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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. Such transfers are exempt from estate taxation unlike bequests to children which can be taxed at a maximum statutory rate of 0.55. Thus, by lowering the price of charitable giving, taxes may influence the disposition of terminal wealth. In this paper, I examine the effects of estate taxes on charitable bequests. I employ data from estate tax returns of decedents in 1992 filed during 1992 through 1994. The results suggest that estate taxes are an important consideration in determining charitable bequests.

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I. Introduction

Charitable bequests represent an important source of philanthropic support. In 1992, about \$8 billion in charitable bequests were reported by 11,000 estates, from a universe of 60,000 estates (2.7 percent of all adult decedents) who filed estate tax returns (Eller, 1997, p. 51).¹ This compares to about \$21 billion in charitable contributions reported by the top 3.7 million income tax returns filed, or 3 percent of all filers (Internal Revenue Service, 1995, p. 76).² While these donors outnumber the estate tax filing population by 60 fold, their lifetime giving is less than 3 times the transfers to charity at death. A similar pattern is also observed when lifetime contributions are compared with the bequests of individual decedents, where giving at death is disproportionately larger than giving during life.³

While a small fraction of estates report such bequests, overall they are relatively more generous than their living counterparts. Indeed, to 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

¹ The filing threshold in 1992 was \$600,000 in assets held at death.

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).

³ In the case of decedents with estates in excess of \$10 million (1982 dollars), 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.

charitable bequests is “budget” efficient in that it stimulates charitable giving by more than the revenue loss to the government. Also of important interest are the factors that determine the observed pattern of giving. Is this pattern, for instance, influenced by the asset composition of estates and bequest preferences, dynastic or otherwise? Are entrepreneurs, who are perhaps more dynastically motivated, more likely to transfer their wealth to their heirs?

In this paper, I evaluate 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.

Section 2 of the paper reviews the literature on charitable bequests. In Section 3, a discussion of the issues related to modeling charitable bequests is presented, followed by a description of the data sources and the construction of variables. Empirical results are reported in Section 4. Concluding comments are provided in Section 5.

II. 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 find that estate taxes are an important consideration in making bequests. An exception is Barthold and Plotnick (1984) who use probate records and find that estate taxation to have insignificant effects. Figure 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 are an important consideration in making 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 files, 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) studied Connecticut probate records of decedents in the 1930s and 1940s. Defining wealth as total assets or gross estate, they find price elasticities not different from zero. Feldstein (1977) employed 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) used estate tax data for decedents in 1976 with returns filed in 1977. His data is based on a 20 percent random 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 using a log-linear specification, finds a tax price elasticity of -3.0 and wealth elasticity of 0.23.⁴ This study excludes estates of decedents age 30 and younger, and those with after-tax wealth under \$5,000. The tax price and wealth are computed by setting the credit for state death taxes, described below, to zero. In effect, the computed tax liability, reflects the combined state and federal death taxes.

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. This sample is limited to estates of parents with assets in

⁴ Joulfaian (1991, fn 20) also reports a price elasticity of -0.7 and wealth elasticity of 0.02 when a linear specification is employed.

excess of \$300,000. The data, in which the wealthy are over sampled, is a sub-sample of the SOI file on decedents in 1982.

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.

III. 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 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

$$U = U(CB, B) \tag{1}$$

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, or:

$$P_{CB}CB + B \leq W \tag{2}$$

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

⁵ A more complete model may also encompass lifetime consumption and gifts (Holtz-Eakin, 1996; Poterba, 1998).

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 $P_{CB} = 1 - e$.

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,

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

To empirically model the determinants of charitable bequests, I estimate a budget share model which is specified as:

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

The dependent variable 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 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 overall sampling rate is about 20 percent, and ranges from 100 percent for gross estates of \$5 million and over down to 10 percent for those under \$1 million.

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 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 jointly held assets and life insurance proceeds not included in the estate. Information on charitable and spousal transfers are also reported. 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 Figure 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 of 2 of Figure 2.⁶ 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.

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 0.55.⁷ For the wealthiest estates, the maximum price in 1992, the year of death, is 0.45 or one minus 0.55.

⁶ Note that because the tax applies to cumulative lifetime transfers and taxable estates, the unified credit applies first to the former and any unused amounts may apply to the latter. Thus, individuals with cumulative taxable gifts in excess of \$600,000 use up the credit and it is no longer available to reduce the estate tax liability.

⁷ See Joulfaian (1998) for additional detail on the estate tax law in effect in 1992.

Consistent with the current literature, the estate tax rate is computed by setting charitable bequests to zero. While this first dollar measure of the rate is exogenous to the amount of giving, it may not be the theoretically correct measure (Randolph, 1995). As an alternative, the tax rate is computed by adding \$1,000 to charitable bequests. Because the latter is certainly endogenous, a modified measure of the first dollar tax rate is used as an instrument. In computing this instrument, both charitable bequests and lifetime gifts are set 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 businesses⁸ exceeds 35 percent, the pro-rata tax may be deferred and paid in installments over a period of 14 years; only interest is paid in the first five years and the principle. The interest rate on the tax attributable to the first million in taxable estate is set at 4 percent (2 percent after 1997). 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. 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 some 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.⁹

⁸ These businesses encompass proprietorships, farms, and a minimum of 20 percent ownership share in a corporation or partnership.

⁹ Altogether, only 716 estates of decedents in 1992 elected to defer taxes (Eller, 1997).

Wealth

Wealth is defined as total assets less debt reported on the estate tax return. 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.¹⁰ 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, consistent with the budget constraint in (2).

3. Bequest Preferences

Controlling for age and marital status, three variables are considered as proxies for bequest preferences. These include the amount of life insurance proceeds and business assets in the estate, as well as lifetime gifts. Life insurance policies are usually purchased to benefit the surviving spouse or children.¹¹ Entrepreneurs and farmers may have dynastic preferences and wish to pass closely held business to the children. The size of lifetime gifts may also reflect a preference for bequests, especially as estate planning may require it as a tax minimizing strategy. Lifetime gifts, of course, may also have the opposite effect if parents, for instance, have already made the optimal transfers to their children during life.

4. Summary Statistics

The sample means for select variables are reported in Table 1. The first column in Table 1 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. Fewer than 18 percent report charitable

¹⁰ Certain farms and businesses may exclude up to \$750,000 of real property. Note, however, that only 305 estates qualified for such exclusion in 1992 (Eller, 1997).

¹¹ They may also be purchased by business partners to avoid liquidation of businesses.

bequests. The average age of a decedent 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 assets and life insurance proceeds make-up 11.7 percent and 12.7 percent of wealth, respectively. About 16 percent have made lifetime gifts with an unconditional mean of \$88,000. The average first dollar tax price is 0.75, or 0.77 using the last dollar tax rate. Also reported are the price measures defined as 1-e, ignoring the deferral of tax unlike equation (7); the two sets of measures are fairly close reflecting the rarity of the election of deferrals.

Table 2A 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 declines with the tax price. 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. The question 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.¹² Being married, however, does not only affect marginal

¹² 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, and the exclusion due to special use valuation also aid in the

tax rates, but may also affect the propensity to give in other ways. There are, for instance, two potential donors and, perhaps, two decision makers. This requires that marital status be controlled for.

A casual observation of columns 4, 5, and 7 of Table 2A suggests a weak correlation between wealth and the tax price, especially in the case of after-tax wealth in excess of \$2.5 million range. Also consider Tables 2B and 2C which provide tabulations on the attributes of the estates similar to those reported in Table 2A but provided by marital status. For comparable wealth levels, the tax price varies considerably between married individuals (Table 2B) and those not married (Table 2C). 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. Indeed, and using the first and last dollar tax prices, the simple correlation coefficients with respect to wealth are -0.0773 and -0.0556, respectively.

IV. Empirical Results

A. Basic Statistics

Column 2 of Table 1 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 and life insurance proceeds constitute 4 and 5.7 percent of wealth, respectively. Lifetime gifts are \$200,000 on average, reported by 27 percent of the estates. The average tax price is 0.75 (0.77 for last dollar).

Column 3 of Table 1 provides similar statistics but restricted to the estates not reporting charitable bequests. The attributes of the estates are markedly distinct from givers. These individual are less wealthy, younger, more likely to be married, and male. They also

have more of their estate in the form of businesses or life insurance proceeds. Individuals with stronger bequest preferences, as manifested by life insurance and business ownership, seem less likely to give to charity. In contrast, they have made less lifetime gifts. 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).

Comparing the tabulations in Tables 2B and 2C 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 2B), compared to their counterparts in Table 2C 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 2C.¹³

B. Multivariate Estimates

While Tables 2A through 2C 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 determinant 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 3 provides Tobit equation estimates of the budget share allocated to charitable bequests, as specified in equation (4). The elasticity coefficients with respect to the two

¹³ Since the sampling rate is 100 percent, these two figures represent the population proportion. The standard deviations for the less wealthy are 3.02, 1.08, 1.42, 1.22, and 1.83 percent, respectively.

variables of interest, price and wealth, are computed as:

$$\varepsilon_P = \alpha \frac{W}{P.CB} \Phi(z) - 1 \quad (6)$$

and,

$$\varepsilon_W = \beta \frac{W}{P.CB} \Phi(z) + 1 \quad (7)$$

where $\Phi(z)$ is the probability of reporting positive bequests.

Beginning with wealth, the estimated coefficient is 0.088 with a standard error of 0.01. Evaluated at mean values, it implies an elasticity of bequests with respect to wealth of about 1.2, evaluated at the sample mean value of the budget share. This estimate is well above many of the estimates in the current literature.

Not surprisingly, the never married singles, as well as those widowed or divorced, bequeath more than their married counterparts. 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 life insurance proceeds and business assets in the estate, as well as the size of lifetime gifts. This is consistent with the basic statistics reported in columns 2 and 3 of Table 1, 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 -0.46 with a standard error of 0.03, which yields an implied elasticity of -2.27, evaluated at the sample mean value of the expenditure share. The sample estimate is well within the range of estimates reported in the literature.

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 3 are replicated with the size of bequests and the tax price simultaneously

estimated.

FIML Tobit estimates are reported in column two of Table 3. In general, 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 -0.26 (S.E. = 0.03), and the implied elasticity to -1.64, down from -2.27 estimated earlier.¹⁴ 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 48 percent if only the deduction were to be disallowed.¹⁵

2. 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 log-linear specification commonly encountered in the literature. Table 4 replicates the estimates of Table 3, 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 3, except for the coefficients on wealth and price. The estimated elasticity of bequests with respect to wealth decreases to 0.34, a fraction of the earlier estimate in Table 3. 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 life insurance proceeds in the estate. They also 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 -2.35, similar to the most recent findings in the literature. This is close to the earlier estimate of -

¹⁴ If we ignore the tax deferral for businesses and use the conventional definition of price, 1-e, the estimated price elasticities become -1.74 and -2.33, respectively; wealth elasticities become 1.18 and 0.29, also virtually identical to those reported in Tables 3 and 4.

¹⁵ These represent about \$1.2 and \$4.7 billion in bequests by decedents in 1995, respectively.

2.27 in column 1 of Table 3.

With the exception of the coefficient on price, FIML estimates reported in column 2 are similar to those reported in column 1. The wealth elasticity is 0.33, with a slightly smaller estimated price elasticity; -2.07 vs. -2.35. These estimated elasticities suggest that the repeal of the estate tax would lead to a reduction of 59 percent in charitable bequests; 67 percent if the deduction were to be disallowed.

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 (0.33 vs. 1.19), and the price elasticity somewhat higher (-2.07 vs. -1.64). To test the robustness of each of these two specification, I estimate separate equations, excluding price as a regressor, for estates of not-married decedents with pre-tax wealth over \$21 million. At this wealth levels, no variation in price should be observed (see column 2 of Table 2). For the budget share specification, the estimated wealth elasticity is 1.28,¹⁶ which is fairly close to the FIML estimate of 1.19 reported in Table 3. On the other hand, the estimate for the log specification is 1.91, much different from the supposedly constant elasticity estimate of 0.33 in Table 4; the budget share specification yields more consistent estimates of wealth elasticities.¹⁷

V. Conclusion

This paper explored the role of estate taxation in determining charitable bequests. It employs a large sample of estate tax returns of decedents in 1992 and experiments with a number of specifications. Regardless of the specification employed, estate taxation is found to

¹⁶ The sample size is 97 observations. The equations do not include price as a regressor. If we further exclude all remaining variables other than wealth, the estimated elasticities of wealth become 1.133 and 1.0188, respectively.

¹⁷ In an alternative specification, the estimates in Table 3 are reproduced using a Heckman type procedure. In the case of column 1, first a Probit equation is estimated followed by an OLS estimates for positive observations, augmented with the inverse mill's ratio (λ), with corrected standard errors. The estimated coefficient on the first dollar tax price in the Probit equation is -1.388 (se=0.078), and -0.749 (se=0.286) in the level equation; the coefficient on λ is 0.710 (0.251). The implied elasticity is -3.67. When using the last dollar price, with first dollar price as instrument, the estimated coefficient from Probit is -1.456 (se=0.086), very close to the earlier estimate. The estimated coefficient from the 2SLS level equation is -0.355 (se=0.350), for an implied elasticity of -1.75. The estimated coefficient on λ is 0.321 (se=0.272); as with the tax price coefficient, neither are precisely measured.

influence charitable bequests. These bequests increase with wealth, age, and decline with the share of life insurance proceeds and business assets in the estate. Compared to married individuals, the never-married single contributes the most.

The paper also explores issues related to price identification and its endogeneity to bequests, which are traditionally ignored in the literature. It demonstrates that the use of cross sectional data on charitable bequests does not seriously hinder the identification of the price effects separately from those of wealth.

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 explore the link between charitable bequests and savings motives.

References

- Auten, Gerald, and David Joulfaian. "Charitable Contributions and Intergenerational Transfers," *Journal of Public Economics* 59, 1996, 55-68.
- Barthold, Thomas and Robert Plotnick. "Estate Taxation and Other Determinants of Charitable Bequests," *National Tax Journal* 37, 1984, 225-37.
- Boskin, Michael J. 1976, Estate Taxation and Charitable Bequests, *Journal of Public Economics* 5, 27-56.
- Clotfelter, Charles T. 1985, Federal Tax Policy and Charitable Giving (University of Chicago Press, Chicago).
- Eller, Martha Britton, 1997. "Federal Taxation of Wealth Transfers, 1992-1995," SOI Bulletin, Internal Revenue Service, Statistics of Income, Winter 1996-97 (Washington, DC).
- Feenberg, Daniel 1987. "Are Tax Price Models Really Identified: The Case of Charitable Giving," *National Tax Journal*, December, 629-633.
- Feldstein, Martin. 1977, "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, 1485-1500.
- 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, 1992, Statistics of Income, Corporation Income Tax Returns. (Washington, D.C.).
- Internal Revenue Service, 1992b, Statistics of Income, Individual Income Tax Returns 1992. (Washington, D.C.).
- Joulfaian, David. 1998, The Federal Estate and Gift Tax: Description, Taxpayer Profile, and Economic Consequences, OTA Paper no. 80, US Treasury Department, (Washington, DC).
- Joulfaian, David. 1991, Charitable Bequests and Estate Taxes, *National Tax Journal* 44, 169-180.
- McNees, Stephen. 1973, "Deductibility of Charitable Bequests," *National Tax Journal* 26, 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. 1998 Inter Vivos Transfers and the Incentive Effects of Estate and Gift taxes in the United States, MIT, mimeo.

Randolph, William C. 1995. "Dynamic Income, Progressive Taxes, and the Timing of Charitable Contributions," *Journal of Political Economy* 103:4, August, 709-738.

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

Figure 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
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.

Figure 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 1			
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)	2.9063	5.2904	2.3997
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	6.72%	7.66%	6.52%
Male	66.15%	51.72%	69.22%
Age	67.77	78.17	65.56
Under 35	0.01%	0.01%	0.02%
35 under 45	0.07%	0.03%	0.07%
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	11.74%	5.74%	12.97%
Insurance Share of Estate	12.72%	4.03%	14.56%
Lifetime Gifts (\$millions)	0.0878	0.2008	0.0638
Percent Giving	16.19%	26.77%	13.94%
Price, First \$	0.7488	0.5478	0.7915
Price, Last \$	0.7697	0.6566	0.7937
Price, First \$ (1-e)	0.7510	0.5496	0.7915
Price, Last \$ (1-e)	0.7719	0.6584	0.7937
Observations	11,915	2,088	9,827

Table 2A

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 (%)
*****	202	12	5.9	99	99	5	391	1.1
500,000	2,372	285	12	82	84	18	647	2.4
750,000	1,958	275	14.0	78	80	37	864	3.2
1,000,000	4,150	581	14.0	76	78	61	1,550	2.4
2,500,000	1,852	504	27.2	65	68	427	3,437	5.9
5,000,000	936	278	29.7	65	69	809	6,749	5.4
10,000,000	283	84	29.7	64	68	2,563	13,431	8.3
20,000,000	123	52	42.3	57	63	8,175	29,140	11.3
50,000,000	29	16	55.2	49	54	64,496	163,459	18.5
TOTAL	11,915	2,088	17.5	75	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}/W . All means are return weighted.

Table 2B

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 (%)	
*****	98	1	1.0	99	99	0	388	0	
500,000	1,040	29	2.8	97	97	1	651	0.1	
750,000	1,044	53	5.1	95	95	1	868	0.1	
1,000,000	2,717	140	5.2	90	90	6	1,562	0.3	
2,500,000	1,111	153	13.8	78	80	89	3,461	1.3	
5,000,000	706	139	19.7	73	76	174	6,789	1.2	
10,000,000	233	45	19.3	68	72	557	13,434	1.8	
20,000,000	93	28	30.1	61	68	1,585	28,324	2.3	
50,000,000	20	10	50.0	53	60	23,174	181,628	6.4	
*****	7,062	598	8.5	87	88	139	3,384	0.6	
TOTAL									

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}/W . All means are return weighted.

Table 2C

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 (%)	
*****	104	11	10.6	99	99	9	394	2.2	
500,000	1332	256	19.2	70	74	31	644	4.1	
750,000	911	222	24.4	60	63	77	861	6.8	
1,000,000	1,433	441	30.8	51	54	165	1,526	6.4	
2,500,000	743	351	47.2	44	49	932	3,403	12.7	
5,000,000	231	139	60.2	40	45	2,748	6,612	18.3	
10,000,000	50	39	78.0	44	49	11,912	13,419	38.4	
20,000,000	30	24	80.0	44	47	28,602	31,589	39.1	
50,000,000	9	6	66.7	42	42	156,323	123,082	45.5	
TOTAL	4,853	1,490	30.7	57	61	935	2,211	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}/W . All means are return weighted.

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

Table 3				
Estimates of Charitable Bequests/Wealth				
Explanatory Variable	Tobit		FIML Tobit	
	Coefficient	Standard Error	Coefficient	Standard Error
Constant	-1.8181	0.1273	-1.4577	0.0874
<i>ln</i> Disposable Wealth	0.0886	0.0089	0.0782	0.0064
Widowed	0.1387	0.0192	0.1456	0.0138
Single, never married	0.3796	0.0224	0.3168	0.0145
Divorced	0.2012	0.0260	0.1929	0.0174
Male	-0.0254	0.0135	-0.0185	0.0093
Under 45	-0.2883	0.0337	-0.1961	0.0232
45 under 55	-0.2556	0.0284	-0.1771	0.0203
55 under 65	-0.2538	0.0218	-0.1819	0.0154
65 under 75	-0.2128	0.0183	-0.1588	0.0127
75 under 85	-0.0908	0.0163	-0.0710	0.0112
<i>ln</i> Tax Price	-0.4618	0.0318	-0.2592	0.0295
Insurance Share of Estate	-0.1149	0.0448	-0.0691	0.0333
Business Share of Estate	-0.2331	0.0395	-0.1681	0.0273
North	0.0409	0.0171	0.0419	0.0119
Midwest	0.0718	0.0180	0.0506	0.0125
South	0.0328	0.0166	0.0221	0.0115
<i>ln</i> Lifetime Gifts	-0.0082	0.0013	-0.0048	0.0009
Log Likelihood	-3299		25400	
Observations	11,915		11,915	
Wealth Elasticity	1.2435		1.1916	
Price Elasticity	-2.2685		-1.6356	

Table 4				
Estimates of <i>ln</i> Charitable Bequests				
Explanatory Variable	Tobit		FIML Tobit	
	Coefficient	Standard Error	Coefficient	Standard Error
Constant	-57.2740	4.2491	-53.429	4.7967
<i>ln</i> Disposable Wealth	2.7805	0.2947	2.7205	0.30789
Widowed	2.6203	0.6387	2.4935	0.58795
Single, never married	9.6441	0.7558	8.9891	0.83413
Divorced	4.7472	0.8707	4.506	0.80471
Male	-0.7211	0.4551	-0.70112	0.42332
Under 45	-9.4877	1.1243	-8.6027	1.1893
45 under 55	-8.7577	0.9435	-8.06	1.0347
55 under 65	-9.1958	0.7302	-8.6875	0.90683
65 under 75	-7.8989	0.6161	-7.6319	0.78533
75 under 85	-3.2268	0.5496	-3.224	0.56777
<i>ln</i> Tax Price	-19.0040	1.0617	-17.046	1.6207
Insurance Share of Estate	-3.9773	1.4672	-3.2001	1.3227
Business Share of Estate	-8.2951	1.3073	-7.4958	1.2732
North	2.0004	0.5738	2.1295	0.55302
Midwest	2.6883	0.6054	2.5086	0.58704
South	1.3717	0.5556	1.2868	0.51037
<i>ln</i> Lifetime Gifts	-0.1763	0.0434	-0.1235	0.04104
Log Likelihood	-11022		16755	
Observations	11,915		11,915	
Wealth Elasticity	0.3436		0.3301	
Price Elasticity	-2.3482		-2.0685	