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ESTATE TAXES AND CHARITABLE
BEQUESTS BY THE WEALTHY

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ABSTRACT

Charitable bequests are an important source of philanthropic support. Unlike bequests to children which can be taxed at a maximum statutory rate of 0.55, such transfers are exempt from estate taxation. Thus, by lowering the price of charitable giving, the estate tax may influence the disposition of terminal wealth. In this paper, I examine the effects of estate taxation on charitable bequests using data from estate tax returns of decedents in 1992. The results suggest that the estate tax deduction is “budget” efficient. The overall effects of the estate tax, however, are likely to be modest as charitable bequests are wealth elastic.

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1 INTRODUCTION

Charitable bequests represent an important source of philanthropic support, and represent a significant portion of the overall charitable giving by the wealthy. About \$8 billion in charitable bequests, for instance, were reported on the estate tax returns of decedents in 1992.¹ This compares to about \$21 billion in lifetime charitable contributions reported in 1992 on the income tax returns of living households with comparable wealth.² While the latter outnumber the estate tax filing population by 60 fold, their lifetime giving is less than three times the transfers to charity at death.³

While a small fraction of estates report such bequests, overall they are relatively more generous than their living counterparts. Indeed, in select sectors of the nonprofit world, these bequests represent a significant source of funding. The estates of 1,149 decedents alone, for instance, contributed \$260 million to the arts and humanities in 1992 (Eller, 1997, p. 58); an amount equivalent to 75 percent of the combined federal budgets of the National Endowment for the Arts and the National Endowment for the Humanities (Office of Management and Budget, 1994, Appendix 147).

The pattern of charitable bequests and the potential effects of the estate tax have important implications for public policy. Because charitable bequests are deductible in computing the estate tax liability, estate taxation lowers the price of such transfers. This deduction is estimated to cost the federal government over \$5 billion in foregone estate tax revenues annually (OMB, 1998, p. 97). An important question is whether the deductibility of charitable bequests is “budget” efficient in that it stimulates charitable giving by more than the revenue loss to the government.

In this paper, I take a fresh look at the effects of the estate tax on charitable bequests and explore its other determinants. Specifically, I use data drawn from the estate tax returns of decedents in 1992 with estate tax returns filed over the 1992 through 1994 years. I also explore issues related to identifying the estate tax price effects separately from those of wealth.

Identification can be a serious problem in evaluating the effects of estate taxation especially as only cross sectional data are available reflecting the uniqueness of death (Poterba, 1998). In addition, I also address the potential endogeneity of the tax price of bequests, which has been traditionally overlooked in the literature. Consistent with much of the literature, I find giving to be highly responsive to taxes with a price elasticity in excess of one. In addition, but in contrast to the findings in the literature, I also find giving to be highly responsive to wealth with an elasticity in excess of one as well.

2 PREVIOUS RESEARCH ON CHARITABLE BEQUESTS

A limited number of studies have examined the effects of estate taxes on charitable bequests. These studies have primarily resorted to estate tax records and, employing the first dollar tax price, find that estate taxes are an important consideration in making bequests. An exception is Barthold and Plotnick (1984) who use probate records and find estate taxation to have insignificant effects. Table 1 provides a brief description of the data sources employed, periods examined, and summary of the findings on the tax price effects.

McNees (1973) uses data from federal estate tax returns filed with the Internal Revenue Service (IRS) in 1957 and 1959. Examining observations with positive bequests only, he estimates linear and logarithmic equations and finds that taxes have a stimulative effect on

charitable bequests. Given the limited information reported, however, a measure of the price elasticity cannot be obtained from the study. McNees also finds that bequests rise with wealth and tend to be lower for widowed decedents.

Also using the 1957-59 data, as well as 1969 estate tax returns, Boskin (1976) also finds taxes to play an important role in determining bequests. Boskin reports tax price elasticities that range from -0.2 to -2.53, depending on the period examined and the size of the estate. He also reports bequests to rise with after-tax wealth (disposable estate), with estimated elasticities of 0.2 to 0.7, and are smallest for married individuals and those under the age of 65.

Barthold and Plotnick (1984) resort to Connecticut probate records of decedents in the 1930s and 1940s. Defining wealth as total assets or gross estate, they find price elasticities not significantly different from zero. Feldstein (1977) employs pooled grouped data on bequests classified by estate size, published by SOI, for the years 1948 through 1963. The reported price elasticities ranged from -4.0 to -0.1.

Clotfelter (1985) employs estate tax data for decedents in 1976 with returns filed in 1977. His data is based on a 20 percent random sub-sample of the IRS sample and excludes those with wealth under \$5,000. Using a log-linear specification, he finds tax price elasticities of -1.67 and -2.79, and wealth elasticities of 0.18 to 0.42, depending on whether wealth is measured before or after taxes, respectively. He also finds bequests to increase with age, and are greatest for the never-married single and smallest for those married.

Employing estate tax returns for decedents in 1986 filed during 1986-1988, Joulfaian (1991) also estimates a log-linear specification. This study excludes estates of decedents age 30 and younger, and those with after-tax wealth under \$5,000. It introduces a number of

refinements to the wealth measure, and finds a tax price elasticity of -3.0 and wealth elasticity of 0.23.⁴

Finally, using data from a special study of estate decedents in 1982 with tax returns filed in 1982 and 1983, Auten and Joulfaian (1996) report a price elasticity of -2.5 obtained from a logarithmic specification. The data, in which the wealthy are over sampled, is a sub-sample of the SOI file on decedents in 1982. It is limited to estates of parents with assets in excess of \$300,000.

Differences in the findings in the literature can be attributed to differences in the periods studied, the tax laws in effect, and the econometric specifications employed. They may also reflect differences in the computation of the tax price and after-tax wealth. Changes in the tax Code, in addition to differences in measuring wealth, and the size of estates examined, make it very difficult to compare findings over time.

3 MODELING CHARITABLE BEQUESTS

A How Estate Taxes Affect Giving

Individuals accumulate wealth for a variety of reasons. The portion of wealth not consumed during life is disposed of in one of two ways. It is either bequeathed to heirs or transferred to charity. An individual's objective is then to determine how to allocate this terminal wealth between the two potential donees. Bequests to heirs are potentially subject to the estate tax, while transfers to charity are exempt rendering such bequests relatively less costly. Given wealth and the tax price of charitable bequests, the individual decides on the optimal transfer.⁵

More formally, and in a very simple model, an individual's utility is determined by bequests to heirs (B) and charitable bequests (CB), or

$$U = U(CB, B) \quad (1)$$

The individual maximizes his utility subject to a budget constraint which requires that expenditures on charitable and non-charitable bequests not exceed the individual's after-tax terminal wealth W , or:

$$P_{CB} CB + B \leq W \quad (2)$$

where P_{CB} denotes the tax price of charitable bequests. At a tax rate of 0.55, it will cost the donor \$2.22 for every \$1 in bequests to heirs, or $1/(1-e)$. In contrast, bequests to charity are exempt from taxation as they are deductible in computing the estate tax. Normalizing on the price of bequests to heirs, the price of giving \$1 to charity is 0.45, or $P_{CB}=1-e$. If the heir is the spouse, then $P_{CB}=1$ as spousal bequests are fully deductible.⁶

Solving for the first-order conditions, the individual sets the amounts of transfers to charity at the point where his marginal rate of substitution between bequests to charity and bequests to the heirs is equal to the (relative) price of charitable bequests,

$$\frac{U_{CB}}{U_B} = P_{CB} \quad (3)$$

In the absence of the estate tax, or in the case of transfers to a spouse, $P_{CB}=1$, charitable bequests are set at the point where the respective marginal utilities are equalized; the individual may

consider the heirs' consumption needs, or the psychic cost for having a charity chosen over them (Wilhelm, 1996), among other factors.

The literature primarily employs a logarithmic demand function in modeling the determinants of charitable bequests. To empirically model these determinants, I estimate a budget share model which is specified as:

$$\frac{P_{CB} CB}{W} = \alpha \ln P_{CB} + \beta \ln W + \gamma X \quad (4)$$

While the data, as demonstrated below, provides stronger support for this rather flexible specification, I also estimate a number of alternative equations. The dependent variable in (4) is defined as bequests, less the tax savings from the deduction, which is almost equivalent to multiplying the price (P) by the amount of charitable bequests (CB), divided by after-tax wealth (W). In addition to price and wealth, I control for a number of variables (X) to capture taste preferences.

B Data

To model the determinants of charitable bequests and the effects of estate taxation, I use data prepared by the Statistics of Income (SOI) Division of the Internal Revenue Service. The data are drawn from the estate tax returns of decedents in 1992, with estate tax returns filed during the years 1992 through 1994. The data represent a stratified random sample where the rich and the young are over represented; sampling rates of 100 percent apply to those with gross estates of \$5 million and over, and those under the age of 40.

The sample is limited to estates with total assets over \$600,000, the filing threshold in 1992, and excludes those with negative net worth. Given the filing threshold, the individuals in this sample are somewhat wealthier, in real terms, than those with gross estates over \$300,000 examined in Auten and Joulfaian (1996), \$60,000 in McNees (1973), Boskin (1976), and Clotfelter (1985, p. 241), but comparable to those in Joulfaian (1991) using 1986 data and Barthold and Plotnick (1984) using Connecticut data from the 1930s and 1940s.

Estate tax returns provide information on wealth and its disposition. Information is available on asset categories, debts, funeral expenses, and expenses of settling the estate such as attorney fees and executor commissions. They also provide information on charitable and spousal transfers. Demographic information is available on age, marital status, and gender.

1 The Tax Price

Statutory estate tax rates (e) ranged from 18 percent to 55 percent in 1992. Column 1 of Table 2 reports the tax rate schedule in effect in 1992. This rate schedule applies to the taxable estate, which is defined as assets held at death, less debts, estate expenses, spousal transfers, and charitable bequests. By virtue of the unified credit of \$192,800, the marginal tax rate is reduced to zero for taxable estates of up to \$600,000, as shown in column 2 of Table 2. This credit, along with the progressive rate structure, is phased out for taxable estates between \$10 and \$21 million (\$17 million after 1997), raising the marginal tax rate to 0.60 before it drops back to 0.55 beyond this bubble range.⁷

The estate tax also provides a credit for state death taxes. The credit is limited to a maximum of 16 percent of the federal taxable estate, which reduces the maximum federal tax

rate to 0.39. Because of this offset, the estate tax liability is computed in the absence of the credit, which affects the computation of the tax price and after-tax wealth. Essentially, the tax rate can be viewed as a combination of federal and state tax rates with a maximum statutory value of 0.55.⁸ In an alternative set of estimates, state taxes and the federal credit are directly considered, to the extent possible, in measuring price and wealth. For the wealthiest estates, the minimum price is 0.45, or one minus 0.55.

As stated earlier, the taxable estate is equal to the gross estate less debts, estate expenses, spousal and charitable bequests. The marginal tax rate is computed by adding \$1,000 to charitable bequests, tracing the change in taxable estate, and calculating the resulting change in tax liability. The marginal heir is assumed to be someone other than the spouse. An implicit assumption here is that taxes do not alter the choice between charitable gifts and spousal bequests (relative price=1); there is no need to add the price relative to the spousal bequests as well. Because the tax rate is likely to be endogenous to giving, the first dollar tax price is used as an instrument. In computing this instrument, the tax rate is calculated by setting charitable bequests to zero.

In the case of closely held businesses, the computation of the true estate tax can be complicated. In estates, where the share of the estate in the form of closely held businesses exceeds 35 percent, the pro-rated tax may be deferred and paid in installments over a period of 15 years; only interest is paid in the first five years.⁹ The interest rate on the tax attributable to the first million in taxable estate is set at 4 percent. I use a rate of 8 percent which is equivalent to a two-year average rate. Interest payments are deductible in computing the estate tax and require the filing of an amended return annually. In effect, this reduces the interest rate of 8 percent to

3.6 percent when the tax rate is 0.55; 4 percent to 1.8 percent for the tax on the first million.¹⁰

Using a discount rate of 8 percent, the deferral reduces the tax rate by some 30 percent (40 percent for the smaller estates). Thus, the price of giving can be defined as a weighted average of the price of bequeathing business and non-business assets. More, specifically it is measured as:

$$P_{CB} = 1 - (1 - \theta)e - \theta\delta e \quad (5)$$

where θ is the fraction of wealth qualifying for the deferral, and δ is the discounted value of deferred taxes (about 0.7 when $e=0.55$). This deferral benefit, however, affects only a small number of estates; only 266 estates of decedents in the sample of 11,915 elected to defer taxes.

2 Terminal Wealth

Wealth is defined as total assets less debts and estate expenses and taxes. Several modifications are made to the reported value of total assets. The market value of farms and other small businesses eligible for special estate tax valuations is substituted for the estate tax value.¹¹ Life insurance proceeds excluded from the estate, exempt from taxation but reported on the estate tax return, are added back. Certain estate expenses such as funeral expenses, attorney and executive fees, and administration expenses reduce this measure of wealth. It is further reduced by the amount of the estate tax computed in the absence of charitable bequests. This "disposable" wealth represents the maximum amount that can be inherited by the heirs, including spouse, consistent with the budget constraint in (2).

3 Bequest Preferences

In addition to age and marital status, business ownership is employed as a proxy for bequest preferences. Entrepreneurs and farmers may have dynastic preferences and wish to pass closely held business to the children.

4 Summary Statistics

The sample means for select variables are reported in Table 3. The first column in Table 3 reports summary statistics for the entire sample of 11,915 estates. On average, these estates report disposable wealth of \$2.9 million and bequeath \$463,100 to charity, at a cost of \$264,000 after accounting for its deductibility. About 2,200 estates, or fewer than 18 percent report charitable bequests. The average age is 68 years, with 17 percent over the age of 85. As for marital status, 59 percent of the individuals are married, and 25 percent widowed, with the remainder either single (never married) or divorced. Business share of assets is 8.5 percent while life insurance proceeds make-up 12.7 percent of wealth. The average first dollar tax price is 0.76, or 0.77 using the last dollar tax rate. Also reported are the price measures defined as 1-e, ignoring the deferral of tax; the two sets of measures are fairly close reflecting the rarity of the election of installment payments.

Table 4 provides details on the composition of charitable bequests. Over half of those reporting charitable bequests provide for transfers to educational (and medical) institutions, and religious organizations. Few give to the arts and foundations, and much fewer to social welfare organizations. On average, and given the limited number of categories, individuals make bequests to about two types of charities.

While few give to foundations, these organizations are on average the largest recipients followed by educational/medical and other organizations. About 40 percent of gifts are made to foundations even though they account for less than 10 percent of the recipients. In the case of the wealthiest group, those with wealth in excess of \$50 million, transfers to foundations account for well over half the bequests to all organizations. The least wealthy, on the other hand, give less to foundations. The reverse is observed in the case of giving to religious organizations; the least wealthy bequeath about 32 percent of their transfers while the very wealthy provide less than one percent.

Table 5A provides further detail on the attributes of the individuals in the sample. Of the sample of 11,915 estates, 202 report disposable wealth of less than half a million while 29 report wealth in excess of \$50 million. The fraction making bequests rises with wealth and peaks at 55 percent for those in the top wealth category.¹² A similar pattern is also observed for the amount bequeathed.

C Price Identification

A common problem encountered in studies of the effects of taxes on economic behavior is how to identify the tax price effects separately from the effects of income (Feenberg, 1987). This problem arises because the marginal tax rate can be determined by other regressors, income in particular, which confounds the measurement of tax effects. At issue is whether the estimated coefficient on the tax price truly captures the tax effects or does it also reflect the income effects as well; this problem is especially onerous in the case of cross-sectional data.

In the case of charitable bequests, the computed tax rate may similarly capture the effects

of the wealth of the decedent, since it is computed as a function of the taxable estate (Poterba, 1998). Because the estate tax provides different treatments to different taxpayers, especially in the presence of the unlimited marital deduction, however, the identification problem may not be as severe as that encountered in the literature on the effects of income taxation on charitable contributions. Being married, however, does not only affect marginal tax rates, but may also affect the propensity to give in other ways. There is, for instance, potentially one additional heir. This requires that marital status be controlled for. Other factors also aid in the identification process. These include the estate tax rate of 0.60 in the bubble range, where the tax rate first increases and then decreases with wealth, the excluded life insurance proceeds, the deferral of tax, and the exclusion due to the special use valuation.

A casual observation of columns 4, 5, and 7 of Table 5A suggests a weak correlation between wealth and the tax price, especially in the case of after-tax wealth in excess of \$2.5 million. Also consider Tables 5B and 5C which provide tabulations on the attributes of the estates similar to those reported in Table 5A but provided by marital status. For comparable wealth levels, the tax price varies considerably between married individuals (Table 5B) and those not married (Table 5C). For married individuals with wealth between \$500,000 and \$750,000 the tax price is 0.97 while it is 0.71 for those not married but with comparable wealth. Moving up the wealth cohorts, we continue to observe the same pattern of variations in the tax price somewhat independent of wealth.¹³

4 EMPIRICAL RESULTS

A Basic Statistics

Column 2 of Table 3 reports mean values for select variables for the subsample of estates reporting charitable bequests. The conditional average bequest is \$2.9 million with a disposable wealth of \$5.3. The average age is 78 years, with 41 percent over the age of 85. About 29 percent of the individuals are married, with 46 percent widowed, and 52 percent male. Business assets constitute 5.5 percent of wealth. The average tax price is 0.55 (0.66 for last dollar).

Column 3 of Table 3 provides similar statistics on estates not reporting charitable bequests. The attributes of these estates are markedly distinct from those of givers. These individuals are less wealthy, younger, more likely to be married, and male. They also have more of their estates in the form of businesses. Individuals with stronger bequest preferences, as manifested by business ownership, seem less likely to give to charity. More importantly, these individuals face a lower tax price; the tax price is about 0.8 compared to 0.55 (0.65 in case of the last dollar price) for donors.

Comparing the tabulations in Tables 5B and 5C also help clarify the role of taxes in influencing charitable bequests. In the case of two groups of individuals with the same wealth, but one is married, we observe larger bequests reported by the estates facing a smaller tax price. For those with wealth of \$10 to \$20 million, married individuals face a price of 0.70 and contribute \$0.6 million (Table 5B), compared to their counterparts in Table 5C who face a price of 0.45 and contribute an average of \$11.9 million.

The wealthiest married individuals (wealth >\$50 million), report mean wealth of \$181 million and bequeath \$23 million to charity, with an average ratio of such bequests to wealth of 6.4 percent. In contrast, not married individuals with mean after-tax wealth of \$116 million contribute \$156 million; the average fraction of wealth bequeathed is 45.5 percent. In both cases,

the amount given to charity rises with wealth. The fraction giving also rises with wealth and peaks at 80 percent, before it drops to 66.7 percent for the wealthiest group of not-married individuals in Table 5C.

B Multivariate Estimates

While Table 3 shows that donors face a lower tax price, and Tables 5A through 5C suggest that bequests are negatively associated with the tax price, I resort to multivariate analysis to quantify this relationship and shed light on the other determinants of charitable bequests. Consistent with the literature on charitable bequests, the exogenous first dollar tax price is initially employed, followed by the endogenous last dollar tax price.

Table 6 provides Tobit estimates of the budget share allocated to charitable bequests, as specified in equation (4). Beginning with wealth, and as reported in column 1, the estimated coefficient is 0.06 with a standard error of 0.01. Evaluated at mean values, it implies an elasticity of bequests with respect to wealth of about 1.17, evaluated at the sample mean value of the budget share. The elasticity coefficient is computed as:

$$\varepsilon_w = \beta \frac{W}{P.CB} \Phi(z) + 1 \quad (6)$$

where, $\Phi(z)$ is the probability of reporting positive bequests. This estimate is well above many of the estimates in the current literature.

The never married singles, as well as those widowed or divorced, bequeath more than their married counterparts. This is in sharp contrast to the finding in the literature on lifetime contributions. Randolph (1995) and others find married individuals to give more than their non-

married counterparts. A similar pattern is also observed for giving in the year prior to the date of death (Auten and Joulfaian, 1996).

Gender seems to have little effect on giving. Bequests rise with age and are greatest for those age 85 and over. They decline with the share of business assets in the estate. This is consistent with the basic statistics reported in columns 2 and 3 of Table 3, and demonstrates that when bequest preferences are strong individuals leave less to charity.

Consistent with much of the literature, the bequest tax price has a strong effect on charitable bequests. The estimated coefficient is -0.58 with a standard error of 0.03, which yields an implied elasticity of -2.5, evaluated at the sample mean value of the budget share. The elasticity coefficient is computed as:

$$\varepsilon_P = \alpha \frac{W}{P.CB} \Phi(z) - 1 \quad (7)$$

This estimate is well within the range of estimates reported in the literature.¹⁴

While the first dollar tax price is exogenous, it is arguably not the theoretically correct price. The last dollar tax price is perhaps the theoretically correct measure but is endogenous to the size of bequests. In other words, while charitable bequests are influenced by the tax price, the former can determine the latter as well, as these bequests reduce the size of the taxable estate. Because the two can be simultaneously determined, the estimates in column one of Table 6 are replicated with the size of bequests and the tax price simultaneously estimated using FIML.

FIML Tobit estimates are reported in column two of Table 6 with the price equation reported in Appendix 1. The regressors for the latter include the first dollar tax price and the

remaining regressors in Table 6. As for the Tobit equation, the estimated coefficients on all the regressors are of comparable magnitude to those reported earlier, with the exception of the tax price. The estimated tax price coefficient decreases, in absolute value, to -0.28 (S.E.= 0.03), and the implied elasticity by about 30 percent to -1.7 , down from -2.5 estimated earlier. Combined, the price and wealth elasticities suggest that a repeal of the estate tax would lead to a reduction of about 12 percent in bequests, or 44 percent if only the deduction were to be disallowed. These represent about \$1 billion and \$4 billion in charitable bequests reported in 1992, respectively.

To highlight the contribution of the marital deduction to resolving the identification problem, I split the sample into married and not married (widowed, never married single, divorced and separated) groups, and reproduce the FIML estimates. These are reported in columns 3 and 4 of Table 6. In the case of those married, the estimated coefficient on wealth is not significantly different from zero. In contrast, and in the case of those not married, the estimated coefficient on the price is not significantly different from zero.¹⁵

1 Traditional Specification

The specification employed above is significantly different from those employed in the literature, both in using the expenditure share as the dependent variable and using the last dollar price corrected for endogeneity. Perhaps it would be informative to estimate the price elasticities using the more restrictive log-linear specification commonly encountered in the literature. Table 7 replicates the estimates of Table 6, where the dependent variable is replaced with the logarithm of bequests.

The standard Tobit estimates from this constant elasticity specification are generally

similar to those reported in column 1 of Table 6, except for the coefficients on wealth. The estimated elasticity of bequests with respect to wealth decreases to 0.25, a mere fraction of the earlier estimate in Table 6. Again, not married individuals, specially the never married singles, bequeath more than their married counterparts. Gender seems to have little effect on giving. Bequests rise with age and decline with the share of business assets in the estate. The bequest tax price continues to have a strong effect on charitable bequests with an implied elasticity is -2.7, similar to the most recent findings in the literature. This is close to the earlier estimate of -2.5 in column 1 of Table 6.

FIML estimates reported in column 2 are similar to those reported in column 1. The wealth elasticity is 0.26, with a slightly smaller estimated price elasticity; -2.3 vs. -2.7. These estimated elasticities suggest that the repeal of the estate tax would lead to a reduction of 53 percent in charitable bequests; 60 percent if the deduction were to be disallowed.

As with the earlier estimates in Table 6, and in order to highlight the contribution of the marital deduction, I split the sample into married and not married groups. In the case of the former, the wealth elasticity is close to zero (0.055) and the price elasticity is about one-half the estimate in column 2. In contrast, the wealth elasticity for the not-married group is 1.52, about 6 times the estimate in column 2.¹⁶

The estimates from this specification, especially that of wealth, are at odds with those for the budget share specification; the wealth elasticity parameter is much smaller (0.26 vs. 1.16), and the price elasticity somewhat higher (-2.3 vs. -1.7). To test the robustness of each of these two specifications, I estimate separate equations, excluding price as a regressor, for estates of not-married decedents with pre-tax wealth over \$21 million (n=97). At this wealth levels, no

variation in price should be observed (see column 2 of Table 5). For the budget share specification, the estimated wealth elasticity is 1.30, which is fairly close to the FIML estimate of 1.16 reported in Table 6. On the other hand, the estimate for the log specification is 2.15, several multiples of the supposedly constant elasticity estimate of 0.26 in Table 6; the budget share specification yields more consistent estimates of wealth elasticities.

2 Alternative Treatment of Spousal Bequests

Thus far, an implicit assumption in the above estimates is that an individual transfers some or all of his wealth to his wife at death, in preference over charity. In doing so, he relinquishes control over the final disposition of such transfers. As an alternative, I relax this assumption and assume that the deceased retains full control over his estate; all wealth is ultimately transferred to other heirs, children in particular. The individual, for instance, is certain that all spousal bequests will be held to be transferred to the children by the surviving spouse. None of the proceeds are to be consumed by the spouse during her life or used to settle her estate expenses at death. Accordingly, both after-tax wealth and the tax price are computed by setting the marital deduction to zero, with an allowance for an additional exemption of \$600,000 at the spouses death. In the updated estimates of Table 6, summarized in panel (1) of Table 8, the estimated coefficients on wealth become 0.140 (se=0.011) and 0.121 (se=0.006) respectively, for implied elasticities of 1.42 and 1.39, slightly higher than those reported in Table 6. The respective estimated coefficients on price become -0.139 (se=0.037) and 0.036 (se=0.027), for implied price elasticities of -1.42 and -0.89, little over one half the value reported earlier.

In the above scenario, by doing away with the marital deduction, we lose a primary source

of identification and have little independent variation in the tax price.¹⁷ To tackle this problem, I modify the measures of price and wealth by incorporating the effects of state taxes. For each individual I calculate the sum of federal and state taxes, net of the federal credit. I make two critical assumptions. First, I assume that all the heirs are children.¹⁸ I further assume that all wealth is located in the state of residence. I exclude observations where the residence is in a jurisdiction outside the 50 states and the District of Columbia, as well as the never-married single as they are unlikely to have children. As shown in panel (2) of Table 8, the estimated coefficients on wealth become 0.136 (se=0.01) and 0.114 (se=0.006), for implied elasticities of 1.46 and 1.42. The estimated coefficients on price are -0.078 (se=0.034) and 0.047 (se=0.024), with implied elasticity coefficients of -1.26 and -0.83. These are almost identical to the estimates in panel (1). This outcome, however, should not be surprising as there is generally little independent variation in the combined federal and state tax rates as well.¹⁹

Next, I exclude observations with pre-tax wealth under \$5 million which reduces the sample size to 2070 observations. At this range, the maximum statutory federal estate tax rate of 55 percent applies. Except for the bubble range at taxable estates between \$10 and \$21 million where the federal rate is 0.60, observed variations in the tax price are primarily explained by variations in state tax rates.²⁰ As shown in panel (3) of Table 8, the estimated wealth elasticities for this subsample of the wealthiest individuals are 1.57 and 1.55, respectively, and the price elasticities are -2.28 and -1.88. These are quite similar to those in the second column of Table 6, even though the marital deduction is assumed away.

Notwithstanding the identification problem, the underlying assumption for doing away with the marital deduction is inherently unrealistic. Many individuals leave much of their estates

to their spouses because they are concerned about their consumption needs and well being (altruism) or simply because they want to share their wealth with them (joy of giving). In addition, the spouse may very well spend some if not all the transferred wealth. In some instances, however, individuals may place constraints and attempt, not always successfully, to control how much the surviving spouse may consume out of transferred wealth. With some or all of the spousal bequests, they may set up a trust, such as a QTIP trust which qualifies for the marital deduction, and designate the children as the trust beneficiaries.²¹ Trust restrictions dictate how much of the trust the spouse may tap into, and unspent amounts are then transferred to the heirs at the spouse's death. Again, given the lack of information, I assume all the assets held in a QTIP are planned to pass to the heirs and none are to be consumed by the spouse; the disposition of non-QTIP transfers is left to the spouse. I reduce the reported spousal bequests by the amount set aside in a QTIP, adjust the reported marital deduction, and re-estimate the specification in Table 6. Under this scenario, and as reported in panel (4) of Table 8, the estimated coefficients on wealth become 0.075 (se=0.009) and 0.073 (se=0.006), respectively, for implied elasticity coefficients of 1.21 and 1.19. The respective estimated coefficients on price are estimated at -0.46 (se=0.03) and -0.21 (se=0.03). The implied price elasticities become -2.26 and -1.57. Both wealth and price elasticities are almost identical to the FIML estimates reported in Table 6.

The estimates of panel (4) are unaffected by the inclusion of state taxes. The reported price and wealth elasticities reported in panel (5) are virtually identical to those observed earlier. As with panel (3), the estimated effects become larger when the observations are limited to those with wealth over \$5 million. The estimated Tobit price and wealth elasticities, reported in panel (6), are -2.9 and 1.41, and -2.5 and 1.4 for FIML, respectively.

In contrast to the findings in the literature, the estimated wealth elasticities are well in excess of one; charitable giving is more likely to be a superior good. These results are invariant to competing assumptions about the treatment of spousal bequests and their ultimate disposal. While the price elasticity estimates are somewhat sensitive to the latter, they are also generally in excess of one. This should not be surprising as there are abundant substitutes to charitable bequests, namely children and other heirs.

5 CONCLUSION

This paper explores the role of estate taxation in determining charitable bequests. It employs a large sample of estate tax returns of decedents in 1992 and takes a fresh look at the evidence on charitable bequests. The paper also explores issues related to price identification and its endogeneity to bequests, which are traditionally ignored in the literature.

Results from a number of specifications suggest that the estate tax deduction is an important consideration in determining charitable bequests. The deductibility of bequests has a significant effect on such transfers and seems to be “budget” efficient. Overall, however, the estate tax has a modest effect on giving; the tax reduces terminal wealth which mitigates some of stimulative effect of the price reduction. In the absence of the estate tax, the above findings suggest that charitable bequests may decline by about 12 percent.

These bequests are found to increase with wealth and age, and decline with the share of business assets in the estate. The paper also finds that married individuals give the least. In contrast, the literature on lifetime contributions suggests that married individuals give more to charity than their non-married counterparts, even shortly before the date of death. Future

research should focus on this divergence in giving patterns.

In addition to its contribution to the nonprofit sector, charitable bequests may shed light on the savings motives of the wealthy; these transfers are perhaps inconsistent with the view that the bequest motive explains the size of the wealth amassed by the very wealthy. This gives more credence to the view that the wealthy derive utility from holding wealth during life. Future research should also explore the link between charitable bequests and savings motives.

References

- Advisory Commission on Intergovernmental Relations. Significant Features of Fiscal Federalism, 1992 Edition, Volume I, Washington, DC, 1992.
- Auten, Gerald, and David Joulfaian. "Charitable Contributions and Intergenerational Transfers," *Journal of Public Economics* 59 No. 1 (January, 1996): 55-68.
- Barthold, Thomas and Robert Plotnick. "Estate Taxation and Other Determinants of Charitable Bequests," *National Tax Journal* 37 No. 2 (June, 1984): 225-37.
- Boskin, Michael J. Estate Taxation and Charitable Bequests, *Journal of Public Economics* 5 No. 1 (January-February, 1976): 27-56.
- Clotfelter, Charles T. Federal Tax Policy and Charitable Giving, University of Chicago Press, Chicago, 1985.
- Deaton, Angus and John Muellbauer, *Economics and Consumer Behavior*, Cambridge University Press, 1992.
- Eller, Martha Britton. "Federal Taxation of Wealth Transfers, 1992-1995," *SOI Bulletin*, Internal Revenue Service, Statistics of Income, Winter 1996-97, Washington, DC, 1997.
- Feenberg, Daniel. "Are Tax Price Models Really Identified: The Case of Charitable Giving," *National Tax Journal* 40 No. 4, (December, 1987): 629-633.
- Feldstein, Martin. "Charitable Bequests, Estate Taxation, and Intergenerational Wealth Transfers," in *Research Papers*, sponsored by the Commission on Private Philanthropy and Public Needs, vol. III, Special Behavioral Studies of Foundations and Corporations, U.S. Department of the Treasury, 1977: 485-1500.
- Holtz-Eakin, Douglas. "The Uneasy Empirical Case for Abolishing the Estate Tax," paper presented at the 1996 New York University Tax Law Review Colloquium, 1996.
- Internal Revenue Service. *Statistics of Income, Individual Income Tax Returns 1992*, Washington, D.C., 1992.
- Joulfaian, David. *The Federal Estate and Gift Tax: Description, Taxpayer Profile, and Economic Consequences*, OTA Paper no. 80, US Treasury Department, Washington, DC, December, 1998.
- Joulfaian, David. 1991, Charitable Bequests and Estate Taxes, *National Tax Journal* 44 No. 2, (June, 1991): 169-180.

McNees, Stephen. "Deductibility of Charitable Bequests," *National Tax Journal* 26 No. 1 (March, 1973): 79-98.

Office of Management and Budget, *Analytical Perspectives, Budget of the United States Government*, Fiscal Year 1998, Government Printing Office, Washington, DC.

Office of Management and Budget, *Budget of the United States Government*, Fiscal Year 1994, Government Printing Office, Washington, DC.

Poterba, James M. *Inter Vivos Transfers and the Incentive Effects of Estate and Gift taxes in the United States*, MIT, mimeo, 1998

Randolph, William C. "Dynamic Income, Progressive Taxes, and the Timing of Charitable Contributions," *Journal of Political Economy* 103 No. 4 (August, 1995): 709-738.

Steuerle, C. Eugene. *Charitable Giving Patterns of the Wealthy*, in T. Odendahl, ed., *America's Wealthy and the Future of Foundations*, The Foundation Center, New York, 1987.

Wilhelm, Mark O. "Bequest Behavior and the Effect of Heirs' Earnings: Testing the Altruistic Model of Bequests," *American Economic Review* 86 No. 4, (September, 1996): 874-92.

Endnotes

1. The filing threshold in 1992 was \$600,000 in assets held at death. About 60,000 estates tax returns (about 3 percent of decedents) were filed; 11,000 reported charitable bequests (Eller, 1997, p. 51).
2. From a universe of 113.6 million returns, about 3.7 million income tax filers, or 3 percent, reported AGI in excess of \$100,000 on their 1992 income tax returns (SOI 1995, 37). Of the latter, 3.5 million report charitable contributions of \$21.5 billion (SOI 1995, 76). Because of differences in age and filing status (joints represent two individuals), these two groups are not strictly comparable.
3. A similar pattern is also observed when the bequests of individuals are compared with their lifetime contributions, where giving at death is disproportionately larger than giving during life. In the case of decedents in 1982 with estates in excess of \$10 million, for instance, charitable bequests are over 30 times as large as the deduction for contributions reported in the year prior to the date of death (Joulfaian, 1998, Table 14). This is remarkable given the relative advantages of making lifetime gifts to charity. Because such transfers are deductible in computing income and estate tax liabilities, heirs will receive an additional inheritance of $\tau(1-e)$ for every dollar transferred to charity during life instead of death, where τ and e are the income and estate tax rates.
4. Joulfaian (1991, fn 20) reports a price elasticity of -0.7 and wealth elasticity of 0.02 when a linear specification is employed.
5. A more complete model may also encompass lifetime consumption and gifts (Holtz-Eakin, 1996; Poterba, 1998).
6. This is not the general case prior to 1982 when spousal transfers were accorded a partial deduction ($P_{CB} \approx 1-e$ when spousal bequests exceed 50 percent of the estate), or prior to 1948 when the marital deduction did not exist ($P_{CB} \approx 1-e$); community property residents always benefitted from an unlimited marital deduction.
7. See Joulfaian (1998) for additional detail on the estate tax law in effect in 1992.
8. In 1992, the maximum state tax rate on bequests to children exceeded that of the federal credit rate (0.16) in the New York and Rhode Island. A difficulty in measuring state taxes is that they depend on the location of the property and not necessarily on the residence of the individual. A wealthy resident of New York, for instance, may face a net state marginal tax rate of zero on real estate located in New Jersey (0.16-0.16); the rate would be 5 percent (0.21-0.16) if the property were located in New York.
9. These businesses encompass proprietorships, farms, and a minimum of 20 percent ownership share in a corporation or partnership.

10. After 1997, the interest rate is roughly set at an after-tax basis; it is equal to 45 percent of the applicable interest rate (3.6 percent when the interest rate is 8 percent) and 2 percent on the first million, and is no longer deductible.

11. Certain farms and businesses may exclude up to \$750,000 of real property from the estate. The exclusion reflects the difference between the market value and the special use value. The latter is based on capitalized income or the value of properties employed in similar enterprises. Note that the exclusion is not available when heirs do not wish to run the business for ten years and in case of transfers to non-lineal descendants

12. Since the sampling rate is 100 percent, these figures represent the population proportion. The standard deviations for the less wealthy in Table 5A are 1.66, 0.67, 0.79, 0.54, and 1.03 percent, respectively.

13. Indeed, and using the first and last dollar tax prices, the sample correlation coefficients between price and wealth are -0.0773 and -0.0556, respectively. When measured in natural logarithms, the coefficients become -0.3213 and -0.2955.

14. Similar estimates are obtained when price and wealth are interacted with the various indicators for marital status.

15. The sample estimated coefficient on the tax price in an equation for the entire sample that excludes all the other regressors is -0.6645 (se=0.0216). The implied elasticity is -2.86. The estimated coefficient for the married group is -0.371 (se=0.0135), and -0.5427 (se=0.0432) for those not married; the respective elasticities are -3.1433 and -3.0754.

16. The estimated coefficient on the tax price in an equation that excludes all the other regressors is -31.6831 (se=2.3902), with an implied elasticity of -4.008. The estimated coefficient for the married group is -34.26 (se=4.883), and -24.943 (se=2.696) for those not married; the respective elasticities are -1.5484 and -8.1404.

17. The sample correlation coefficients between the natural logarithms of price and wealth are -0.72 and -0.69.

18. The tax rates vary by type of relationship in inheritance tax type states. To allow for estimation, and since this data set does not contain information on relatives and heirs, I assume each individual leaves behind two children (not a critical assumption). Data on state taxes are obtained from the Advisory Commission on Intergovernmental Relations (1992).

19. The natural logarithm of price, first and last, and wealth continue to be highly correlated; the correlation coefficients are -0.75 and -0.73, respectively.

20. At this wealth level, the correlation coefficients between price and wealth are -0.07 and -0.06, respectively.

21. 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. Such transfers represent about 30 percent of the marital deduction, and the maximum QTIP transfer is well over a billion in this sample.

Table 1

Summary of the Findings on the Effect of Estate Taxes on Charitable Bequests

Study	Data Sources	Estimated Price Elasticities (Specification)
McNees (1973)	Federal estate tax returns filed in 1957 and 1959	Not reported; finds taxes to be a significant factor (linear and logarithmic)
Boskin (1976)	Federal estate tax returns filed in 1957 and 1959	-0.94 to -1.8* (linear)
	Federal estate tax returns filed in 1969	-0.2 to -2.53* (linear)
Feldstein (1977)	Aggregate Federal estate tax data pooled for estate tax returns filed in 1948 through 1963.	-4.0 to -0.1 (varies)
Barthold and Plotnick (1984)	Connecticut probate records, 1930s and 1940s	No effect (logarithmic)
Clotfelter (1985)	Federal estate tax returns of decedents in 1976 filed in 1977	-2.79 to -1.67 (logarithmic)
Joulfaian (1991)	Federal estate tax returns for decedents in 1986 filed during 1986-88	-3.0 (logarithmic) -0.7* (linear)
Auten and Joulfaian (1996)	Federal estate tax returns for decedents in 1982 filed during 1982-83	-2.5 (logarithmic)

* Evaluated at mean values.

Table 2			
Estate Tax Rates in Effect in 1992			
Cumulative Taxable Gifts and Estate (\$1,000s)		Statutory Tax Rates	Tax Rates after Unified Credit and Phase-outs
From	To		
0	10	0.18	0.00
10	20	0.20	0.00
20	40	0.22	0.00
40	60	0.24	0.00
60	80	0.26	0.00
80	100	0.28	0.00
100	150	0.30	0.00
150	250	0.32	0.00
250	500	0.34	0.00
500	600	0.37	0.00
600	750	0.37	0.37
750	1,000	0.39	0.39
1,000	1,250	0.41	0.41
1,250	1,500	0.43	0.43
1,500	2,000	0.45	0.45
2,000	2,500	0.49	0.49
2,500	3,000	0.53	0.53
3,000	10,000	0.55	0.55
10,000	21,040*	0.55	0.60
21,040*	and over	0.55	0.55

* Changed to \$17,184,000 after 1997.

Table 3

Means of Selected Variables

Item	Entire Sample	Conditional on Giving	Conditional on Not Giving
Charitable Bequests (\$millions)	0.4631	2.6428	0.0000
Charitable Bequests, Share of Wealth	3.56%	20.29%	0.00%
Disposable Wealth (\$millions)	2.9060	5.2897	2.3995
Before Tax Wealth (\$millions)	3.7964	8.3323	2.8326
Married	59.27%	28.64%	65.78%
Widowed	24.53%	46.55%	19.85%
Single, never married	9.48%	17.15%	7.85%
Divorced or Separated	6.72%	7.66%	6.52%
Male	66.15%	51.72%	69.22%
Age	67.77	78.17	65.56
Age under 45	0.08%	0.04%	0.09%
45 under 55	13.44%	5.08%	15.21%
55 under 65	20.85%	9.39%	23.28%
65 under 75	23.01%	15.04%	24.71%
75 under 85	17.35%	25.57%	15.60%
85 and over	17.36%	41.38%	12.26%
Business Share of Estate	8.50%	5.50%	9.13%
Insurance Share of Estate	12.72%	4.03%	14.56%
Price, First \$	0.7553	0.5520	0.7985
Price, Last \$	0.7743	0.6604	0.7985
Price, First \$ (1-e)	0.7531	0.5501	0.7962
Price, Last \$ (1-e)	0.7721	0.6584	0.7962
Observations	11,915	2,088	9,827

Table 4

Charitable Bequests by Type

After-Tax Wealth		All	Arts	Education/ Medical	Foundations	Religious	Welfare	Other	Mean Number of Categories
Observations with Charitable Bequest									
*****	750,000	299	32	148	5	184	13	120	1.7
750,000	1,000,000	273	23	149	5	134	17	136	1.7
1,000,000	2,500,000	582	80	344	18	305	26	241	1.7
2,500,000	5,000,000	503	80	312	48	245	21	245	1.9
5,000,000	10,000,000	280	47	156	59	113	17	129	1.9
10,000,000	20,000,000	83	18	44	21	29	3	33	1.8
20,000,000	50,000,000	52	12	26	26	14	0	22	1.9
50,000,000	*****	16	5	5	9	4	0	10	2.1
TOTAL		2,088	297	1,184	191	1,028	97	936	1.8
		Mean Bequest	Distribution of Charitable Bequests						
*****	750,000	143,698	3.39%	40.58%	3.81%	31.64%	0.76%	19.82%	
750,000	1,000,000	263,480	3.45%	46.08%	2.55%	13.90%	6.72%	27.29%	
1,000,000	2,500,000	434,200	3.29%	43.01%	6.82%	17.35%	0.98%	28.55%	
2,500,000	5,000,000	1,572,270	3.59%	34.49%	19.95%	10.85%	0.57%	30.54%	
5,000,000	10,000,000	2,715,250	2.93%	37.51%	34.14%	5.34%	1.16%	18.92%	
10,000,000	20,000,000	8,717,650	4.16%	36.84%	30.48%	6.96%	0.26%	21.29%	
20,000,000	50,000,000	19,336,240	8.11%	20.54%	51.12%	0.48%	0.00%	19.76%	
50,000,000	*****	116,899,030	1.32%	4.23%	50.65%	0.26%	0.00%	43.54%	
TOTAL		2,642,790	3.61%	23.01%	38.42%	4.60%	0.42%	29.95%	

Table 5A

Charitable Bequests, Tax Prices, and After-Tax Wealth in 1992: Full Sample

After-Tax Wealth		Returns	Returns with Bequests	Percent of Returns with Bequests (%)	Mean (First \$) Price *100	Mean (Last \$) Price *100	Mean Bequest (\$000s)	Mean After-Tax Wealth (\$000s)	Mean Ratio of Bequests to Wealth (%)
*****	\$500,000	202	12	5.9	99	99	5	391	1.1
500,000	750,000	2,378	287	12.1	82	84	18	647	2.3
750,000	1,000,000	1,949	273	14.0	79	80	37	865	3.2
1,000,000	2,500,000	4,147	582	14.0	77	78	61	1,550	2.4
2,500,000	5,000,000	1,862	503	27.0	66	68	425	3,437	5.9
5,000,000	10,000,000	942	280	29.7	67	70	807	6,746	5.4
10,000,000	20,000,000	282	83	29.4	66	69	2,566	13,431	8.3
20,000,000	50,000,000	124	52	41.9	61	64	8,109	29,141	11.2
50,000,000	*****	29	16	55.2	55	58	64,496	163,460	18.5
TOTAL		11,915	2,088	17.5	76	77	463	2,906	3.6

Note: Wealth is defined as net worth less estate expenses and estate taxes computed in the absence of charitable bequests, plus excluded life insurance proceeds. The ratio of bequests to wealth is computed after reducing bequests by the tax savings from the deduction, i.e., $P_{CB} CB/W$. All means are return weighted.

Table 5B

Charitable Bequests, Tax Prices, and After-Tax Wealth in 1992: Married Individuals

After-Tax Wealth		Returns	Returns with Bequests	Percent of Returns with Bequests (%)	Mean (First \$) Price *100	Mean (Last \$) Price *100	Mean Bequest (\$000s)	Mean After-Tax Wealth (\$000s)	Mean Ratio of Bequests to Wealth (%)
*****	\$500,000	98	1	1.0	99	99	0	388	0.0
500,000	750,000	1,041	29	2.8	97	97	1	651	0.1
750,000	1,000,000	1,045	53	5.1	95	95	1	868	0.1
1,000,000	2,500,000	2,715	140	5.2	90	91	6	1,562	0.3
2,500,000	5,000,000	1,110	154	13.9	79	81	89	3,461	1.3
5,000,000	10,000,000	708	139	19.6	75	77	176	6,794	1.2
10,000,000	20,000,000	232	44	19.0	70	73	552	13,434	1.8
20,000,000	50,000,000	93	28	30.1	66	69	1,585	28,324	2.3
50,000,000	*****	20	10	50.0	59	62	23,174	181,628	6.4
TOTAL		7,062	598	8.5	87	88	139	3,384	0.6

Note: Wealth is defined as net worth less estate expenses and estate taxes computed in the absence of charitable bequests, plus excluded life insurance proceeds. The ratio of bequests to wealth is computed after reducing bequests by the tax savings from the deduction, i.e., $P_{CB} CB/W$. All means are return weighted.

Table 5C

Charitable Bequests, Tax Prices, and After-Tax Wealth in 1992: Individuals Not Married**

After-Tax Wealth		Returns	Returns with Bequests	Percent of Returns with Bequests (%)	Mean (First \$) Price *100	Mean (Last \$) Price *100	Mean Bequest (\$000s)	Mean After-Tax Wealth (\$000s)	Mean Ratio of Bequests to Wealth (%)
*****	\$500,000	104	11	10.6	99	99	9	394	2.2
500,000	750,000	1,337	258	19.3	71	73	31	644	4.1
750,000	1,000,000	904	220	24.3	60	63	78	861	6.8
1,000,000	2,500,000	1,432	442	30.9	52	55	165	1,526	6.5
2,500,000	5,000,000	752	349	46.4	46	50	920	3,402	12.6
5,000,000	10,000,000	234	141	60.3	42	47	2,718	6,602	18.1
10,000,000	20,000,000	50	39	78.0	46	52	11,912	13,419	38.7
20,000,000	50,000,000	31	24	77.4	46	49	27,679	31,589	37.8
50,000,000	*****	9	6	66.7	48	48	156,323	123,086	45.5
TOTAL		4,853	1,490	30.7	58	61	935	2,210	7.9

Note: Wealth is defined as net worth less estate expenses and estate taxes computed in the absence of charitable bequests, plus excluded life insurance proceeds. The ratio of bequests to wealth is computed after reducing bequests by the tax savings from the deduction, i.e., $P_{CB} CB/W$. All means are return weighted.

** Includes never married singles, widowed, and divorced individuals.

Table 6

Estimates of Charitable Bequests/Wealth

	Tobit		FIML		FIML, Married only		FIML, Not Married only	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Constant	-1.4741	0.1230	-1.2558	0.0858	-0.3102	0.0747	-2.0631	0.1377
<i>ln</i> Tax Price	-0.5495	0.0334	-0.2795	0.0308	-0.3019	0.0202	0.0694	0.0599
<i>ln</i> Disposable Wealth	0.0612	0.0086	0.0641	0.0064	0.0050	0.0053	0.1445	0.0114
Business Share of Estate	-0.1621	0.0396	-0.1229	0.0270	-0.0344	0.0199	-0.2195	0.0431
Male	-0.0259	0.0135	-0.0188	0.0088	0.0018	0.0102	-0.0235	0.0113
Age under 45	-0.3106	0.0314	-0.2016	0.0198	-0.0853	0.0209	0.1679	0.0148
45 under 55	-0.2633	0.0269	-0.1724	0.0181	-0.1038	0.0178	0.0506	0.0189
55 under 65	-0.2484	0.0216	-0.1730	0.0146	-0.1163	0.0139	-0.2333	0.0266
65 under 75	-0.2083	0.0184	-0.1501	0.0122	-0.1020	0.0124	-0.1877	0.0257
75 under 85	-0.0894	0.0163	-0.0697	0.0107	-0.0351	0.0105	-0.1570	0.0202
Widowed	0.1112	0.0190	0.1280	0.0133	--	--	--	--
Single, never married	0.3629	0.0222	0.2993	0.0139	--	--	-0.1228	0.0165
Divorced/Separated	0.1812	0.0257	0.1754	0.0168	--	--	-0.0670	0.0139
North	0.0326	0.0172	0.0357	0.0115	0.0188	0.0124	0.0258	0.0151
Midwest	0.0658	0.0181	0.0433	0.0121	0.0264	0.0130	0.0388	0.0158
South	0.0223	0.0167	0.0144	0.0111	0.0209	0.0116	0.0046	0.0146
Sigma	0.4014	0.0068	1.5846	0.0367	0.1401	0.0024	0.2165	0.0035
Observations	11,915		11,915		7,062		4,853	
Wealth Elasticity	1.1652		1.1602		1.0263		1.5453	
Price Elasticity	-2.4829		-1.6982		-2.5750		-0.7382	

Table 7

Estimates of \ln Charitable Bequests

	Tobit		FIML		FIML, Married only		FIML, Not Married only	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Constant	-48.2400	4.0537	-46.0750	4.4260	-38.8780	7.1917	-69.7910	7.6419
\ln Tax Price	-22.1290	1.1017	-19.2480	1.8107	-26.5560	4.3677	-3.5520	2.1108
\ln Disposable Wealth	2.0581	0.2819	2.1708	0.2848	1.3090	0.4226	4.6650	0.5685
Business Share of Estate	-5.3669	1.2923	-4.9192	1.2364	-4.5337	1.9872	-7.9390	1.8386
Male	-0.7369	0.4478	-0.6918	0.4093	-0.0811	0.8111	-1.0666	0.4760
Age under 45	-10.2170	1.0324	-9.1168	1.1090	-7.3034	2.0547	5.7403	0.8042
45 under 55	-9.0228	0.8802	-8.1847	0.9928	-8.0630	1.7902	1.5937	0.7509
55 under 65	-9.0044	0.7128	-8.4779	0.8934	-9.2493	1.7845	-9.6385	1.3408
65 under 75	-7.6586	0.6113	-7.3788	0.7834	-7.5896	1.5851	-8.0621	1.2462
75 under 85	-3.1104	0.5460	-3.1711	0.5590	-2.7477	1.1078	-6.9833	1.0436
Widowed	1.7403	0.6272	1.7864	0.5660	--	--	--	--
Single, never married	8.9520	0.7412	8.3233	0.7978	--	--	-6.3600	0.8809
Divorced/Separated	4.0804	0.8528	3.8806	0.7739	--	--	-3.0711	0.6408
North	1.6359	0.5698	1.7707	0.5403	2.0487	1.1024	1.5811	0.6223
Midwest	2.3919	0.6014	2.1765	0.5717	3.2280	1.1734	1.4706	0.6645
South	0.9976	0.5524	0.9545	0.4979	2.1021	1.0163	0.3631	0.5772
Sigma	13.7070	0.2557	11.4150	0.6956	12.4690	1.6275	10.7930	0.7718
Observations	11,915		11,915		7,062		4,853	
Wealth Elasticity	0.2507		0.2641		0.0556		1.5186	
Price Elasticity	-2.6959		-2.3417		-1.1276		-1.1563	

Table 8

Tobit Estimates for Charitable Bequests/Wealth Using Alternative Treatments of Spousal Bequests

Tobit	<i>ln</i> Wealth			<i>ln</i> Price		
	Coefficient	Standard Error	Elasticity	Coefficient	Standard Error	Elasticity
	1. Set Marital deduction=0 (n=11,915) *					
Standard	0.1397	0.0107	1.4194	-0.1391	0.0372	-1.4175
FIML	0.1212	0.0061	1.3904	0.0356	0.0265	-0.8854
	2. Plus, Account for State Taxes, Exclude Never-Married Singles (n=10,758)					
Standard	0.1361	0.0104	1.4631	-0.0775	0.0337	-1.2638
FIML	0.1143	0.0055	1.4164	0.0467	0.0235	-0.8297
	3. Plus, Exclude Wealth<\$5 Million (n=2,070) ***					
Standard	0.1489	0.0165	1.5660	-0.3373	0.1384	-2.2824
FIML	0.1279	0.0136	1.5521	-0.2047	0.1287	-1.8836
	4. Reduce Marital Deduction by QTIP Trust (n=11,915) **					
Standard	0.0749	0.0089	1.2071	-0.4556	0.0325	-2.2594
FIML	0.0731	0.0064	1.1949	-0.2133	0.0292	-1.5684
	5. Plus, Account for State Taxes, Exclude Never-Married Singles (n=10,758)					
Standard	0.0743	0.0084	1.2384	-0.3556	0.0286	-2.1416
FIML	0.0667	0.0056	1.2124	-0.1730	0.0245	-1.5509
	6. Plus, Exclude Wealth<\$5 Million (n=2,070) ***					
Standard	0.1169	0.0157	1.4133	-0.5370	0.0578	-2.8991
FIML	0.1055	0.0153	1.3948	-0.4141	0.0702	-2.5494

* Surviving spouse consumption=0; spouse has no control over ultimate disposal of bequests from decedent.

** Surviving spouse consumption of QTIP trust =0; spouse has control over ultimate disposal of non-QTIP bequests.

*** Variations in price are primarily explained by variations in state tax rates.

Appendix 1

Equation for the Last Dollar Tax Price

Variables	Coefficient	Standard Error
Constant	-0.0022	0.0255
<i>ln</i> Tax Price	0.9369	0.0108
<i>ln</i> Disposable Wealth	0.0025	0.0020
Business Share of Estate	-0.0098	0.0075
Male	-0.0041	0.0024
Age under 45	-0.0395	0.0062
45 under 55	-0.0328	0.0058
55 under 65	-0.0312	0.0043
65 under 75	-0.0301	0.0035
75 under 85	-0.0194	0.0027
Widowed	-0.0141	0.0038
Single, never married	0.0364	0.0040
Divorced/Separated	-0.0085	0.0055
North	-0.0076	0.0033
Midwest	0.0059	0.0032
South	0.0016	0.0029
Ψ^*	1.5846	0.0367

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