# CHARITABLE GIVING IN LIFE AND AT DEATH

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July 2000

Abstract

This paper examines the pattern of charitable giving during life and at death. It employs a 10-year panel data of income tax returns and their associated estate tax returns. The income tax returns provide information on charitable contributions while the estate tax returns provide information on charitable bequests. The findings suggest a strong preference for charitable bequests over lifetime contributions in the case of the very wealthy. In contrast, contributions are the preferred mode of transfers for the less wealthy.

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This paper was prepared for the Brookings Institution/University of Michigan Conference on "Rethinking Estate and Gift Taxation," May 4-5, 2000. Helpful comments were provided by Gerald Auten, Bill Gale, Jim Hines, David Ribar, Joel Slemrod, and conference participants. I am particularly indebted to Jim Cilke for his expertise and guidance in manipulating panel data. The views expressed are those of the author and do not necessarily reflect those of the Department of the Treasury.

## I. Introduction

Individuals transfer about $100 billion to charity annually.[1] An extensive body of the literature has examined the pattern of such giving during life. A smaller body has also addressed the determinants of charitable bequests. Very few studies, however, have examined the pattern of giving during life and at death. The latter is particularly important in the case of the wealthy who transfer tens of billion of dollars to charity annually (Joulfaian, 2000a).

Some of the transfers by the wealthy are made during life, which are accorded an income tax deduction, and some are transferred at death, which benefit from an estate tax deduction. Many studies find income taxes to be an important determinant of lifetime contributions (Clotfelter, 1985; Randolph, 1995). Other studies find estate taxation to influence charitable bequests (Boskin, 1976; Clotfelter, 1985; Joulfaian, 2000a). One study also finds estate taxation to influence lifetime giving as well (Auten and Joulfaian, 1996).

The scant available evidence on the pattern of giving suggests that the wealthy make much of their transfers to charity at death. Using data from estate tax returns filed in 1977, Steuerle (1987) finds that contributions represent less than 5 percent of charitable bequests. Similarly, and using estate tax returns for decedents in 1982, Joulfaian (1998, Table 14) reports contributions to represent less than 6 percent of bequests, and much less in the case of the very rich (less than 3 percent for those with assets over $10 million). This reported pattern is indicative of an unwillingness to part with wealth during life, and suggests that the wealthy may not pursue a tax minimization strategy in timing their giving.

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[1] See Internal Revenue Service (1999, pp. 64).

Data availability have limited the scope of the few studies that have addressed the timing of transfers. The evidence reported in Steuerle (1987), Auten and Joulfaian (1996), and Joulfaian (1998), for instance, is based on data on contributions reported in the year prior to the date of death. While this one year snapshot of giving is quite informative, a longer history of giving, well in advance of death, may shed further light on the preferred mode of transfers by the rich.

Many of the studies not only focus exclusively on one of the two modes of giving, but also examine the effects of only one form of taxation. The literature on the determinants of lifetime charitable contributions, for instance, traditionally emphasizes the role of income taxation, and, with the exception of Auten and Joulfaian (1996), ignore the effects of the estate tax.

In this paper, I examine the pattern of giving in life and at death. More specifically, I investigate how the estate tax affects total giving, and how the latter is allocated between transfers made during life and at death. I provide evidence on the pattern of giving using estate tax returns and panel data reflecting the decedents income history. The panel data consists of income tax returns for ten years spanning the period 1987 through 1996 and their associated estate tax returns for decedents over the years 1996 through 1998. The data contain rich information on the income sources and deductions claimed during life, as well as on the size of terminal wealth and its disposition at death. Such a long panel should present vast improvements over the one-year snapshot employed in past studies.

In the next section, I discuss the tax treatment and tax consequences of giving in the presence of bequests. In the presence of taxes, the timing of charitable gifts has significant implications for the bequests available to heirs. In section III, I describe the data sources and the construction of the panel, and I present evidence on the pattern of giving and its determinants. The evidence gleaned from this

panel suggests that giving during life is far greater than that reported earlier. The very rich, however, continue to exhibit a greater preference for giving at death than those not very rich.

## II. What Determines the Size and Timing of Giving?

An individual may make transfers to charity during life as well as at death. Charitable contributions are deductible in computing the income tax liability, but only when deductions are itemized. The sum of charitable gifts, state and local taxes, mortgage interest, and a number of other items, in excess of a certain threshold are deductible in computing taxable income. This threshold, or the Standard Deduction, ranged from $3,760 to $6,700 in the case of joint filers over the 1987-1996 period; $2,540 to $4,000 in case of singles.

For those who itemize deductions, the general rule is that charitable contributions are deductible as long as they do not exceed 50 percent of the adjusted gross income (AGI), or 30 percent in the case of transfers other than cash. Special rules apply to lifetime transfers to private foundations; the limits become 30 and 20 percent, respectively. Unused amounts are carried over and used to reduce taxable income in subsequent years.

Beginning in 1987, and as provided for by the Tax Reform Act of 1986, charitable contributions in excess of the donor=s basis were treated as a Atax preference item@ under the alternative minimum tax (AMT). For those affected, the AMT treatment had the effect of limiting the deduction to the basis in the property transferred. This limitation was relaxed in the case of appreciated tangible personal property in 1990, with museums being the primary beneficiaries, and done away with altogether in 1993.

As provided for by the Deficit Reduction Act of 1984, donors may deduct contributions of

publicly traded stocks to private foundations at their full market value. This provision expired at the end of 1994 and the deduction became limited to the donor's basis. The full deduction was temporarily restored in the middle of each of 1996 and 1997, and permanently extended in 1998.

For every dollar in contributions, the individual may save an amount t in income taxes, the marginal tax rate. If this is not consumed and saved until death, then the heirs receive t(1-e), where e is the estate tax rate.[2] Alternatively, the individual may postpone giving until death. Charitable bequests are deductible in computing the estate tax without any limits. For every dollar in bequests, the charity receives $1 as in the case of giving during life, but nothing is left to the heirs. The outcomes of the timing of charitable giving are summarized in Figure 1. A simple comparison of the consequences of the two modes of transfers to charity highlights the optimality of giving during life.

Figure 1. Outcome of Charitable Giving

| Time of Giving | Charity Gets | Consumption | Heirs Get |
|---|---|---|---|
| During Life | 1 | t | t(1-e) |
| At Death | 1 | 0 | 0 |

It follows from Figure 1 that when $1 is transferred to a charity the donor receives a tax reduction of t. Thus, the price of the gift, relative to consumption, is 1-t which is the traditional price measure employed in the literature on charitable contributions. If the gift is deferred and transferred at death, then the price is 1. If the gifts are to be bequeathed to heirs instead, the price of such bequests becomes 1/(1-e). Using a tax rate of 0.55, it will cost the donor $2.22 in foregone consumption for every dollar received by the heirs.

[2] Actually, the heirs receive $t(1-e)(1+\delta)^n/(1+r)^n$, where $\delta$ is the rate at which t appreciates, and r is the discount rate. These rates, here and below, are omitted to simplify exposition.

When measured relative to the price of bequests to heirs, the tax price of charitable contributions becomes (1-t) (1-e). This is in stark contrast to the conventional measure of the tax price of (1-t) measured relative to the price of consumption. The price of charitable bequests is 1-e, consistent with the literature on charitable bequests. These prices are summarized in Figure 2, and suggest that giving to charity is less costly than giving to heirs. Along with the outcomes reported in Figure 1, they also suggest that a tax minimization strategy would require giving during life.

Figure 2. The Tax Price of Transfers

| Time of Giving | Relative to Consumption | Relative to Bequests to Heirs |
|---|---|---|
| Charitable Gifts During Life | 1-t | (1-t)(1-e) |
| Charitable Bequests at Death | 1 | 1-e |
| Bequests to Heirs | 1/(1-e) | 1 |

Studies in the literature find that lifetime contributions are responsive to the income tax price, 1-t. These findings vary from study to study as well as between transitory and permanent effects (Randolph, 1995; Bakjia, 1999; Auten et. al 1999). Studies also find the estate tax to be an important consideration in determining charitable bequests (McNees, 1973; Boskin, 1976; Clotfelter, 1985; Joulfaian, 1991, 1999, and 2000a).[3]

While the above suggest that taxes may affect the size and timing of charitable transfers, many non-tax factors may also influence individual decisions. Andrew Carnegie, for instance, gave much of his fortune to charity at a time when the estate and income taxes virtually did not exist. Indeed, Carnegie (1891/1962) even strongly argued for the enactment of the estate tax in his Gospel of Wealth

[3] A notable exception is Barthold and Plotnick (1984).

and other writings.

The wealthy may give little to charity during life especially if much of their wealth is in the form of business assets or closely held corporate stocks. In part, this may reflect liquidity constraints. Such constraints, however, may be overcome by transfers of fractional interest can be made. More to the point, the wealthy may not be willing to part with their wealth for fear of losing control of their businesses, as they become minority owners. As such, they may postpone giving until death.

Aside from business ownership, the wealthy may postpone giving simply because they enjoy wealth accumulation (Carroll, 1997). Charitable contributions reduce wealth held during life. If individuals derive utility from holding wealth, then giving during life reduces welfare; any gain in utility or warm glow resulting from giving is in part offset by utility reduction resulting from loss of wealth. Aside from the joy of wealth accumulation, the wealthy may hold on to wealth, and postpone giving, because of the benefits that wealth yields. Charitable organizations and others, for instance, are likely to be *nice* to them in anticipation of gifts.

Notwithstanding these two propositions, the wealthy may opt to make some transfers during life. One motivation for lifetime giving, perhaps a cynical one, is that these gifts provide the wealthy, invariably holders of large businesses interests, some goodwill, fame, or influence. Contributions may be viewed as a form of advertising or public relations instrument. One extreme view is that donations may appease consumer groups or may influence government officials to take a softer stance in regulating business activities.

## III. Empirical Evidence

### A. Data Sources

In order to examine the pattern of giving and its determinants, I employ data on lifetime contributions obtained from a panel of income tax returns. In 1987, a stratified random sample of some 85,000 income tax returns were selected by the Statistics Income (SOI) division of the Internal Revenue Service. These returns were followed over time through 1996. As individuals in the panel died, their estate tax returns, which provide information on bequests, were obtained. Given the estate tax filing threshold, only estate tax returns reporting assets of $600,000 and over are available. Thus, we are able to study only the behavior of the rich.

In this paper, I focus on individuals in the panel who died during the years 1996 through 1998, with income tax records filed during the years 1987 through 1996. The resulting balanced panel consists of 882 individuals.[4] Table 1 provides a description of the general attributes of these individuals classified by the size of wealth. Wealth is defined as net worth at death, and all the variables are measured at 1997 levels using a real discount rate of 4 percent.

The average estate at death is $27 million, and is well over $400 million for the top wealth category. One hundred and twenty-six individuals left behind estates valued under a million, and 36 with estates in excess of $100 million. The average income, defined as the Adjusted Gross Income (AGI) is about $1.8 million, or $15 million for the wealthiest group. This represents about seven percent of wealth, but is less than 4 percent in the case of the wealthiest group; the wealthy realize little of their income (Steuerle, 1985). The average age is 76, or 66 at the beginning of the panel, and generally rises with wealth. Overall, the sample is representative of the wealthiest and somewhat older segment of society.

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[4] About 56 died in 1998, and of the remaining observations about one half died in each of 1996 and 1997. I exclude 18 never-married individuals to allow for estimation, and observations with negative wealth.

Table 2 provides information on the income trend over the ten year period again classified by size of estate. Mean AGI drops from about $3.1 million in 1987, to a low of one million in 1996, the last year in the panel. A similar pattern is observed for most wealth classes. While this trend is interesting in its own right, given the constraints imposed by the tax code it has implications for the deductibility of contributions as well.

The wealth and income profiles are further documented in Table 3 which provides the frequency distribution of individuals in the sample by size of wealth and the ten year mean AGI. One striking feature is the number of those with negative AGI reported in the first column. One implication of this is that these individuals will not be able to benefit from a deduction for lifetime contributions. While there is a general tendency for the wealthy to report high income, the underlying trend is uneven; some of the less wealthy report income that is much larger than that reported by the very wealthy.

B. Trends in Giving

The trend in charitable giving over the 10-year panel period is reported in Table 4. The charitable deduction claimed on income tax returns is reported in the top panel. The average deduction peaks at a value of $223,000 in 1987, the first year of the panel, and declines to $108,000 in 1996. The average cumulated contributions deducted over the 10 years is $1.6 million. The least wealthy deducted $138,000 on average, compared to about $20 million for those estates over $100 million.

Studies on lifetime contributions have traditionally focused on the reported deduction as the measure of charitable contributions, a practice dictated by available data. The top panel of Table 4 follows such convention. Actual contributions, however, may not be adequately reflected in the

claimed deduction, as the deductibility of gifts is subject to a number of limitations (20, 30, or 50 percent of AGI) depending on the type of underlying asset transferred. Unfortunately, and prior to 1991, SOI edited data did not provide such information.[5] For the remaining period, the actual contributions are reported in the bottom panel of Table 4. The average contribution made in 1991 is $848,000, or about 6 times the deduction claimed in that year. In contrast to the smooth pattern of deductions reported in the top panel, contributions vary considerably overtime.

The bottom panel also reports the unused contributions carried over to 1991. The average amount carried over is $330,000, roughly twice the size of the annual deduction. Adding the amount carried over to 1991 to the deductions claimed during 1987-1990 and to the contributions made during 1991-1996, yields cumulative contributions of $3.1 million on average, as shown in the last column of the bottom panel; about $55 million for the richest group. The average contribution over the ten year period is about twice as large as the claimed deduction, or $3.1 million vs. $1.6 million. Overall, these wealth-holders are twice as generous as the deduction figures suggest.

The patterns of lifetime giving and bequests are contrasted in Table 5. The top panel shows that the individuals in the sample gave about $11.5 million to charity on average; $3.1 million during life, as also shown in Table 4, and $8.4 million in charitable bequests. About 27 percent of these transfers were made during life and the remaining 73 percent at death. Interestingly, the fraction of transfers made during life declines with wealth; it drops from a high of 100 percent for the least wealthy to about 22 percent for estates in excess of $100 million where the average bequest is about $190 million. Stated differently, and to allow for comparisons with past studies, contributions by those

[5] For the years 1987 through 1990, the data provide information on contributions and carry-overs. Such information, however, are adjusted to add up to the reported deduction.

with wealth in excess of $10 million are roughly equal to 30 percent of bequests. This compares to 3 percent using one year data on contributions in Joulfaian (1998, Table 14). Panel data seem to provide a better picture of the importance of lifetime giving.[6]

While charitable bequests represent the lion share of transfers, individuals are more likely to give during life. As shown in the bottom panel of Table 5, about 95 percent of the observations in the sample report charitable contributions at least once over the 10 year period. In contrast, about 20 percent provide for charitable bequests; far more individuals give to charity during life than at death. In addition, little variation in the relative frequency of contributions is observed, as it ranges between 86 and 100 percent. Few of the least wealthy, however, some 5 percent, provide for charitable bequests; the fraction rises to about 81 percent for the wealthiest group.

The pattern of giving reported in Table 5 has interesting implications. Charitable bequests seem to be the preferred mode of transfers by the very rich, while charitable contributions the preferred mode for the less wealthy. This pattern also suggests that the wealthy are unwilling to part with their wealth during life, but become very generous and philanthropic at death.

Table 6 provides additional information on the pattern of charitable bequests. The first column repeats the figures on charitable bequests reported earlier in Table 5. The second column reports bequests to private foundations. The reported pattern reveals that much of the bequests of the very rich are channeled to benefit such foundations. It seems that the wealthy are not only unwilling to part with their wealth during life, but get to take it with them as they are immortalized in the foundations they

[6] Total charitable bequests reported by the 882 individuals in the sample is $7.4 billion (882*$8.4 million) compared to cumulative contributions of $2.7 billion (882*$3.1 million).

form or support.[7]

C. Multivariate Analysis

The theoretic exposition in Section II shows that the estate tax lowers the price to charity. The above tabulations clearly show that the wealthy prefer to make their transfers to charity at death. To shed further light on the pattern of giving and empirically explore the determinants of the timing of transfers, I resort to multivariate analysis. Here I consider the effects of taxes, wealth, business ownership, marital status, and age. First I describe the construction of these variables, and follow up with a summary of my findings.

There are two variables of key interest. These are the cumulative sum of transfers to charity and their allocation between lifetime contributions and bequests. The focus here is on the determinants of all donations and their allocation between lifetime gifts and transfers at death. Charitable bequests and lifetime contributions are value at 1997 levels. Because actual contributions, unlike the claimed deductions, are not observed in every year in the panel, I employ the cumulative measure of lifetime contributions as in Table 5.

The tax price of bequests is defined as the reciprocal of one minus the marginal estate tax rate, or 1/(1-e). The estate tax rate is computed by adding $10,000 to charitable bequests, and reflect both federal and state taxes.[8] While spousal bequests including transfers to QTIP spousal trusts are tax

[7] Note that this sample is not designed to be representative of decedents in a given year, and does not reflect giving to diverse causes. To obtain a broader view of how the wealthy allocate their bequests among the various charities, see Joulfaian (2000a).

[8] State estate tax rates are obtained for 1992 from the Advisory Commission on Intergovernmental Relations (1992), and incorporated in the measurement of the tax price consistent with Joulfaian (2000a). Because there was little variation in state taxes over time, the reported estimates are invariant to employing tax rates in effect in other years (1987 and post

deductible,[9] I do not treat the latter as deductible (QTIP=0) as they are eventually taxed at the death of the surviving spouse.[10] Because the tax price measure is likely to be endogenous to lifetime giving and charitable bequests, I compute a first dollar tax price which sets charitable bequests and lifetime contributions to zero.

The income tax price is defined as one minus the marginal tax rate. For individuals making non-cash gifts, a further adjustment is made to capture the capital gains tax avoided on contributions of appreciated property. The price of contributions of appreciated property is $1 - t_o - t_c (\alpha G/V)$, where $t_o$ and $t_c$ are the ordinary and capital gains tax rates, respectively, G is the accrued gain on the asset, V is the market value of the asset and $\alpha$ reflects a discounting factor for the expected holding period if the asset were not donated and the possibility that the asset might escape taxation entirely if the asset is held until death. Following Feldstein and Clotfelter (1976), $\alpha G/V$ is set equal to 0.5. The overall price is thus measured as a weighted average of the price of giving cash and the price of giving appreciated property with the weights determined by the average share of non-cash gifts. The actual cash share varies from near 80 percent for the less wealthy to 26 for the wealthiest group. In order to generate an income tax price independent of wealth, a cash share of 50 percent is employed. The tax liability is calculated by setting contributions equal to the sample mean of 17 percent of AGI. The tax rate is computed by increasing contributions by $1,000. Realizations are increased by the same increment, and the capital gains tax rate is computed over this range.

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1992).

[9] A QTIP, or Qualified Terminable Interest Property, is property which passes from the decedent in which the surviving spouse has a lifetime interest; she receives all the income of the trust during her life. A number of restrictions apply to the spouse's access to the property, and remaining assets pass to the children at the spouse's death.

[10] Here I employ the price faced by the decedent which may deviate from the future price the QTIP assets may face.

Wealth is defined as the gross estate at death less debts and estate expenses, plus lifetime contributions and inter-vivos gifts, and less the tax liability computed in the absence of contributions and bequests to charity. Income is defined as the ten year mean after-tax AGI, computed in the absence of contributions. Marital status is determined at death, and so is age. Business ownership is measured as the share of business assets in the estate at death. These include closely held corporate stock, farm and noncorporate business assets. Ideally, and had data been available, this share should reflect lifetime gifts as well.

Given the progressive nature of the estate tax, and as alluded to earlier, the tax price is likely to be endogenous to the amount transferred to charity in life as well as at death. Hence I estimate an equation for cumulative transfers using 2SLS, where the first dollar price and pre-tax wealth are employed as instruments. The results are reported in the first panel of Table 7, where the dependent variable is defined as the natural logarithm of cumulative donations.

The reported estimates for cumulative gifts in column one show that giving increases with the bequest tax price. The higher the estate tax rate, the costlier it is to make transfers to heirs, as the price is 1/(1-e). The estimated price elasticity is 1.5 with a standard error of 0.4. Giving also rises with wealth, with an estimated elasticity of 1.1 (se=0.1). Combined, these two coefficients suggest that charitable giving may decline by some 13 percent in the absence of the estate tax.

It also rises with income, albeit modestly. Giving seems to decline with the income tax price; the higher the tax rate the greater the giving. The estimated price elasticity is -2.8 (se=1).[11] Business ownership, gender, marital status, and age have imprecise effects on giving.

The above estimates are replicated using Tobit FIML instead of 2SLS. Here transfers and the

[11] Given its construction, we should be careful in interpreting this coefficient.

price of bequests, 1/(1-e), are estimated simultaneously; the price equation employs the first dollar price and pre-tax wealth. Given that some 96 percent of the observations report positive transfers, a priori FIML estimates should be similar to 2SLS estimates. As expected, the new estimates, reported in the middle panel of table 7, are fairly similar to those reported earlier.[12] The implied bequest price and wealth elasticities are 1.7 and 0.99, which suggest that charitable giving may decline by some 31 percent in the absence of the estate tax.

Next, I focus on the share of these transfers made during life. OLS estimates of the determinants of the lifetime contributions share of giving are reported in the last panel of Table 7. These estimates show that the lifetime contribution share declines with wealth, consistent with the evidence reported in Table 5; the estimated coefficient is -0.06 (se=0.01). Similarly, the share also rises with income and declines with the income tax price. Business ownership seems to depress lifetime giving. Individuals with greater business concentration in their portfolios prefer to provide for charity at death. In contrast, married individuals give more during life. Virtually identical estimates are obtained when two-limit Tobit is employed (not reported).

The estimates in Table 7 combine giving in life and at death. As an alternative, Table 8 presents separate estimates for each mode of giving. The equations for lifetime gifts is estimated using 2SLS where the first dollar tax price and pre-tax wealth are employed as instruments. These gifts seem to rise with the price of bequests, wealth and income, and decline with the income tax price. The estimated elasticities are very close to those reported in the first panel of Table 7. Unlike the earlier

[12] If the estimates were provided for married and not married individuals separately, then for the former (n=615), the coefficients on price become 1.51 (se=0.43) for 2SLS and 1.69 (se=0.45) for Tobit, and for wealth 0.72 (se=0.1) and 0.64 (se=0.1) respectively. For not married individuals (n=267), the price coefficients become 5.44 (se=1.5) and 6.13 (se=1.91), and 1.34 (se=0.18) and 1.33 (se=0.31) for wealth, respectively.

estimates, however, widowed individuals give the least. Similar estimates (not reported) are obtained when the equation is estimated using FIML Tobit.

The second panel of Table 8 reports FIML estimates for charitable bequests. As with the estimates for contributions, the coefficients on the tax price of bequests is positive. It is estimated at 13.3 (se=5.4), for an implied elasticity of 2.3. Bequests rise with wealth, but in contrast to the earlier estimates, they are invariant to income and income tax price. They also rise with age and are smallest for married individuals, in sharp contrast to the estimates on contributions.

As an implicit assumption in all the estimates so far is that the size of transfers and its allocation are determined independently. As a test of the exogeneity of the size of donations to the share transferred during life in Table 7, I employ Wu=s (1973) test and generalize it to the limited dependent variable case (Rivers and Vuong, 1988), which leads to the rejection of the null hypothesis of exogeneity.[13] This suggests that donations and its allocation overtime are perhaps jointly determined. Consequently, the amount of donations and the share transferred during life are estimated as a system of equations. Table 9 presents 3SLS estimates which also include the price of bequests. The first panel reports the estimates for the donations equations, followed by that of the contributions share, and the price equation. The instruments consist of the regressors employed earlier including the first dollar price and pre-tax wealth. In general, the estimated coefficients are similar to those estimated earlier.

The estimated elasticity for the bequest price in the first panel of Table 9 is 1.2 (se = 0.4). The

[13] Specifically, total giving is regressed on all the exogenous variables and the residual kept. Then the share equation is re-estimated including the residual. The null hypothesis of exogeneity is rejected ($\chi^2$=82 in case of OLS, $\chi^2$=50 in case of Tobit). A similar test was extended to the tax price of bequests, and the null hypothesis of exogeneity was not rejected ($\chi^2$=0.2 in case of OLS, $\chi^2$=1 in case of Tobit)

estimated wealth elasticity is 1.1 (se = 0.1). Combined, these two coefficients imply that charitable giving by the individuals in the panel may change very little in the absence of the estate tax. The estimates in Table 9 continue to confirm the earlier findings that the income tax stimulates lifetime transfers, and that business owners and widowed individuals prefer to delay their transfers until death.

## IV. Conclusions

This paper examined the pattern of charitable gifts during life and at death. It employed a ten year panel of income tax returns for the years 1987 through 1996. This panel was expanded to incorporate the estate tax returns as well. Income tax data provide information on lifetime contributions and income, while estate tax returns provide information on charitable bequests and wealth.

Both lifetime contributions and charitable bequests are found to be influenced by the tax price of bequests. Basis statistics and multivariate analysis suggest that the least wealthy make much of their transfers to charity during life; bequests seem to be the mode of transfers preferred by the very wealthy. Lifetime contributions also seem to be the preferred mode of transfers for those married. Widowed individuals and those with large business interests in their estates provide more for charity at death.

The above findings are subject to a number of caveats. Combining lifetime contributions into a single variable is likely to results in aggregation bias. Income tax regimes, and to a much lesser extent estate tax regimes, have changed over the years. Certainly, marital status has changed as more married individuals have become widowed. While data limitations on reported contributions make it difficult to examine annual data, we need to be cognizant of the potential aggregation bias. Indeed, the

estimated coefficients on wealth and income are very sensitive to alternative measures of the income tax price. This makes it rather difficult to pin down an accurate estimate of the effects of estate and income taxes.

Another important limitation of the paper is that it focuses exclusively on how taxes may affect giving and overlooks the potential effects on income and wealth accumulation. If the estate tax affects wealth accumulation or lifetime income, for instance, then the paper presents an incomplete picture of the effects of estate taxation.[14]

[14] Joulfaian (1998, Figure 3) and Joulfaian (2000b, 2000c) demonstrate how the wealthy alter their inter-vivos gifts in response to estate taxation, and Kopczuk and Slemrod (2000) make the general case for how wealth accumulation is affected by the estate tax. This issue also extends to the effects of estate as well as income taxation on reported income (Auten and Carroll, 1999; Feldstein, 1995).

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Table 1

Ten-Year Panel Attributes (1997 levels)

| Wealth ($1000s) | | Observations | Mean Wealth ($1,000s) | Mean AGI ($1,000s) | Mean Age |
|---|---|---|---|---|---|
| Under | 1,000 | 126 | 876 | 79 | 74 |
| 1,000 | 2,500 | 205 | 1,771 | 375 | 75 |
| 2,500 | 5,000 | 148 | 3,779 | 680 | 74 |
| 5,000 | 10,000 | 131 | 7,955 | 1,234 | 76 |
| 10,000 | 20,000 | 111 | 14,798 | 2,036 | 78 |
| 20,000 | 50,000 | 80 | 32,360 | 3,079 | 79 |
| 50,000 | 100,000 | 45 | 70,424 | 5,656 | 78 |
| 100,000 | ******* | 36 | 405,226 | 15,081 | 84 |
| Total | | 882 | 27,286 | 1,836 | 76 |

Table 2

Mean AGI by Estate Size and Year ($1,000 in 1997 levels)

| Wealth($1000s) | | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Under | 1,000 | 345 | 77 | 51 | 128 | -47 | 15 | 64 | 20 | 12 | 124 | 79 |
| 1,000 | 2,500 | 1,043 | 521 | 432 | 406 | 306 | 275 | 200 | 183 | 167 | 221 | 375 |
| 2,500 | 5,000 | 2,264 | 885 | 778 | 605 | 519 | 491 | 346 | 304 | 330 | 281 | 680 |
| 5,000 | 10,000 | 3,056 | 2,117 | 1,472 | 1,075 | 731 | 1,165 | 765 | 599 | 664 | 692 | 1,234 |
| 10,000 | 20,000 | 3,127 | 3,134 | 2,493 | 2,482 | 1,545 | 2,357 | 1,736 | 1,333 | 1,236 | 917 | 2,036 |
| 20,000 | 50,000 | 5,155 | 5,851 | 4,213 | 3,696 | 2,352 | 2,636 | 2,184 | 1,701 | 1,538 | 1,467 | 3,079 |
| 50,000 | 100,000 | 7,908 | 9,971 | 7,966 | 5,904 | 4,829 | 4,704 | 4,070 | 3,996 | 3,969 | 3,246 | 5,656 |
| 100,000 | ******* | 17,981 | 22,408 | 20,161 | 20,648 | 12,959 | 12,294 | 10,586 | 11,194 | 13,424 | 9,155 | 15,081 |
| Total | | 3,124 | 2,944 | 2,382 | 2,165 | 1,443 | 1,599 | 1,284 | 1,168 | 1,240 | 1,007 | 1,836 |

Table 3

Frequency Distribution of Individuals by Mean AGI and by Estate Size

| Wealth ($1000s) | | AGI ($1000s) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Negative AGI | 0-50 | 50-100 | 100-200 | 200-500 | 500-1,000 | 1,000-2,500 | 2,500-5,000 | Over 5,000 | All |
| Under | 1,000 | 7 | 12 | 27 | 37 | 29 | 8 | 4 | 1 | 1 | 126 |
| 1,000 | 2,500 | 10 | 4 | 16 | 48 | 71 | 42 | 12 | 1 | 1 | 205 |
| 2,500 | 5,000 | 13 | 1 | 1 | 9 | 38 | 43 | 35 | 6 | 2 | 148 |
| 5,000 | 10,000 | 6 | 0 | 0 | 3 | 17 | 28 | 59 | 14 | 4 | 131 |
| 10,000 | 20,000 | 4 | 1 | 0 | 0 | 5 | 19 | 51 | 22 | 9 | 111 |
| 20,000 | 50,000 | 5 | 0 | 0 | 0 | 4 | 10 | 20 | 24 | 17 | 80 |
| 50,000 | ****** | 4 | 0 | 0 | 0 | 0 | 0 | 8 | 24 | 45 | 81 |
| Total | | 49 | 18 | 44 | 97 | 164 | 150 | 189 | 92 | 79 | 882 |

Table 4

Mean Contributions by Size of Estate and Year (1,000s of $1997)

| Wealth ($1000s) | | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | Cumulative |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Mean Income Tax Deduction** | | | | | | | | | | | | |
| Under | 1,000 | 21 | 13 | 24 | 12 | 9 | 11 | 14 | 8 | 5 | 21 | 138 |
| 1,000 | 2,500 | 27 | 15 | 26 | 25 | 20 | 23 | 13 | 18 | 11 | 13 | 191 |
| 2,500 | 5,000 | 58 | 37 | 52 | 39 | 31 | 29 | 33 | 33 | 28 | 36 | 376 |
| 5,000 | 10,000 | 76 | 62 | 54 | 46 | 50 | 46 | 54 | 53 | 50 | 51 | 542 |
| 10,000 | 20,000 | 102 | 110 | 138 | 136 | 97 | 103 | 95 | 92 | 101 | 115 | 1,089 |
| 20,000 | 50,000 | 356 | 230 | 170 | 262 | 264 | 232 | 218 | 204 | 163 | 173 | 2,272 |
| 50,000 | 100,000 | 608 | 712 | 465 | 215 | 274 | 237 | 274 | 305 | 419 | 263 | 3,772 |
| 100,000 | ******* | 2,857 | 2,569 | 2,315 | 1,847 | 1,857 | 1,872 | 2,121 | 1,787 | 1,612 | 1,096 | 19,933 |
| Total | | 223 | 197 | 177 | 148 | 144 | 141 | 151 | 137 | 130 | 108 | 1,556 |
| | | | | Carry-over to 1991 | Mean Actual Contribution | | | | | | | |
| Under | 1,000 | | | 0 | 8 | 7 | 11 | 7 | 5 | 21 | | 129 |
| 1,000 | 2,500 | | | 7 | 19 | 22 | 12 | 17 | 6 | 11 | | 187 |
| 2,500 | 5,000 | | | 48 | 43 | 29 | 28 | 36 | 19 | 32 | | 421 |
| 5,000 | 10,000 | | | 16 | 44 | 45 | 51 | 50 | 44 | 48 | | 536 |
| 10,000 | 20,000 | | | 85 | 172 | 152 | 104 | 96 | 107 | 114 | | 1,316 |
| 20,000 | 50,000 | | | 5 | 703 | 223 | 226 | 224 | 151 | 385 | | 2,935 |
| 50,000 | 100,000 | | | 111 | 247 | 285 | 248 | 298 | 290 | 190 | | 3,454 |
| 100,000 | ******* | | | 7,374 | 17,906 | 3,295 | 12,875 | 1,539 | 1,263 | 1,026 | | 54,866 |
| Total | | | | 330 | 848 | 206 | 588 | 129 | 105 | 119 | | 3,070 |

Table 5

Contributions and Bequests by Size of Estate (Amounts in 1,000s of $1997)

| Mean Cumulative Contributions and Bequests | | | | | | |
|---|---|---|---|---|---|---|
| Wealth ($1000s) | | Total Giving | Contributions | Percent | Bequests | Percent |
| Under | 1,000 | 129 | 129 | 100.00% | 0 | 0.00% |
| 1,000 | 2,500 | 213 | 187 | 87.79% | 26 | 12.21% |
| 2,500 | 5,000 | 452 | 421 | 93.14% | 31 | 6.86% |
| 5,000 | 10,000 | 728 | 536 | 73.63% | 192 | 26.37% |
| 10,000 | 20,000 | 1,851 | 1,316 | 71.10% | 535 | 28.90% |
| 20,000 | 50,000 | 6,059 | 2,935 | 48.44% | 3,124 | 51.56% |
| 50,000 | 100,000 | 8,533 | 3,454 | 40.48% | 5,079 | 59.52% |
| 100,000 | ******* | 244,907 | 54,866 | 22.40% | 190,041 | 77.60% |
| Total | | 11,477 | 3,070 | 26.75% | 8,407 | 73.25% |

| Observations | | | | | | |
|---|---|---|---|---|---|---|
| Wealth ($1000s) | | All | With Contributions* | Percent | With Bequests | Percent |
| Under | 1,000 | 126 | 108 | 85.71% | 7 | 5.56% |
| 1,000 | 2,500 | 205 | 193 | 94.15% | 18 | 8.78% |
| 2,500 | 5,000 | 148 | 142 | 95.95% | 17 | 11.49% |
| 5,000 | 10,000 | 131 | 126 | 96.18% | 36 | 27.48% |
| 10,000 | 20,000 | 111 | 108 | 97.30% | 28 | 25.23% |
| 20,000 | 50,000 | 80 | 80 | 100.00% | 27 | 33.75% |
| 50,000 | 100,000 | 45 | 44 | 97.78% | 21 | 46.67% |
| 100,000 | ******* | 36 | 36 | 100.00% | 29 | 80.56% |
| Total | | 882 | 837 | 94.90% | 183 | 20.75% |

* Positive contributions at least once in the 10-year period.

Table 6

Charitable Bequests by Size of Estate

| Mean Bequests ($1,000 in 1997 levels) | | | | |
|---|---|---|---|---|
| Wealth ($1000s) | | All Bequests | Bequests to Foundations | Percent |
| Under | 1,000 | 0 | 0 | 0.00% |
| 1,000 | 2,500 | 26 | 7 | 26.92% |
| 2,500 | 5,000 | 31 | 7 | 22.58% |
| 5,000 | 10,000 | 192 | 33 | 17.19% |
| 10,000 | 20,000 | 535 | 340 | 63.55% |
| 20,000 | 50,000 | 3,124 | 1,902 | 60.88% |
| 50,000 | 100,000 | 5,079 | 4,762 | 93.76% |
| 100,000 | ******* | 190,041 | 182,871 | 96.23% |
| Total | | 8,407 | 7,930 | 94.33% |

Table 7

Determinants of Charitable Giving

| Variables | Mean Values | *ln* Contributions and Bequests | | | | Contribution Share | |
|---|---|---|---|---|---|---|---|
| | | 2SLS | | FIML Tobit | | OLS | |
| | | Coefficient | S.E. | Coefficient | S.E. | Coefficient | S.E. |
| Constant | | -9.8192 | 1.2132 | -9.0967 | 1.1542 | 1.3305 | 0.11297 |
| *ln* Bequest Price* | 1.6987 | 1.4524 | 0.4227 | 1.7062 | 0.4650 | -- | -- |
| *ln* After-Tax Wealth | 16.0858 | 1.0721 | 0.0885 | 0.9878 | 0.0822 | -0.0574 | 0.0076 |
| *ln* Income | 1.2415 | 0.2777 | 0.0369 | 0.3017 | 0.0343 | 0.0209 | 0.0038 |
| *ln* Income Tax Price | 0.6809 | -2.7626 | 0.9594 | -2.9575 | 0.9724 | -0.2225 | 0.0987 |
| Business Share | 0.0999 | -0.2328 | 0.4620 | -0.1622 | 0.5071 | -0.1149 | 0.0477 |
| Widowed | 0.2551 | -0.4366 | 0.2370 | -0.4899 | 0.2597 | -0.1336 | 0.0236 |
| Divorced | 0.0476 | 0.2618 | 0.4364 | 0.2098 | 0.6100 | -0.1044 | 0.0440 |
| Age<55 | 0.0465 | 0.2006 | 0.4827 | 0.2399 | 0.5786 | 0.1333 | 0.0492 |
| 55≤Age<65 | 0.1168 | -0.3280 | 0.3412 | -0.2927 | 0.4467 | 0.1767 | 0.0347 |
| 65≤Age<75 | 0.2800 | -0.2481 | 0.2667 | -0.2407 | 0.2898 | 0.1297 | 0.0273 |
| 75≤Age<85 | 0.3061 | -0.2538 | 0.2470 | -0.2572 | 0.2589 | 0.1249 | 0.0255 |
| σ | | | | 2.6839 | 0.0493 | | |
| ψ** | | | | -5.3613 | 1.4345 | | |
| LL | | -2,106 | | 442 | | -103 | |
| N | | 882 | | 882 | | 882 | |

* Bequest price = 1/(1-e)

** $\psi = \sigma_{12} / \sigma_2^2$, where 1 and 2 refer to the donations and bequest tax price equations, respectively. Based on the significance of the estimate, the null hypothesis that the error terms are not correlated is rejected.

Table 8

Determinants of Charitable Giving

| Variables | *ln* Contributions | | *ln* Bequests | |
|---|---|---|---|---|
| | 2SLS | | FIML Tobit | |
| | Coefficient | S.E. | Coefficient | S.E. |
| Constant | -7.9518 | 1.1723 | -86.9640 | 20.2490 |
| *ln* Bequest Price | 1.5961 | 0.4085 | 13.3480 | 5.4146 |
| *ln* After-Tax Wealth | 0.8868 | 0.0856 | 4.3903 | 1.1833 |
| *ln* Income | 0.3174 | 0.0356 | 0.2212 | 0.3252 |
| *ln* Income Tax Price | -2.7901 | 0.9271 | 0.2961 | 7.8176 |
| Business Share | -0.7529 | 0.4464 | 1.6566 | 3.3339 |
| Widowed | -0.9216 | 0.2290 | 5.8808 | 2.2769 |
| Divorced | -0.0931 | 0.4217 | 12.0120 | 4.4576 |
| Age<55 | 0.5486 | 0.4664 | -12.5290 | 5.4451 |
| 55≤Age<65 | 0.1150 | 0.3297 | -12.5640 | 4.0867 |
| 65≤Age<75 | 0.1137 | 0.2577 | -8.1609 | 2.8816 |
| 75≤Age<85 | 0.1180 | 0.2386 | -5.7402 | 2.2318 |
| ψ* | | | -20.4700 | 9.5637 |
| σ | | | 14.1040 | 2.4956 |
| F(z) | | | 0.1660 | |
| LL | -2,166 | | 973 | |
| | 882 | | 882 | |

*$\psi = \sigma_{12} / \sigma_2^2$, where 1 and 2 refer to the donations and estate tax price equations, respectively. Based on the significance of the estimate, the null hypothesis that the error terms are not correlated is rejected.

Table 9

3SLS Estimates of the Determinants of Charitable Giving

| Variable | *ln* Donations | | Contribution Share | | *ln* Bequest Price | |
|---|---|---|---|---|---|---|
| | Coefficient | S.E. | Coefficient | S.E. | Coefficient | S.E. |
| Constant | -10.1690 | 1.2048 | 1.3655 | 0.1131 | -0.2303 | 0.0558 |
| *ln* Bequest Price | 1.1605 | 0.4057 | -- | -- | 0.9871* | 0.0228 |
| *ln* After-Tax Wealth | 1.1054 | 0.0875 | -0.0599 | 0.0076 | 0.0140* | 0.0041 |
| *ln* Income | 0.2772 | 0.0369 | 0.0212 | 0.0038 | -0.0024 | 0.0019 |
| *ln* Income Tax Price | -2.8187 | 0.9592 | -0.2233 | 0.0981 | -0.0175 | 0.0491 |
| Business Share | -0.2372 | 0.4620 | -0.1110 | 0.0474 | -0.0532 | 0.0237 |
| Widowed | -0.3947 | 0.2364 | -0.1336 | 0.0235 | 0.0368 | 0.0119 |
| Divorced | 0.3248 | 0.4357 | -0.1052 | 0.0438 | 0.0409 | 0.0221 |
| Age<55 | 0.1468 | 0.4822 | 0.1321 | 0.0489 | -0.0484 | 0.0246 |
| 55≤Age<65 | -0.3671 | 0.3408 | 0.1759 | 0.0345 | -0.0256 | 0.0174 |
| 65≤Age<75 | -0.2728 | 0.2665 | 0.1286 | 0.0271 | -0.0163 | 0.0136 |
| 75≤Age<85 | -0.2589 | 0.2469 | 0.1247 | 0.0253 | -0.0063 | 0.0127 |
| LL | -2103.07 | | -97.9877 | | 514.7468 | |

* These coefficients are estimates for the first dollar tax price and pre-tax wealth.