics of appreciated property that are contributed.[14]

There are two points on which the simulations are especially vulnerable: changes in other factors not reflected in estimated equations and dynamic aspects of giving behavior. "Other" factors motivating giving include personal beliefs and affiliations, aspects on which economists are by no means expert. Survey data on charitable behavior show, for example, that the best predictor of contributions are attendance at religious services and involvement in civic and other organizations.[15] To complicate matters further, it appears that issues within religious and other organizations may have a shifting effect on giving patterns over time. Contributions among Catholics, for example, have been found to be influenced by controversy between liberals and conservatives within the church over issues of faith.[16] More generally, donations to both religious and secular organizations appear to be highly sensitive to perceived social needs and capable of responding quickly to crises, such as the African famine and the problem of

homelessness in the late 1980s.[17] Another entire category of outside influence on contributions is solicitation by charitable organizations themselves, and these efforts give every evidence of being responsive to changes in the giving environment, including changes in tax law. For example, Dartmouth and other universities have sent replicas of stock certificates to alumni as part of a reminder of the tax advantages of making gifts of appreciated stock. Charitable and educational institutions of all kinds have increasingly turned to "direct marketing" advisors to design solicitation campaigns.[18] Factors such as these are clearly outside of the realm of tax policy and are moreover difficult to measure, not to mention that their effects on giving have not been estimated. That they change over time seems quite probable; that some actually respond to changes in tax policy is likely. Thus the ceteris paribus assumption presents a significant complication in the use of simulations.

The second complication relates to dynamic elements in contributions behavior. Virtually all simulations of the effect of tax policy on charitable giving have used as their basic behavioral equation one that refers to long- run or desired levels of giving. While such behavior is arguably the most important form of the response to tax policy, focusing on the long run has the drawback of ignoring two potentially important kinds of behavior. First, as noted in section II, individual giving behavior probably does not respond immediately to changes in the desired level of giving. Second, since individuals usually have considerable latitude regarding when they make gifts, they may time their donations so as to minimize their total tax liability. This kind of timing might show itself, for example, in making donations early so as to have them counted for a tax year when the taxpayer faces a comparative high tax rate rather than the low tax rate anticipated for the following year. One might also imagine that a floor on the deductibiliy of contributions might inspire taxpayers to bunch their gifts, say, in alternating years so that a higher portion of their donations would be deductible.[19]

B. Some Implications Regarding Tax Reform

As noted above, it is impossible to perform a definitive test of the economic model's predictions, owing to the exclusion of other factors that affect contributions. Not only is it difficult to predict changes in these factors, they are for the most part not even measured. However, under a plausible assumption regarding these influences, the model does suggest several hypotheses concerning the effect of tax reform during the 1980s. One simple hypothesis suggested by the notion of price responsiveness in the model is that taxpayers would tend to accelerate their giving when a decline in the tax incentive is announced for the following year. For taxpayers facing declines in marginal tax rates between 1986 and 1987, for example, one would expect to observe a surge of contributions in 1986 as people try to take advantage of the high tax rates. Since there are few estimates relevant to such timing behavior, however, it is impossible to judge the size of this effect.

A second set of hypotheses is more useful in assessing the estimated parameters of the model. If one assumes that other factors have a uniform effect on all donations, unrelated to changes in tax variables, one can compare patterns of variation in contributions to patterns of variation in tax parameters and ask whether these patterns are consistent with the model's predictions. As an illustration, there is little to be learned from observing that an individual's contributions rose by 5 percent over a period in which income rose by 4 percent and price fell by 10 percent, for the simple reason that other factors may have changed as well over this period. If it is assumed, however, that all individuals were affected similarly by other influences and would have experienced the same percentage increase in giving in the absence of tax changes, one can sensibly compare <u>differences</u> in the changes in tax variables and in giving. One can then determine, for example, whether individuals with the biggest price increases also

had the smallest increases in giving, as the model would predict. Specifically, one might expect to see evidence useful for judging the model by looking for three kinds of effects.

1. In comparing changes in contributions over time, the model would predict bigger declines (or smaller increases) in income classes in which the price of giving had increased the most. In order to examine this implication, the next section presents an examination of data on average income, price and contributions by income class over time. Since the 1986 tax act (and the 1981 act as well) cut tax rates the most at upper income levels, the model would predict that contributions by the wealthy would decline relative to contributions at middle and lower income levels, holding constant changes in income. But changes in after-tax income would also be predicted to affect giving. Both effects can be incorporated into the model to yield predicted changes in giving, and the pattern of predicted changes can be compared to the pattern of actual changes.

2. In the aggregate, changes by income class such as these would add up to a redistribution of contributions between the wealthy and the rest of the taxpaying public. If the income distribution did not change, the implication of these changes is that the share of total giving by the rich would decline. If the income distribution did change, one would still expect that contributions by the rich, relative to their income, would decline as a result of tax reform. A corollary effect would be that organizations traditionally supported by the rich, such as cultural and educational institutions, would suffer in comparison to those institutions traditionally favored by the middle and lower income groups, particularly religious organizations. These implications assume, again, that other factors affecting contributions had a similar influence at all income levels and that shifts in the distribution of income did not offset the pattern of changes in tax incentives.

3. A third implication of the model applies to one specific provision, the charitable deduction for nonitemizers. Between 1985 and 1986 that provision changed dramatically, increasing from a 50 percent deduction to a full deduction. For a nonitemizer facing marginal tax rate m, this change would have caused the net price of giving to fall from (1-0.5m) to (1-m), implying an increase in contributions.

IV. Evidence on the Impact of Tax Reform on Contributions

There is no reliable measure of total charitable contributions by individuals. Tax returns normally contain information for itemizers only, and estimates based on the receipts of nonprofit organizations is approximate at best, largely because there is no good information on giving to religious organizations. This data limitation plus the conceptual difficulties regarding non-tax effects discussed above make it impossible to devise definitive tests of the efficacy of economic models of contributions. However, one can gain insight from looking at the aftermath of the tax reform acts of 1981 and 1986. The current section examines, first, information from recipient organizations and, second, data from tax returns.

A. Evidence from Donees on Contributions

Probably the most consistent message contained in articles reporting trends in charitable giving in recent years is that, despite charities' fears regarding the effects of tax reform, contributions have continued to increase year after year. The widely quoted Giving USA has reported increases in aggregate donations each year for the past 37 years, with the total rising from $80 billion in 1985 to $98 billion in 1987 to $104 billion in 1988, increases well above the rate of inflation. (Unfortunately, the largest component of these figures, an estimate of the

giving of individuals, is based largely on personal income and incorporates no direct evidence on charitable giving until several years after the fact.)[20] Corroborating the figures for the most recent years, articles on individual charities suggest that most had increases in contributions between 1986 and 1987 and between 1987 and 1988.

For example, a group of 27 Protestant denominations, representing some 30 percent of U.S. church membership, reported a 3 percent increase in gifts between 1986 and 1987, the first year following the 1986 tax reform. Similarly, an informal survey of charities the next year showed that most had modest increases.[21] One bellweather, the United Way, reported a 6.6 percent increase in giving from 1986 to 1987 and a 6.9 percent increase from 1987 to 1988.[22]

Such increases were not universal, however. Two groups of institutions that have traditionally relied on gifts from the wealthy, especially in the form of appreciated property, are museums and institutions of higher education. In both cases, the 1986 act did appear to have its predicted impact on appreciated property gifts, although the overall effect of tax reform on them is still uncertain. For these donees, the economic model would imply two things: a surge in contributions in 1986 relative to 1987, with a further decline in 1988, owing to the decline in rates; and a larger dropoff in gifts of appreciated property after 1986, owing to the more stringent treatment of such gifts in the AMT. Table 5 presents some information for both types of institutions for years immediately before and after the 1986 act. In the case of colleges and universities, the findings on total contributions from individuals are mixed. Between 1986 and 1987 contributions to 16 private universities changed very little in real terms while gifts to 23 colleges increased. In both cases, total contributions at least kept up with inflation over the four-year period despite the decline in marginal tax rates. Gifts of appreciated assets to these educational institutions are a different story, however, with both groups showing large jumps in 1986, followed by declines in the following years. These declines

are consistent with the economic model, of course, but they could equally well be explained by the October 1987 stock market crash. Perhaps a purer test of the effect of the effect of the 1986 provisions on gifts of appreciated property is provided by the experience of art museums, shown at the bottom of Table 5. For a group of 119 such museums, donations of artwork surged dramatically in 1986 and then fell to a level in 1988 below that achieved in 1985, a result that is consistent with the act's having a permanent effect on such contributions.

B. Data from Tax Returns

A tried and true source of data for examining charitable giving is tax returns: all itemized returns contain the dollar amount of reported contributions. The tax return data show, for example, that total contributions by itemizers rose from $48.0 billion in 1985 to $54.5 billion in 1986 and then fell to $49.3 billion in 1987 (U. S. Internal Revenue Service, various years). However, this slight 3 percent increase in contributions between 1985 and 1987 (a decline of 3 percent in real terms) was accompanied by an 11 percent decrease in the number of itemizers. Shifts in the itemizing population thus make it difficult to assess changes in total reported contributions.[23] Yet tax return information is very useful for the analysis of giving behavior by itemizers. Its ready availability is no doubt one of the reasons that there have been relatively many studies on the impact of taxes on contributions. A possible drawback is the possibility that taxpayers systematically overstate their contributions, and furthermore that the amount of overstatement is positively correlated with marginal tax rates, but these problems do not in fact appear to be very severe.[24] Subject therefore to the problem of observing the behavior of nonitemizers and to the usual lag in the availability of data, tax return data provide a useful source of information for assessing the impact of tax reform. In line with the

discussion in section III, the remainder of this discussion examines three hypotheses derived from the economic model of contributions.

Contributions by income class. A major effect of the tax reform acts of 1981 and 1986 was to modify rate structures, thus changing the price of giving, especially in the upper income classes. By looking at years before and after these large changes, it is possible to compare income classes experiencing different amounts of change in price in order to see whether the economic model is a useful guide for predicting donative behavior. For the purpose of assessing the impact of tax reform in the 1980s, "predicted" and actual changes in contributions for itemizers, based on changes in income taxes and tax rates, were calculated for two pairs of years: 1980/1984 and 1985/1987.[25] No allowance was made in these calculations for the relatively small number of taxpayers subject to the Alternative Minimum Tax. Each income class in the ending year was paired with the income class in the beginning year with the closest mean AGI in constant dollars. Equations (1) and (4) were used to calculate the predicted giving in real terms in the ending year, and the percentage change in actual and predicted giving were then compared. Figures 1 and 2 show this comparison for each pair of years using the constant elasticity model (price elasticity of -.27 and income elasticity of 0.78; coefficients of adjustment equal to 0.84 for the 4-year period and 0.60 for the 2-year period).

Figure 1 compares actual percentage changes in contributions to "predicted" changes based only on the price and income effects in the constant elasticity model. Although far from perfect, the model does mimic the overall pattern of actual changes. Especially noteworthy are the actual and predicted declines in average giving for high-income taxpayers. For most income classes, contributions increased by more than the model -- with its implicit assumption that "other things" had not changed -- predicted. For every class above $15,000 the predicted

change is less than the actual change, sometimes by wide margins. Yet there is also a certain consistency in these errors, with both the predicted and the actual declines being the largest in the top income classes. It is obvious from looking at the graph that in this case this version of the economic model of giving would outperform a naive model based on the assumption that contributions do not change in real terms, or that both income and price elasticities are zero. But it is not obvious that it would be superior to another, somewhat less naive hypothesis that giving varies proportionately with net income, that is, the income elasticity is one while the price elasticity is zero.

In order to compare the performance of these various assumptions about giving behavior, I calculated the changes in contributions that each model would imply for the 1980-1984 period. These calculations are summarized in the top panel of Table 6.[26] Over this period the weighted average of itemizers' contributions declined by about 11 percent. Because the number and distribution of itemizers changes over time, this figure does not measure the actual change in contributions for all taxpayers or a specified group of taxpayers; it is rather one summary measure of the change in contributions over the period. The fourth and fifth columns in each row show the percentage change due to price and income changes predicted by each model.[27] The sixth column shows the average percentage by which each model misses the mark, which may be thought of as the result of changes in "other" variables unrelated to changes in income and tax policy. The last column gives the aggregate of all errors, measured in absolute value, as a percentage of 1984 total giving. For example, the basic constant elasticity model predicts that changes in the price of giving between 1980 and 1984 would have decreased total giving by itemizers by about 24 percent and that change in net income would have been responsible for a 2 percent increase. The net of these two effects -- a "predicted" decline of 22.2 percent -- and the actual decline in giving of 10.5 percent, can be seen as a

general shift in giving at all income levels of 11.7 percent. The remaining errors, added together without regard to sign, amount to 10.4 percent of total giving, the lowest ratio among the four models shown. This comparison supports the impression given by Figure 1 that the pattern of changes in giving in response to the 1981 tax act were consistent with the economic model: income groups facing the biggest price increases tended to show relative declines in giving.

The same kind of comparison was performed by comparing contributions in 1985 and 1987. In order to make income definitions comparable between the two years, the portion of capital gains income excluded from AGI in 1985 was added in calculating 1985 net incomes. Actual and "predicted" changes in contributions are shown in Figure 2. In this case the other-things-equal economic model predicts very little change in giving for the bulk of the income classes. At the lower end of the scale, where itemizers are scarcer, contributions were predicted to rise. At the very top, they were predicted to drop, due to the cut in the top tax rates. As the figure shows, actual changes in giving at the lower end bounced around a good deal, reflecting the very small number of itemizers in those income classes, though the changes did remain positive as predicted. There was little change in giving in the middle ranges of income. At the top, actual contributions fell by more than the amounts "predicted" by the basic model. This latter effect might be explained by one factor that certainly did not remain constant over this period: the stock market, which experienced its crash in October of the ending year of this comparison. It might also reflect the less favorable treatment of appreciated gifts by those taxpayers subject to the Alternative Minimum Tax. Again, the simple constant elasticity model performs better than both naive models, with a gross error of 11.7 percent of total giving.[28]

The distribution of contributions. Because the tax rate cuts in the 1980s were concentrated at upper incomes, the price effects in the economic model imply that the share of contributions accounted for by the wealthy would decline unless increases in income among the wealthy overcame this price effect.[29] Because data on nonitemizers are not available for most years, it is impossible to examine how the whole distribution of giving has changed over time. In order to confine a comparison to a portion of the taxpaying population that is primarily composed of itemizers and also to keep a fairly constant population, I examined contributions among itemizers who fell into the top quintile of taxpayers in terms of income in each of three years.[30] The years chosen were 1980, 1984 and 1987, years before and after the two major tax reform acts of the 1980s. In order to describe the concentration of giving, the cumulative percentage of charitable contributions was compared to the cumulative percentage of two variables: the number of itemizing taxpayers and their income. The degree to which contributions are concentrated or evenly distributed can be summarized using a conventional index of inequality. This index ranges in value from 0, representing complete equality, to 1, representing complete concentration.[31]

The first approach -- comparing the distribution of contributions to the distribution of households -- showed little change in the distribution of giving among the top quintile of taxpayers. There was a slight increase in the inequality of giving among households, with the index of inequality increasing from 0.34 in 1980 to 0.38 in 1984 and 1987.[32] This contrasts with the decrease in the inequality of giving predicted by the economic models. However, when one compares contributions against income rather than the number of taxpayers, the distribution is shown to have become much more equal. On this basis, the calculated index of inequality decreased from 0.15 in 1980 to 0.13 in 1984 and to 0.08 in 1987. In other words, within the top quintile of taxpayers, the portion of contributions given by the very wealthiest taxpayers has

been declining. Relative to their incomes, these taxpayers gave less in 1987 than they did in 1980. How can these two results be reconciled? The answer is that the distribution of adjusted gross income in this top quintile became more unequal over the period, probably reflecting an underlying redistribution of economic income as well as the inclusion in AGI of all capital gains. This change in measured income distribution allowed the very richest to give a smaller percentage of their incomes but still account for approximately the same share of total giving in the top quintile.[33]

The 1981 act and contributions by nonitemizers. A third implication of the economic model of giving relates to one specific provision of the 1981 act, the special deduction for nonitemizers. In 1985 and 1986 this deduction applied to all contributions made by nonitemizers, the only difference being that only 50 cents per dollar of contributions were eligible in 1985 compared to 100 percent in 1986. This change generally implies a decrease in the price of giving and thus an increased incentive to give. One might expect to see, then, an increase in nonitemizer giving between 1985 and 1986, other things equal, as well as increases in nonitemizer giving versus itemizer giving over that period.

Figure 3 presents a comparison of "predicted" and actual percentage changes in giving by nonitemizers between the two years, where predictions are derived using the constant elasticity model. Comparisons are made in this case between the same income group denoted in nominal dollars, although income and contributions continue to be expressed in constant dollars. Because of the small number of high-income nonitemizers, income classes above $75,000 are not shown. One notable feature of the figure is that the model predicts quite small changes in giving for all income classes, with most of the predicted changes being positive, owing to the increased rate of deductibility. The actual changes show substantial variability, but in general the average giving for nonitemizers rises over the period, a result which is again consistent with

the economic model. One alternative explanation for this result is that especially generous donors switched from itemization to nonitemization status in 1986 because of the special deduction, having the effect of raising average giving by nonitemizers and lowering it for itemizers. The validity of this possibility can be assessed only by examining panel data when they become available. As shown in Table 6, the constant elasticity model again performs better than the naive models in anticipating the pattern of changes in giving.

V. Implications

Both everyday experience and econometric analysis suggest that taxpayers' charitable giving would be sensitive to certain kinds of changes in tax law. The 1980s featured two significant changes in tax law that, according to the dominant economic model of contributions, should have had a sizable impact on incentives to contribute. The purpose of this paper is to evaluate that model by determining whether these anticipated changes actually came to pass. The analysis yields implications that can be summarized in the form of three major points.

The first point is a reiteration of one that is made above: the economic model of charitable giving (summarized by equation (1)) is by no means a complete model of giving. Important non-tax and non-economic factors are excluded from the model. This fact implies, of course, that there is more to charitable giving than economic factors. More to the point of the current application, this fact implies that changes in contributions through time cannot be predicted. Only if the other excluded factors did not change could the model be used to predict changes in contributions. The best that the model can offer is a counterfactual statement, or a conditional prediction, for the hypothetical case in which nothing else changed. If the coefficients of the model are correctly estimated -- however incomplete the model

itself -- this kind of counterfactual statement can be a useful guide in evaluating the likely impact of tax changes. Accurate prediction of the future, however, is not a reasonable expectation.

A second implication arises from the comparison of simulated and actual effects of tax reforms. It is that the economic model performs reasonably well, in the sense that the changes in giving are broadly consistent with the model's implications. This consistency is apparent in three observations. First of all, the surge in contributions in 1986, particularly at the highest income levels, is consistent with the tax-sensitive timing of gifts. Second, after both tax acts, contributions tended to fall in income classes that experienced the largest price increases. More specifically, the basic model out-performed two naive models incorporating no price response. A third bit of empirical support for the economic model is the apparent redistribution in contributions among taxpayers in the highest quintile of income distribution. As predicted by the economic model, the most affluent gave a smaller share of total contributions -- relative to their income -- following the two tax acts.

A third implication arises in turn from these results. Because the results are generally consistent with the economic model, it follows that the predicted effects of tax reform based on the economic model are worth paying attention to. In the current policy environment, several possible changes in tax law are discussed from time to time, ranging from the reinstatement of the nonitemizer reduction to a floor for the itemized deduction. Since these and other changes could have large effects on the net cost of giving, they could also have a large impact on charitable contributions.

Endnotes

1. For a description of this provision and its effect on donations of artwork, see Fullerton (1989).

2. For example, the law limited donations to private nonoperating foundations to the asset's basis except for certain kinds of stock; it limited the deductibility of travel costs associated with charitable deductions; it liberalized the deductibility of gifts out of inventory; it granted certain exceptions to the unrelated business income tax; it made the income of certain previously tax exempt nonprofits taxable; it made fellowships and scholarships taxable; it imposed limits on the ability of colleges and universities to issue tax-exempt bonds; and it lowered the excise tax on some foundations. For a fuller description of the act's provisions related to nonprofit organizaitons, see Chiechi et al. (1987).

3. Because the logarithm of zero is not defined, adding a small amount to reported contributions allows contributions to be expressed as a logarithm. This amount can be thought of as unreported contributions.

4. For example, Glenday et al. (1986), using cross section data for Canada, obtain a price elasticity of -0.15 for high-income donors and zero for other taxpayers. Other studies, using first-differences calculated from panel data, also yield estimated coefficients smaller than the benchmark estimates obtained from cross section studies. See, for example, Clotfelter (1980) or Broman (forthcoming). There are at least three reasons why equations estimated in first differences might produce elasticities smaller in absolute value. First, the cross section equations could be subject to omitted variable bias. If price or income variables are systematically correlated to personal characteristics important in determining charitable giving,

the estimated price and income coefficients could be overestimated in absolute value. Taking first differences would mitigate that problem. A second reason why elasticities estimated in first-difference equations might be smaller is that giving might not respond right away to changes in price and income. This explanation provides the motivation for developing a dynamic model of giving such as that described in the text. A third reason why the first difference model would produce smaller coefficients is errors in variables. Because individuals seldom know exactly what their tax rate is, particularly in the year in which the income is earned and contributions made, it is quite likely that donors have at best only an imprecise idea of the year-to-year change in income or price, making the actual change in those variables an error-prone estimate of the individual's own expected values, which are the variables more likely to be influencing behavior.

5. See Clotfelter (1986) for a discussion of the tax treatment of gifts of appreciated property.

6. Where the tax rate for the Alternative Minimum Tax was 0.21, the price of giving under the AMT was (1 - 0.21 - 0.21 Rg^* + 0.21g), where g is the gain-to-value ratio in the year of the gift and g^* is the ratio in the year the asset would have been sold. If the donor would not have sold the asset, but rather allowed it to pass into his or her estate, the price would approach one as g approached 100 percent, as shown by the example given in the text. See Clotfelter (1986, p.203).

7. Equation (2) implies in general: $\ln G_t = (1-h)^t \ln G_0 + [1-(1-h)^t] \ln G^*$.

8. One frank statement came from arts lobbyist Anne G. Murphy, who was head of the American Arts Alliance, in the midst of final debate over the 1986 tax reform act: "I hope it breaks up. I hope it (tax reform) goes down the sewer. They're trading two lollipops for a

piece of mayonnaise." Judith Michaelson, "Washington Lobbyist Figures Arts Organizations Come Away Losers," Los Angeles Times, August 19, 1986, p.VI-1.

9. "Treasury I" was a plan that would have cut rates, ended the nonitemizer deduction and made the itemized deduction subject to a floor of 2 percent of Adjusted Gross Income. For a description of the model used to project the 20 percent decline, see Clotfelter (1986, p.199). For a description of the opposition by nonprofits, see David Johnston, "Charities Plan Deluge of Letters on Deduction Cuts," Los Angeles Times, January 5, 1985, p.I-1.

10. See Kathleen Teltsch, "Loss of Charity Deductions Would Hurt, Groups Assert," New York Times, May 30, 1985, p.I-19.

11. A study by Lawrence Lindsey is cited in Irvin Molotsky, "Charities Fear Effect of Changes," New York Times, August 20, 1986, p.IV-11.

12. Lindsey (1987, p.67) cited a difference of 14 percent in the long run while Clotfelter (1987, p.14) cited differences of 15 and 16 percent, depending on the model used, comparing contributions under the old and new tax regimes. An estimate made several years later by Lankford and Wyckoff (1989) implied a much larger percentage difference in giving for itemizers only, 26 percent, a prediction not necessarily inconsistent with the smaller figures applying to all taxpayers.

13. See, for example, Clotfelter (1987), Michaelson, "Washington Lobbyist," or Anne C. Roark, "College Students Could be Tax Losers," Los Angeles Times, August 21, 1986, p.I-16.

14. For an illustration of a fuller listing of the limitations of simulations using such models, see Charles T. Clotfelter, "Tax Reform and Charitable Giving in 1985," Tax Notes, February 4, 1985, p.481.

15. Giving and Volunteering in the United States, 1988 Edition (Washington, D.C.: Independent Sector, 1988). For a description of the survey questions regarding attitudes and charitable behavior, see Kristin A. Goss, "In Charitable Givng, Volunteers Lead and the Wealthy Lag," Chronicle of Philanthropy, October 25, 1988, p.9.

16. See Peter Steinfels, "Church Message This Season: Erasing Debt by Giving More," New York Times, November 14, 1988, p.12.

17. Africare, an organization specializing in relief operations in Africa, experienced a surge in donations in 1987. The Salvation Army had much higher increases in donations between 1987 and 1988 than other religious organizations, which was attributed to concern over the homeless. See Anne Lowrey Bailey, "1988's Gifts Barely Keep Pace with Inflation, but Year-End Rise Heartens Charities," Chronicle of Philanthropy, January 24, 1989.

18. See, for example, Kathleen Teltsch, "Creative Fund-Raising Grows as Year Nears End," New York Times, December 23, 1985, p.I-12.

19. The standard deduction could result in similar multi-year timing behavior if contributions represented the difference in deductions that would make itemization worthwhile. For a detailed treatment of such behavior in general, see Martin Feldstein and Lawrence Lindsey, "Simulating Nonlinear Tax Rules and Nonstandard Behavior: An Application to the Tax Treatment of Charitable Contributions," National Bureau of Economic Research Working Paper No. 682, 1981.

20. The variables used to estimate individual contributions include personal income, a time trend, population, a stock market index, and an indicator of the party of the incumbent president. For an explanation of the estimation used, see the Appendix A of Giving USA.

21. "Protestant Churches Saw 3-Pct. Increase in Giving Between 1986 and 1987, Survey Finds," Chronicle of Philanthropy, July 11, 1989, p.4 and Bailey, "1988's Gifts."

22. "United Way Contributions Up 6.9 Pct.," Chronicle of Philanthropy, May 2, 1989 and personal communication from Russy Sumariwalla, United Way of America.

23. An additional limitation of tax return data on contributions is the existence of upper limits on the deductibility of contribution. For most types of contributions, the deduction is limited to 50 percent of AGI; any excess can be carried foward into the following five years. The limit for gifts of appreciated property is 30 percent of AGI, and for gifts to foundations, 20 percent. Relatively few taxpayers are subject to these limits, however.

24. See Slemrod (1989).

25. Comparisons were also made for the 1980/1982 period, with very similar results to those shown for 1980/1984.

26. One way of seeing the components of changes in contributions is to rewrite the basic equation for an individual as

$$(1a) \quad G_{1i}/G_{0i} = (d_1/d_0)(Y_{1i}/Y_{0i})^{ab}(P_{1i}/P_{0i})^{bb}(X_{1i}/X_{0i})^{cb}E_i,$$

where all "other" factors are assumed to enter as one variable logarithmically, and E_i is a multiplicative error term. The term $(Y_{1i}/Y_{0i})^{ab} = A_i$ is the predicted effect due to the change in income, $(P_{1i}/P_{0i})^{bb} = B_i$ is the comparable price effect, and the effect of shifts in the intercept and changes in the "other" variable can be combined as $C_i = (d_1/d_0)(X_1/X_0)^{cb}$. The percentage change in giving can then be decomposed as

(1b) $\ln G_{1i} - \ln G_{0i} = \ln A_i + \ln B_i + \ln C_i + \ln E_i$

If all individuals are assumed to be subject to the same proportional changes in "other" variables, including the intercept, then $C_i = C$ becomes a shift parameter common to all individuals. The extent to which a model fails to explain differences in behavior between individuals, or income classes in the case of observations based on income classes, will be reflected in the error term E_i.

Table 6 shows weighted averages for $\ln A_i$ and $\ln B_i$ along with the average value of $\ln C$ for each of several models, effectively decomposing the actual percentage change in total giving. For example, the portion due to price is calculated as

$(\sum_i N_i G_{0i} \ln A_i)/(\sum_i N_i G_{0i})$, where i's refer to income classes.

A useful measure of the degree to which a model fails to explain all changes in giving is the sum of absolute errors expressed as a percentage of actual giving in the second period:

$(\sum_i N_i G_{0i} |\ln E_i|)/(\sum_i N_i G_{0i})$. The measure is calculated for each model and sample and is presented in the last column of Table 6.

27. More precisely, the second column in the table is the weighted average of the log difference in average real contributions between 1980 and 1984, which is approximately the percentage change. Analogously, the fourth and fifth columns are weighted averages of the logarithm of the implied price and income effects which are also interpreted as percentage changes.

28. The limitations inherent in the calculations of the weighted total giving figures are worth emphasizing. Actual total contributions by itemizers in 1987 were $49.3 billion ($46.4 billion in

1985 dollars). Using the 1987 distribution of itemizers as weights, the changes in actual contributions between 1985 and 1987 imply a total giving figure of $56.3 billion in 1985, markedly higher than the actual figure of $48.0 billion for itemizers in that year. The reason for this discrepancy is the significant increase between 1985 and 1987 in the number of taxpayers in the upper income classes, the classes experiencing the largest percentage decline in giving. As noted in the text, this increase in the number of high-income taxpayers is probably the result of changes in the distribution of economic income and the inclusion of all capital gains in AGI. As long as data from income classes (as opposed to individual returns) are used for such comparisons, there will be no entirely satisfactory set of weights to use for this purpose.

29. See, for example, Clotfelter and Salamon (1982, pp. 177-180).

30. For each year, I calculated 20 percent of the total taxpaying population and based my calculation on that group. The top income classes corresponding to this population were identified and used for the analysis. In the income class where the top quartile began, I weighted the class's mean values by the percentage of class members who fell into the top quartile. The transitional income classes, with the percentage of the class falling into the top quintile by year were: $25,000-$30,000 in 1980 (68.5 percent), $30,000-35,000 in 1984 (31.8 percent), and $30,000-40,000 in 1987 (17.3 percent). Because the ratio of total taxpayers to total households did not change appreciably over this period, basing the quintile calculations on the number of households seemed appropriate. Calculations were then based on itemized contributions, number of itemizers, and AGI for itemizers (the latter was estimated for 1987 as the total AGI for the class multiplied by the percentage of taxpayers who itemized in each

class). For these income classes, the percentage of itemizers was very high. For example, the percentage of itemizers in 1987, the year with the lowest rate, was 84 percent.

31. The index can be defined by reference to a graph with the cumulative percentage of households (or income) on the x-axis and the cumulative percentage of contributions on the y-axis. Where A is the area between the diagonal line connecting the 100 percent points and the curve and B is the area under the curve, the index of inequality is A / (A+B).

32. All of the indices presented in this section are calculated in the manner of gini coefficients for Lorenz curves. If A is the area under the curve and T is the area of the triangle under the diagonal, the index is (T-A)/T. For the distribution of AGI versus contributions, this index could take on a negative value, signifying a curve above the diagonal and a generally decreasing percentage of income devoted to contributions.

33. The gini coefficient calculated by comparing AGI and number of itemizers for the top quintile was 0.22 for 1980, 0.27 for 1984, and 0.31 for 1987.

Table 1

Major Tax Changes in the 1980s Affecting Individual Contributions

1981 tax act (Economic Recovery Tax Act of 1981)

A. Rate reductions scheduled

1982: top rate reduced from 70 to 50 percent; other rates cut 10 percent

1983: lower rates cut 10 percent

1984: lower rates cut 5 percent

B. Charitable deduction for nonitemizers phase-in scheduled

1982: 25 percent of first $100

1984: 25 percent of first $300

1985: 50 percent with no dollar limit

1986: full deduction

1986 tax act (Tax Reform Act of 1986)

A. Change in tax rate schedule

1987: top rate reduced from 50 to 38.5 percent; most rates cut

1988: top rate reduced to 33 percent, 28 percent in highest class

B. Standard deduction increased

C. Charitable deduction for nonitemizers dropped

D. Capital gains in gifts of appreciated property included in Alternative Minimum Tax

Table 2

Itemization Status and Maximum Income Tax Rates, 1980-1988

	Percentage of taxpayers with itemized deductions	Highest marginal tax rate
1980	31	70
1981	33	70
1982	35	50
1983	37	50
1984	38	50
1985	39	50
1986	40	50
1987	33	38
1988	30	33

Source: Internal Revenue Service, Statistics of Income; SOI Bulletin 8 (Spring 1989); Taxpayer Usage Study, Monthly Report, May 1989.

Table 3

Impact of Tax Changes on High Income

Couple's Net Cost of Making Gifts

Year	Current value of $1,000,000 AGI in 1985 dollars	Marginal tax rate (a)	Net cost of giving a dollar of (b)	
			Cash	Appreciated property
1980	770,683	70	0.30	0.20
1985	1,000,000	50	0.50	0.40
1988	1,070,144	28	0.72	0.58

(a) For each gross income, taxable income was estimated by multiplying the ratio of taxable income to adjusted gross income (AGI) for the corresponding AGI class in that year by the gross income figure. Using that taxable income, marginal tax rates were taken from the tax table for joint returns.

(b) Assuming the taxpayer is an itemizer, the price of giving cash is 1-m, where m is the marginal tax rate. In general, the price of giving assets is P=1-m-Rg*n. See text. For this table, this price is calculated on the assumption that the asset would have been sold immediately had it not been donated (R=1) and that the gain-to-value ratio (g=g*) is 0.5.

Table 4

The Economics of Donating Art:

An Extreme Example

(Asset value = $53.9 million; basis = $1.8 million)

	Regular tax, 1986 law (m=.50; n=.2)	Regular tax, 1988 law (m=n=.28)	Alternative Minimum Tax (m=n=.21)
[a] Value of deduction ($1000s)	26,950	15,092	11,319
[b] Tax preference penalty ($1000s)	0	0	10,941
[c] Foregone capital gains tax ($1000s)	10,420	14,588	10,941
[d] Tax savings compared to immediate sale (a-b+c) ($1000s)	37,370	29,680	11,319
Net cost per dollar (a) if alternative disposition were:			
[e] Immediate sale (R=1)	0.31	0.45	.79 (b)
[f] Bequest (R=0)	.50 (b)	.72 (b)	0.99

(a) One minus the tax savings [a-b+c] for [e] and [a-b] for [f] as a percentage of $53.9 million.

(b) Same as giving cash.

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Table 5

Contributions to Universities, Colleges and Art Museums Before and After the 1986 Tax Reform Act

(dollar amounts in millions)

	Average Donations Total	Dollar Amount of from Individuals Appreciated property
16 Private Universities		
1985	16.9	4.8
1986	22.4	7.9
1987	22.9	5.3
1988	19.0	3.7
23 Private Four-Year Colleges		
1985	1.49	0.30
1986	1.72	0.62
1987	2.36	0.50
1988	1.92	0.40

119 Art Museums	Value of art donated (millions)	Number of artworks donated
FY 1985	76.1	28,305
FY 1986	143.0	43,670
FY 1987	94.6	20,900
FY 1988	67.2	17,035

Sources: National Association of Independent Colleges and Universities, unpublished data, April 30, 1989, cited with permission; Association of Art Museum Directors, 1989 Statistical survey (New York: AAMD, 1989, p. 190).

Table 6

Tax Reform and Changes in Contributions:

A Comparison of the Performance of Four Alternative Models

Period and Sample	Weighted change in contributions (logarithm)	Model	Predicted price effect	Predicted income effect	Shift	Weighted absolute errors as percentage of total giving
1980 - 1984;	-.105	Constant elasticity	-.237	.015	.117	10.4
Itemizers		Variable elasticity	-.335	.013	.217	22.2
		Zero elasticity	0	0	-.105	19.7
		Income elasticity = 1	0	.018	-.128	18.5
1985 - 1987;	-.227	Constant elasticity	-.092	-.067	-.068	11.7
Itemizers		Variable elasticity	-.119	-.063	-.045	12.1
		Zero elasticity	0	0	-.227	21.2
		Income elasticity = 1	0	-.142	-.084	12.9
1985-1986;	.253	Constant elasticity	.045	-.007	.214	14.2
Non-itemizers		Variable elasticity	.022	-.004	.235	14.5
		Zero elasticity	0	0	.253	15.8
		Income elasticity = 1	0	-.021	.273	15.6

Figure 1

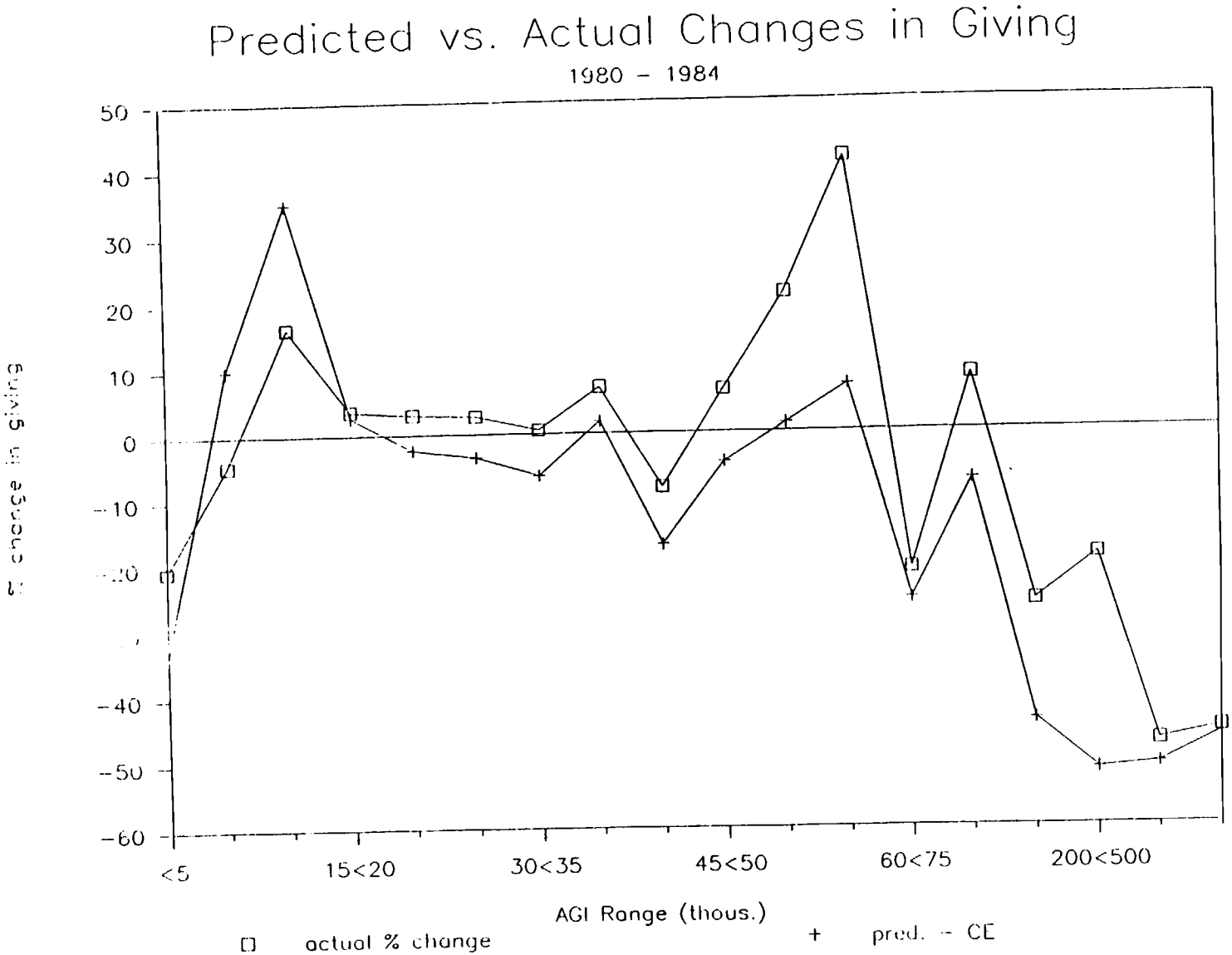

Predicted vs. Actual Changes in Giving
1980 - 1984
50
40
30
20
10
0
-10
-20
-40
-50
-60
<5
15<20
30<35
45<50
60<75
200<500
AGI Range (thous.)
actual % change
pred. - CE

Figure 2

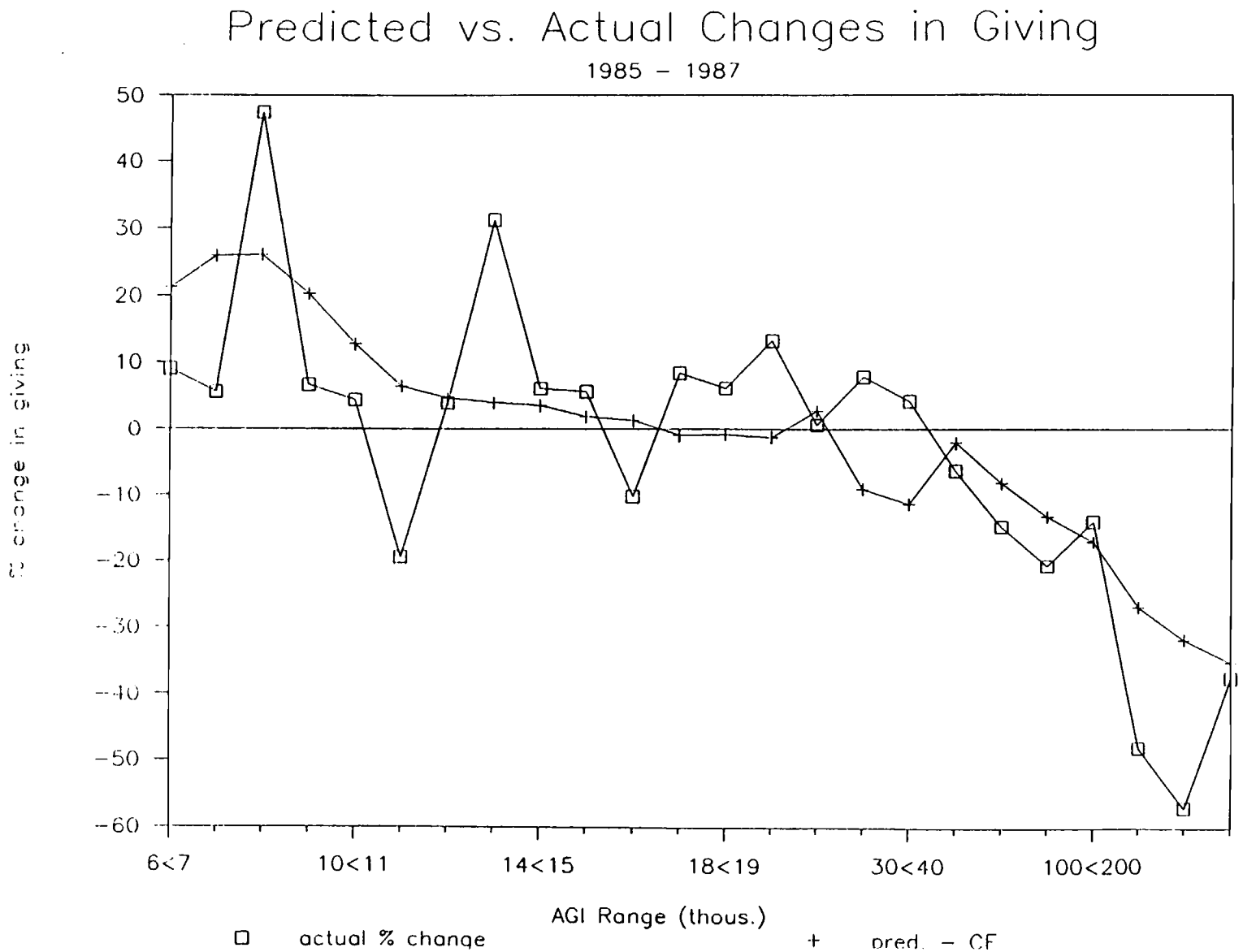
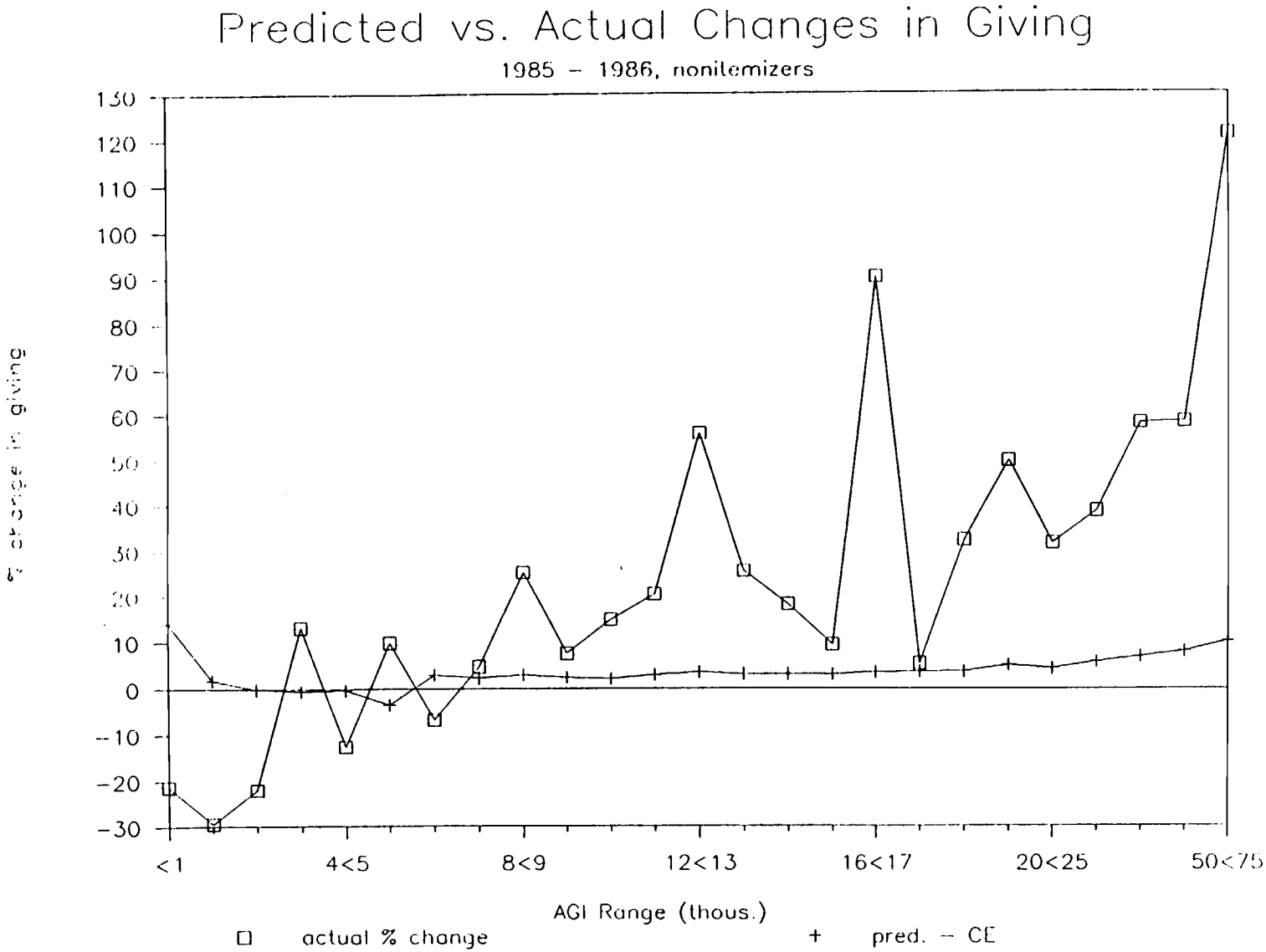

Predicted vs. Actual Changes in Giving
1985 - 1987
% change in giving
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
6<7
10<11
14<15
18<19
30<40
100<200
AGI Range (thous.)
actual % change
pred. - CF

Figure 3


Predicted vs. Actual Changes in Giving
1985 - 1986, nonitemizers
% change in giving
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
<1
4<5
8<9
12<13
16<17
20<25
50<75
AGI Range (thous.)
actual % change
pred. - CE

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