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CHARITABLE BEQUESTS AND THE REPEAL OF THE ESTATE TAX

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I. INTRODUCTION[1]

Recent years have seen tremendous changes in tax law. For example, the Economic Growth and Tax Relief Reconciliation Act of 2001 (EGTRRA 2001) phases out the estate tax over 10 years until it is fully repealed in 2010. Those changes reduce federal revenues but also alter various incentives. For example, the deductibility of charitable bequests from one's taxable estate provides an incentive to make these bequests so that eliminating the estate tax would eliminate this incentive.

Recently, two important articles have presented substantially different estimates of the effect of estate tax repeal on charitable bequests. Joulfaian (2000) estimates the relationship in 1992 between charitable bequests and variables such as the price of giving and after-tax wealth. With those estimates, he calculates that estate tax repeal would cause charitable bequests to decline by about 12 percent. Bakija, et al. (2003) analyze simulated panel data and find that charitable bequests exhibit much less sensitivity to the tax price than is suggested by Joulfaian's estimates. In spite of this lower estimate, when Bakija and Gale (2003) use that estimate to calculate the effect of estate tax repeal they conclude that charitable bequests would fall by about 37 percent.

This paper re-examines the results of the aforementioned papers by applying their methods to 1999 and 2000 data. Once the differences in methodologies and variable definitions are reconciled, the estimates are quite close. Further, confidence intervals can then be formed around the estimated decline in charitable bequests.

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[1] The author would like to thank Jon Bakija, David Joulfaian and Bob Williams for their helpful comments, especially regarding section II.

II. THEORY

This section graphically reviews the concepts behind two variables that are critical to the study of charitable bequests and the estate tax: the share of wealth charitably bequeathed and the increase in wealth from estate tax repeal. Although written specifically about the case at hand, it holds generally for any tax system that imposes a piecewise linear budget constraint.

In this example a decedent's estate may be dispersed in one of two ways: it may be given to heirs or it may be given to charity. The tradeoff between the two is defined by a budget constraint, and in the absence of the estate tax an extra dollar contributed reduces the bequests to heirs by one dollar (see figure 1). Heirs could receive at most W_{PT}, and if C_1 is given to charity the budget share contributed S is C_1/W_{PT}.

If estates were taxed at a single rate M above some exempt amount W_e, then heirs could no longer receive W_{PT} (see figure 2). The maximum available to heirs is after-tax wealth with no charitable contributions W_2, at which point the estate tax is $T_0 = W_{PT} - W_2$. Given contributions C_2, the heirs will receive H_2, but the loss to heirs will no longer be simply the amount contributed.

Instead, we must account for the decrease in taxes caused by the deductibility of charitable contributions. Without charitable contributions the estate tax is T_0, but with contributions C_2 the tax is only T_2. The loss to heirs is thus $C_2 - [T_0 - T_2]$, which is identical to $W_2 - H_2$, the difference between what the heirs could receive and what they actually receive. Because taxes decrease by M for every dollar given away the loss may also be written as $[C_2 - M\ C_2] = (1-M)\ C_2$ or $P\ C_2$, where P is the "tax price" of a contribution.

The appropriate measure of the budget share contributed is then $(C_2 - [T_0 - T_2])/W_2$, or $P \ C_2/W_2$. The denominator W_2 equals $W_{PT} - T_0$, the amount potentially available to heirs. Taxes here must be estimated in the absence of charitable bequests. Using the actual taxes paid would define the denominator as $W_{PT} - T_2$, which would overestimate the amount available to heirs and thus would underestimate the budget share contributed.

Introducing a progressive rate structure complicates the analysis (see figure 3). As before, wealth greater than W_{e1} is taxed, but now there are several marginal tax rates. In figure 3 the applicable rate is M_3 because H_3 exceeds W_{e2}. However, wealth in excess of W_{e2} is taxed at a higher marginal rate M_3, leading to a steeper slope. At any point on the budget constraint, the total tax consists of two parts: a lump sum amount L equal to the tax due from all lower brackets and a marginal amount equal to the tax due from the highest applicable bracket, $M_3 \ [H_3 - W_{e2}]$. The maximum amount available to heirs is W_3, which is total wealth W_{PT} minus T_0, the estate tax in the absence of charitable bequests. If charitable bequests are sufficiently small, as is the case at C_3, the amount lost to heirs is still $P \ C$.

But if charitable bequests lower the tax rate by decreasing taxable wealth below W_{e2}, then that rule no longer applies (see figure 4). With charitable bequests C_4 and bequests to heir H_4 the formula $P \ C$ will overestimate the loss to heirs as $W_4 - H_4$. The loss to heirs is actually $W_3 - H_4$ or equivalently $C_4 - [T_0 - T_4]$. The budget share contributed to charity would then be $(C_4 - [T_0 - T_4])/W_3$.

Repeal of the estate tax would affect charitable bequests through changes in both wealth and the change in price. From figure 3 the estate tax consists of a lump sum amount L plus the tax from the highest applicable bracket. Then repeal increases wealth by L and increases the tax

price from P to 1 (see figure 5). Equivalently, repeal results in a lump sum increase from W_3 to W_5 and the change in tax price results in an increase from W_5 to W_{PT}. Measuring the change in wealth as $W_{PT} - W_3$ instead of as $W_5 - W_3$ would obviously double count the increase from W_5 to W_{PT}. Similarly, measuring the change in wealth as taxes actually paid (T_5) in figure 5 would also partially double count some of the change in wealth.

The appropriate definitions for several variables used in the analysis of the estate tax and charitable bequests can now be summarized. Wealth W should be defined as gross wealth minus T_0, which is the estate tax in the absence of charitable bequests. The share of wealth contributed S should be defined as $(C - [T_0 - T])/W$, where C is charitable bequests and T is the actual level of the estate tax. When simulating estate tax repeal, the change in wealth should be L, the tax due from all lower brackets, and the change in tax price should be from P=(1-M) to 1. P should be defined as 1-M; M is the applicable marginal tax rate and not the marginal rate in the absence of charitable bequests.

III. PREVIOUS ANALYSIS

Joulfaian (2000) estimates the relationship between charitable bequests and tax price and wealth with 1992 data using a budget-share model of the form:

$$S = \ln P + \ln W + \text{'}X + u \qquad (1)$$

where X is a vector of variables such as dummy variables for age ranges, region, marital status, and gender. The share of wealth made up of business assets is used as a proxy for the desire of business owners to leave the business to their heirs. The deductibility of charitable bequests

implies that the after-tax cost of an additional dollar in charitable bequests is P=1-M.[2]

Joulfaian addresses problems caused by the large number of non-contributors by using a maximum likelihood method similar to the tobit method. The well-known endogeneity of the tax price is addressed by essentially using an instrumental variable estimator. Both of these methods may be expressed as a full information maximum likelihood model (FIML):

$$S = \quad \ln P_L + \quad \ln W + \quad 'X + u_1$$
$$\ln P_L = \quad {}_P \ln P_F + \quad {}_W \ln W + \quad {}_x 'X + u_2 \qquad (2)$$

where P_L is the last-dollar price – the marginal cost of the last dollar contributed – and P_F is the first-dollar price – the marginal cost of the first dollar contributed. After-tax wealth suffers from an endogeneity problem similar to the last-dollar price, but it is addressed by using $W_0 = W - T_0$ as the definition of after-tax wealth. Because W_0 subtracts taxes under the assumption that there are no charitable bequests, it is exogenous.

The price and wealth elasticity formulas for the budget share model in equation (1) are

$$ {}_p = \quad (z)(1/S) - 1 \qquad (3)$$
$$ {}_w = \quad (z)(1/S) + 1$$

where $z = [\hat{\alpha} \ln P_L + \hat{\beta} \ln W + \hat{\gamma}' X]/\hat{\sigma}$, is the standard normal cdf, and $\hat{\sigma}$ is the estimated variance of u_1. Because those elasticities vary across estates with z and S, estimation of the aggregate change in contributions from estate tax repeal requires one of two approaches. Either representative elasticities may be calculated and applied to representative changes in tax price and wealth, or individual changes in contributions are calculated and aggregated across all

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[2] For a small number of estates, estate taxes may be deferred up to 15 years. The price for these estates is then 1-(1-)M - M where is the percent of the estate that is deductible and is discount. Joulfaian shows that the inclusion of tax deferrals barely changes the average tax-price: 0.7743 with the deferral versus 0.7721 without the deferral. A small number of estates elected to use the special-use valuation method (e.g., value of land as a farm rather than the market value). See Joulfaian (2000) for more details.

estates. If the elasticity formulas were linear in P_L ,W, X, and S, both methods would lead to the same answer. However, (z) and 1/S are nonlinear, and the nonlinearity of 1/S is accentuated by its distribution: in 2000, 5 percent of estates gave away more than 95 percent of their assets (1/S is less than 1.05) while 5 percent of estates gave away less than 6/100 of 1 percent (1/S is greater than 1,700). Therefore, different methods for calculating elasticities may lead to substantially different estimates.

Joulfaian uses the first method and calculates arc elasticities at the mean budget share and the mean value of z: the price elasticity is estimated as about -1.7 and the wealth elasticity is about 1.2. The percentage change in tax-price P) is the difference between the mean tax-price and unity, and the percentage change in wealth W) is calculated using the mean values of T_0 and W_0. The percentage change in charitable bequests is then $_p$ (P) + $_w$ (W), leading to an estimated decline of 12 percent.

Joulfaian calculates the elasticities and the percentage change in wealth without use of the sampling weights. Because the estate tax file is stratified by wealth, use of weighted means could lead to a substantially different result.

Bakija et al. use data from 39 years: 1924-1945, 1969, 1976, 1982 and 1985-1998. Estate records of widows and widowers are aggregated into five wealth categories (defined in 1996 dollars). The tax-price of a charitable bequest includes federal and state estate taxes and state inheritance taxes. The addition of state taxes helps to increase the independent variation of tax-prices and wealth. Using this simulated panel Bakija et al. estimate equation (1) where X now consists of dummy variables for wealth class, year, and state.

The aggregated nature of their data ensures that charitable bequests are positive for most,

if not all, of the cells. This means that tobit or FIML – and possible inconsistency from a mis-specified likelihood function – is not necessary. Further, the use of panel data avoids possible bias caused by unobserved heterogeneity. Finally, the authors estimate their model with two-stage least squares, instrumenting for both tax price and after-tax wealth.

Their estimated price coefficient is substantially smaller than Joulfaian's while the wealth coefficient is about the same, suggesting that predicted effects of estate tax repeal which use these coefficients will be smaller than Joulfaian's.

Instead of calculating elasticities at the mean, they derive the total change in charitable bequests by calculating elasticities for each observation. Dividing by total charitable bequests creates an estimate of the aggregate elasticity. Although the price coefficient is lower in absolute value than Joulfaian's, the price elasticity of -2.1 is greater in absolute value. The wealth elasticity of 1.6 is a third larger than the 1.2 found by Joulfaian.

Bakija and Gale (2003) estimate the decline in charitable bequests induced by repeal for 2000. Rather than use a representative elasticity, they calculate each estate's predicted level of charitable bequests after repeal and sum over all estates. They also point out that elasticities vary not only across estates but also within each estate as the tax-price and wealth change. For that reason they do not use individual price and wealth elasticities to calculate the effect of estate tax repeal.

Instead, they calculate the new level of contributions as the new level of wealth multiplied by the new budget share. The new level of wealth is defined as W_{PT}. The new budget share equals the old budget share plus the change induced by estate tax repeal. The change in wealth is a function of the change in log tax price, ln(1) - ln(P) = - ln(P), and the change in log

wealth. That change is defined as $\ln(W_{PT}-T) - \ln(W_{PT})$, where T is the actual amount of taxes paid rather than taxes due if there are no charitable bequests. Using equation (2), the new level of contributions is calculated as

$$C^* = W[S - \hat{\alpha}\ln(P) + \hat{\beta}\{\ln(W_{PT}) - \ln(W_{PT}-T)\}], \quad (4)$$

where S is defined as P C/$(W_{PT}-T)$ and predicted bequests are not allowed to fall below zero. The weighted sum of these new contributions is 37 percent less than the initial amount of total of contributions. Thus, the estimated decline in charitable bequests is much greater than Joulfaian's, even though the estimated price coefficient is substantially lower.

The difference between declines of 12 percent and 37 percent stems from five significant differences. First, different coefficient estimates are used to simulate the response to estate tax repeal. Second, repeal is simulated for different years. Third, weights are used only in the Bakija and Gale study. Fourth, different methods for simulating repeal are used. Finally, different definitions of S and the change in wealth from estate tax repeal are used.

IV. DATA

This paper uses data drawn from 1999 and 2000 estate tax filings. Table 1 lists the years of death for each filing year. The 1999 file was limited to deaths after 1995, and the 2000 file was limited to deaths after 1996. Those limits leave 20,763 records in the 1999 file and 10,931 records in the 2000 file, representing 103,279 and 106,602 decedents, respectively. The samples are stratified by wealth, and the probability of selection increases with estate size.

Using sampling weights that account for wealth stratification noticeably affects the variation in the estimated means of several variables (see table 2. Definitions of selected

variables are described in the appendix). For example, the unweighted mean charitable bequest in 2000 is $873,000, substantially more than the 1999 mean of $493,000. However, the weighted mean bequests of $150,000 and $141,000 are about the same. Weights have a smaller impact on charitable bequests as a share of wealth: the unweighted shares are 3.08 and 3.77 for 1999 and 2000 respectively, but the weighted shares are 2.77 and 2.73, respectively.

Oversampling large estates means that the sampling weights also dramatically lower the estimates of terminal wealth from $3.45 million to $1.54 million in 1999 and from $5.71 million to $1.69 million in 2000. Perhaps surprisingly, the weights have almost no effect on the tax prices: 0.76 versus 0.77 in 1999 and 0.74 versus 0.77 in 2000. The difference is small because the tax price is sharply bounded between 0.4 and 1.0, which makes the mean tax-price less sensitive to changes in weights just as it makes the mean price less sensitive to the removal or addition of individual records.

V. NEW ANALYSIS AND RESULTS

This section applies the estimation and simulation strategy of Joulfaian (2000) to 1999 and 2000 data and the simulation strategy of Bakija and Gale (2003) to 2000 data. It also shows that although the resulting estimates of the decline in charitable bequests appear to be quite different, with modifications the two strategies produce similar results.

The coefficients in equation (3) are estimated using the same FIML method as Joulfaian. Weights are not used in the regression for the standard reason: they do not affect consistency in a properly specified model, but they lower precision.

The 1999 and 2000 coefficients on $\ln(P_L)$ are larger in absolute value and significantly

different from the 1992 estimate while the coefficient on the $\ln(W_0)$ in 1999 and 2000 is significantly lower than in 1992 (see table 3). Together these results suggest that the drop in charitable bequests from repeal of the estate tax will exceed 12 percent.

By calculating the elasticities in equation (3) as Joulfaian does, differences in the estimated effect of estate tax repeal may be decomposed into differences in coefficient estimates and differences in the use of sampling weights. The use of weights magnifies the price effect, which further separates the 1999 and 2000 estimates from the 1992 estimates (see table 4). The 1999 price elasticity of -1.999 is almost 20 percent larger than the 1992 elasticity of -1.698. Comparing these estimates with the unweighted 1999 estimate, use of the weights increases the price elasticity by about 0.15. The 2000 price elasticity of -2.1 is more than 25 percent larger than the 1992 elasticity, and again the weights increase the price elasticity by 0.15. On the other hand, because the 1999 and 2000 wealth elasticities are lower than the 1992 elasticity, weights decrease the difference in elasticities. $_w$ - 1 in 1999 is half of the 1992 value, but is even lower if weights are not used.

Given the elasticities and the estimated percentage changes in wealth and the tax price from repeal of the estate tax, it is now possible to estimate the change in charitable bequests (see table 5). Because the elasticities and estimated percentage changes are calculated using the same method in all columns of table 5, differences in the estimated decline in charitable bequests must come from other sources. The first column reproduces the results of Joulfaian (2000). The 1999 and 2000 data suggest a substantially more serious decline: 26% and 30% respectively for the weighted data. About 2/3 of the difference between the weighted 1999 estimate and the unweighted 1992 estimate is due to the use of weights. The remaining difference is due to the

differences in estimated coefficients and differences in the unweighted distributions.

In contrast, the sampling weights are relatively unimportant to the 2000 results: the unweighted decline is 28 percent and the weighted decline is 30 percent. Just as there is more variation in the unweighted sample means than in the weighted sample means, so too the estimates from unweighted data of -12, -17, and -28 percent show more variation than the estimates on weighted data of -26 and -30 percent. This difference is due to variation in the estimated coefficients in table 3 and to variation in the sample means used to calculate the decline in charitable bequests.

To identify the differences in the results arising from differences in the variables z, S, P and W, the 1992 coefficients were applied to 1999 and 2000 variables (see table 6). Because the same coefficients are used everywhere in table 6, the difference between the resulting estimates and 12 percent is due solely to changes in the four variables. The simulated decline in charitable bequests using unweighted 1999 data is similar to the 1992 decline but is lower than the 2000 estimate. However, at 19 percent and 20 percent, the weighted estimates are very similar.

By applying the 1992 elasticities to the 2000 percentage changes rather than applying the 1992 coefficients to z, S, P and W, one can further distinguish between the variables used in the elasticity calculations (z and S) and the percentage changes in P and W. In this case the elasticities created from 1992 coefficients and 2000 data are so close to the 1992 elasticities that the predicted decline is the same as in table 6: 20 percent. Therefore, the difference between the 12 percent estimate and the 20 percent estimate in table 6 is due to the difference in P and W and the difference between the 20 percent estimate in table 6 and the 30 percent estimate

in table 5 is due to difference in the coefficient estimates.

Applying the elasticities in Bakija et al. (2003) to the weighted 2000 data, the predicted decline is 22 percent, which is remarkably close to the 19 percent and 20 percent estimates in table 6. However, as described in section II Bakija and Gale (2003) estimate the decline more rigorously by calculating the effect of estate tax repeal on individual estates and then aggregating to estimate the total change.

Calculating the percentage change in charitable bequests using their method and parameters on the weighted 2000 data yields the same predicted decline: 38 percent.[3] That result may be sensitive to both the definition of the change in wealth and the definition of the share S. Section II describes the appropriate change in wealth as the lump sum amount due from all tax brackets below the applicable rate (L in figure 5) rather than as T, the variable in equation 4. In this application however, the difference in estimates from using one or the other definition is so small as to disappear when the estimated percentage declines are rounded to whole numbers.

The results are more sensitive to the definition of S (see table 7). As mentioned, using P C/[W_{PT}-T] as the definition of S leads to a predicted 38 percent decline in charitable bequests. But from section II, P C overstates the budget share while [W_{PT}-T] understates the budget share. If the denominator of S is changed to $W_{PT} - T_0$, charitable bequests are actually predicted to increase by four percent. That one difference causes a 42 percentage point swing in the predicted change in charitable bequests. Alternatively, changing the numerator leads to a more severe decline of 53 percent; in other words the differences in the numerator and denominator somewhat

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[3] The author would like to thank Jon Bakija for making his code available for this analysis.

offset each other. If both the numerator and the denominator are adjusted, the predicted decline is 22 percent, which is well within the range of estimates in tables 6 and 7.

The range of estimates described so far is suggestive but does not constitute an actual confidence interval. The data used to estimate the coefficients are different from those used to simulate estate tax repeal and they separately create sampling variation in the estimated effect of estate tax repeal. Those two sources of variation lead to a confidence interval for variation in the coefficient estimates and another for the sampling variation in year 2000 data.

If the coefficient estimates in Bakija et al. are independently normally distributed, then the variation in C* in equation (4) will be a weighted sum of the variations in those estimates. However, the progressive nature of the tax structure creates a negative correlation between tax price and wealth and therefore a negative correlation between $\hat{\alpha}$ and $\hat{\beta}$ when estimating equation (1). Strong negative price responses are then likely to be estimated with strong positive wealth responses. These two responses will tend to cancel out when calculating equation (4), leading to a narrower confidence interval. Thus, estimating a confidence interval under the independence assumption represents an upper bound on the interval's width.

Alternatively, one could ignore sampling variation in the coefficient estimates and focus on sampling variation in the data used to simulate the change in bequests. That process can be accomplished through the use of a bootstrap: new samples are created by drawing with replacement from the existing data and calculating the percentage change in charitable bequests in that sample. That method can not only estimate confidence intervals; it can take account of bias in the estimated decline in bequests (see Hall (1992)).

The estimated bias is $b = p^* - \hat{p}$, where $\hat{p}$ is the estimated percent change in charitable

bequests and p* is the estimate averaged over the simulated samples. The bias-adjusted estimate p' is found by subtracting the bias from $\hat{p}$, so that $p' = 2\hat{p} - p^*$. Using the 'percentile method' of Hall (1992), the confidence interval around this bias corrected estimate is $[2\hat{p} - p_{.975}, 2\hat{p} - p_{.025}]$, where p_a is the a-th percentile in the set of bootstrapped estimates.

To incorporate both sources of variation into a single confidence interval new coefficient estimates are independently drawn from the appropriate normal distributions and then a new sample is drawn from the estate tax data. The decline in charitable bequests is then estimated by applying the new coefficient estimates to the new sample. Repeating this procedure 1,000 times yields a bias-corrected estimate of -22 percent and a 95 percent confidence interval of [-16%, -28%]. Because the new coefficient estimates are drawn under the assumption of zero covariance between the price and wealth coefficients, this interval represents an upper bound on the size of the actual interval.

VI. CONCLUSION

Two recent articles offer drastically different estimates of the decline in charitable bequests that would be caused by repeal of the estate tax: 12 percent in Joulfaian (2000) and 37 percent in Bakija and Gale (2003). However, with modifications the estimates are actually quite close and a variety of methods yield estimates in the range of 20 percent to 30 percent. Using the coefficients from Bakija et al. (2003) and the best measure of the change in wealth from estate tax repeal implies a 22 percent decline with a 95 percent confidence interval around this estimate of 16 percent to 28 percent.

Table 1.
Number of filers by year of death and filing year

Year of Death	Filing Year	
	1999	2000
1996	203	0
1997	2,635	0
1998	14,750	2,521
1999	3,175	7,171
2000	0	1,239
Total	20,763	10,931

Table 2. Means of selected variables, 1992, 1999, 2000. (Dollar figures in millions)

Variable	1992 unweighted	1999 unweighted	1999 weighted	2000 unweighted	2000 weighted
Charitable Bequests	0.463	0.493	0.141	0.873	0.150
Charitable Bequests as a Share of Wealth	3.56	3.51	3.44	4.22	3.35
Terminal Wealth	2.91	3.45	1.54	5.71	1.69
Pre-tax Wealth	3.80	4.40	1.83	7.20	1.99
First-dollar price	0.75	0.76	0.77	0.74	0.77
Last-dollar price	0.77	0.78	0.80	0.76	0.79
Percent Widowed	24.53	29.14	43.35	30.79	42.91
Percent Never married	9.48	8.49	7.81	8.96	8.08
Percent Divorced/Separated	6.72	6.62	5.15	5.91	4.67
Percent Male	66.15	61.58	53.16	60.73	52.31
Percent under 45 years old	8.00	5.25	1.11	6.82	1.02
Percent 45 or older, under 55	13.44	10.46	3.36	8.82	3.34
Percent 55 or older, under 65	20.85	17.47	7.54	13.74	7.86
Percent 65 or older, under 75	23.01	23.81	18.48	21.11	17.92
Percent 75 or older, under 85	17.35	19.91	32.90	23.40	33.90
Percent over 85 years old	17.36	23.09	36.60	26.10	35.96
Business Share of Estate	8.50	8.18	3.85	9.00	3.81
Observations	11,915	20,763	103,279	10,931	106,602

SOURCE: 1992 data from Joulfaian (2000) table 3.

Table 3. Estimated Coefficients
(Standard errors in parentheses)

Variable	1992	1999	2000
Constant	-1.2558 (0.0858)	-0.8546* (0.0635)	-0.9576*(0.0822)
Ln Last-dollar Price	-0.2795 (0.0308)	-0.3973* (0.0242)	-0.4483*(0.0330)
Ln Terminal Wealth	0.0641 (0.0064)	0.0326* (0.0047)	0.0385*(0.0060)
Business share of estate	-0.1229 (0.0270)	-0.2786* (0.0226)	0.0091*(0.0170)
Under 45 years old	-0.2016 (0.0198)	-0.1866 (0.0160)	-0.3427*(0.0297)
45 or older, under 55	-0.1724 (0.0181)	-0.1606 (0.0120)	-0.1778 (0.0224)
55 or older, under 65	-0.1730 (0.0146)	-0.1264* (0.0093)	-0.1373 (0.0175)
65 or older, under 75	-0.1501 (0.0122)	-0.0961* (0.0081)	-0.1358 (0.0143)
75 or older, under 85	-0.0697 (0.0107)	-0.0273* (0.0066)	-0.0919 (0.0112)
Male	-0.0189 (0.0088)	0.0766* (0.0107)	-0.0405 (0.0098)
Widowed	0.1280 (0.0133)	0.2923* (0.0108)	0.0563* (0.0153)
Never Married	0.2993 (0.0139)	0.1232* (0.0137)	0.3190 (0.0152)
Divorced	0.1754 (0.0168)	0.0014* (0.0136)	0.0975* (0.0201)
North (east)**	0.0357 (0.0115)	0.0230 (0.0090)	0.0050 (0.0131)
Midwest	0.0433 (0.0121)	0.0318 (0.0094)	0.0230 (0.0132)
South	0.0144 (0.0111)	0.0103 (0.0085)	0.0100 (0.0119)

SOURCE: 1992 results from Joulfaian (2000).
NOTES: * indicates a statistically significant difference from 1992 estimates (at the 5% significance level).
**Joulfaian uses North, while northeast (as defined in table A) is used here.

Table 4. Estimated Elasticities and Components

Year	Price Coefficient	Wealth Coefficient	1/S	z	(z)	Price Elasticity	Wealth Elasticity
1992	-0.2795	0.0641	28.09	-1.347*	0.0889	-1.698	1.160
1999 unweighted	-0.3972	0.0326	28.42	-1.440	0.0748	-1.845	1.069
1999 weighted	-0.3972	0.0326	29.36	-1.374	0.0847	-1.999	1.081
2000 unweighted	-0.4483	0.0385	23.70	-1.321	0.0933	-1.991	1.085
2000 weighted	-0.4483	0.0385	29.81	-1.369	0.0854	-2.142	1.098

SOURCE: 1992 results from Joulfaian (2000).
NOTES: *Imputed as the residual from equation (3) and the price coefficient and price elasticity.

Table 5.
Percentage Change in Tax-Price, Wealth and Charitable Bequests From Repeal of the Estate Tax

	1992 unweighted	1999 unweighted	1999 weighted	2000 unweighted	2000 weighted
Tax-price (elasticity)	25.7% (-1.7)	24.5% (-1.8)	22.6% (-2.0)	26.7% (-2.0)	22.9% (-2.1)
Wealth (elasticity)	26.6% (1.2)	24.3% (1.1)	17.1% (1.1)	23.1% (1.1)	16.2% (1.1)
Charitable Bequests	-12%	-17%	-26%	-28%	-30%

SOURCE: 1992 results from Joulfaian (2000).

Table 6.
Percentage Change in Charitable Bequests Calculated with 1992 Coefficient Estimates and Data from Various Years

	Unweighted	Weighted
1992	-12%	–
1999	-11%	-19%
2000	-16%	-20%

SOURCE: 1992 results from Joulfaian (2000).

Table 7.
Percentage Change in Charitable Bequests Calculated with Weighted 2000 Data and Various Definitions of the Bequest Share

Definition of budget share	Percentage Change
$P\ C/[W_{PT}-T]$	-38%
$P\ C/[W_{PT} - T_0]$	4%
$[C - (T_0 - T)]/[W_{PT}-T]$	-54%
$[C - (T_0 - T)]/[W_{PT} - T_0]$	-22%

Figure 1

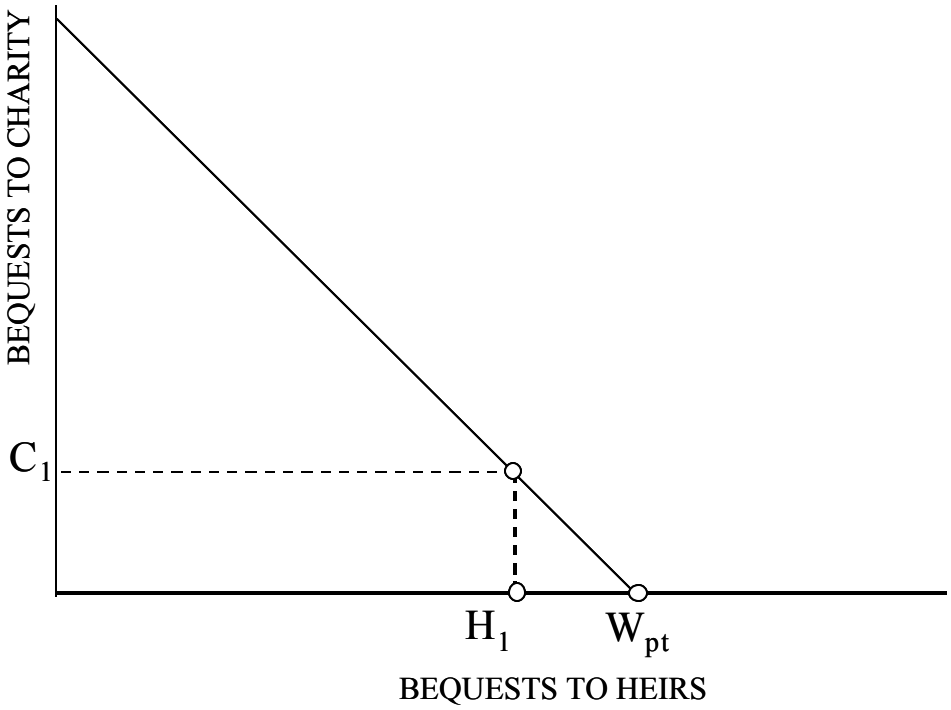


Figure 2

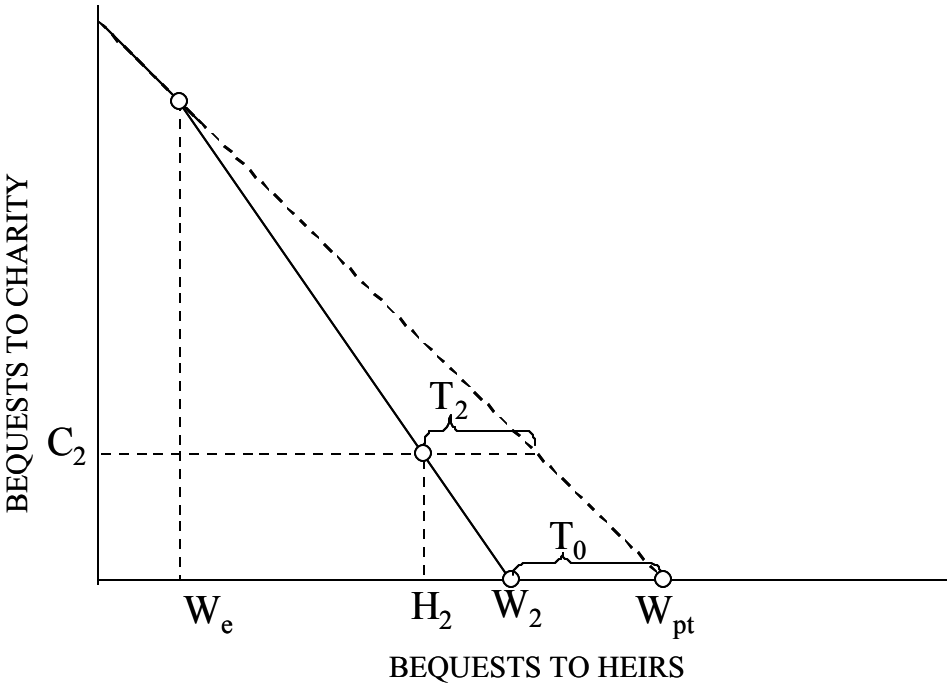


Figure 3

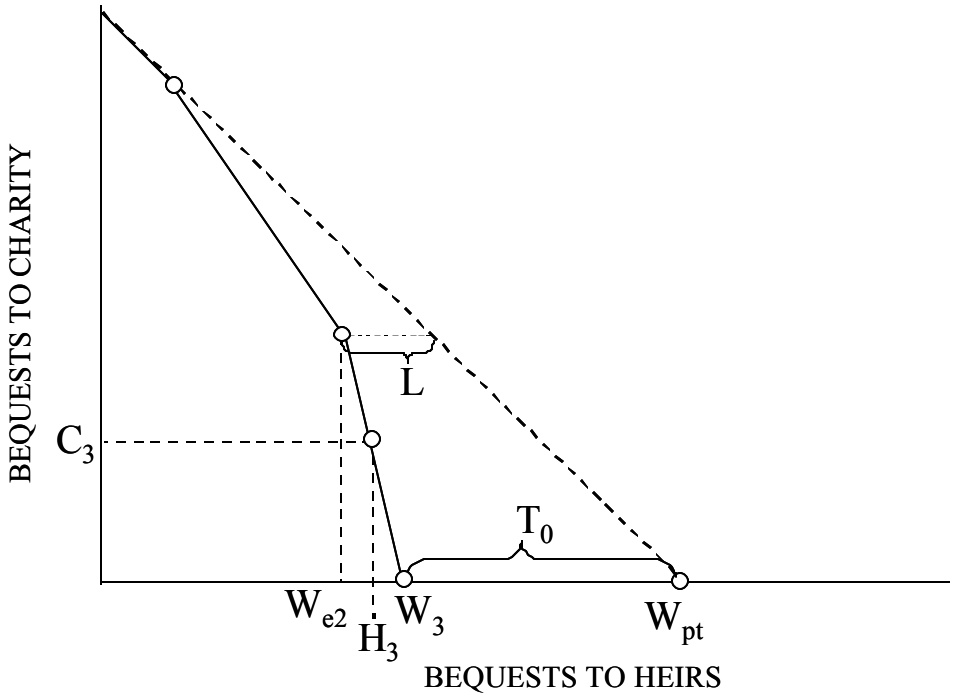


Figure 4

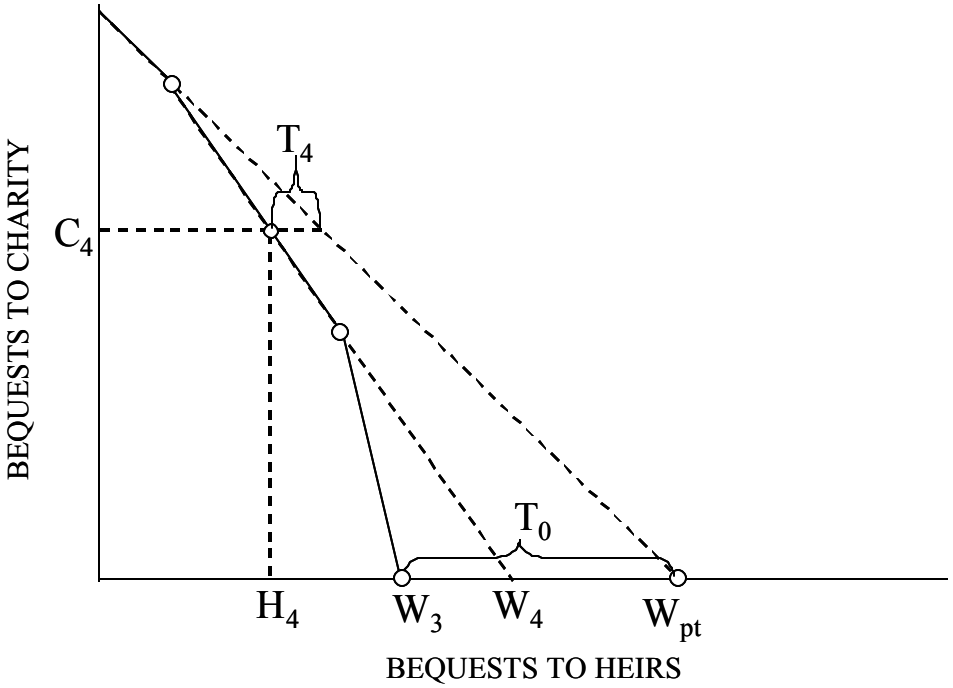
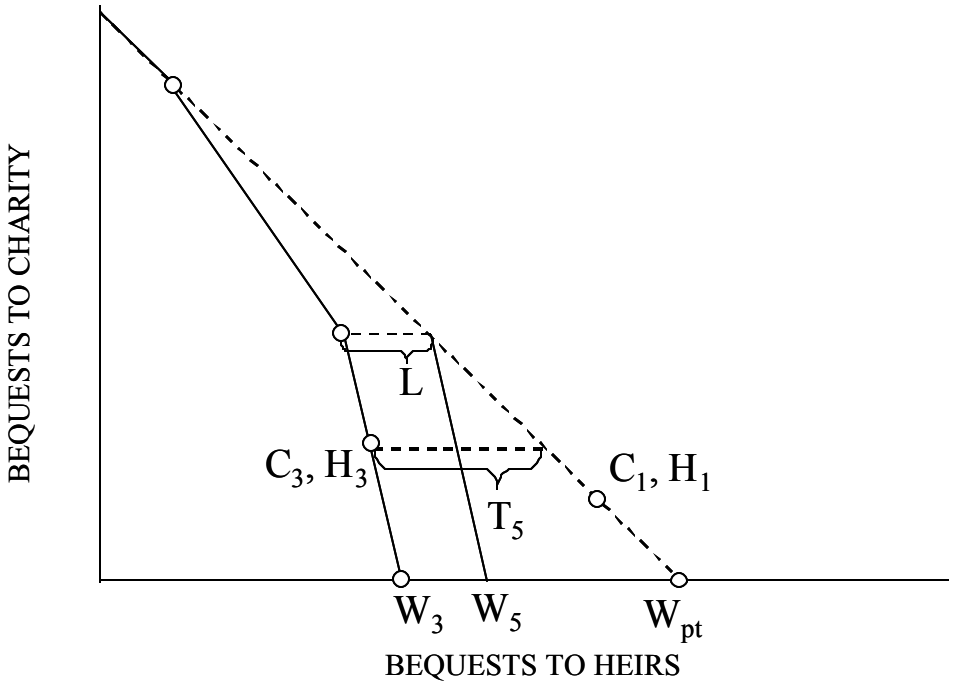


Figure 5


BEQUESTS TO CHARITY
L
C_3, H_3
C_1, H_1
T_5
W_3
W_5
W_{pt}
BEQUESTS TO HEIRS

APPENDIX

After-tax wealth is defined as the total gross estate plus untaxed life insurance minus debts, expenses and estate taxes. In the cases where the executor elected to use a special use valuation (78 elections are in the 2000 file), the market value of the estate was substituted for the total gross estate. Debts are calculated as the sum of medical debts, Schedule L debts (net losses incurred during the administration of property not subject to claims), and "other debts." Expenses are the sum of funeral expenses, executor's commissions, attorney fees, and "other expenses." Charitable bequests include claimed bequests to all recipients, including foundations.

Pre-tax wealth is the same as after-tax wealth, but without subtracting estate and gift taxes. The difference between after-tax wealth and pre-tax wealth is therefore the estate and gift tax in the absence of charitable bequests.

Charitable bequests as a share of (after-tax) wealth S is the dependent variable in equation (1) and is defined as $(C - [T - T_0])/W$. The last-dollar price of bequests is cost of making an additional dollar of charitable bequests; the first-dollar price is the cost of making the first dollar of charitable bequests.[4] Business assets are defined as the sum of closely held stock, farm assets, and "other non-corporate business assets." Regions are defined in table A.

[4]Tax price calculations for those deferring taxes (168 estates in the 2000 file) use 1-(1-)e - e where and are defined in footnote 1.

Table A: Definition of Regions

NORTHEAST	MIDWEST	SOUTH
Connecticut	Iowa	Alabama
Massachusetts	Illinois	Arkansas
Maine	Indiana	Washington, D.C.
New Hampshire	Kansas	Delaware
New Jersey	Michigan	Florida
New York	Minnesota	Georgia
Pennsylvania	Missouri	Kentucky
Rhode Island	North Dakota	Louisiana
Vermont	Nebraska	Maryland
	Ohio	Mississippi
	South Dakota	North Carolina
	Wisconsin	Oklahoma
		South Carolina
		Tennessee
		Texas
		Virginia
		West Virginia

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