Volume Title: Federal Tax Policy and Charitable Giving

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Volume Publisher: University of Chicago Press

Volume ISBN: 0-226-11048-6

Volume URL: http://www.nber.org/books/clot85-1

Publication Date: 1985

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Chapter URL: http://www.nber.org/chapters/c6777

Chapter pages in book: (p. 222 - 252)

6 Charitable Bequests

In 1982 nonprofit organizations received some $5.5 billion in charitable bequests. Though they typically amount to less than a tenth of the size of contributions by living individuals, these bequests have almost always exceeded the total of corporate contributions (see *Giving U. S. A.* 1983, p. 36). In certain areas, notably private foundations and higher education, bequests are an extremely important source of philanthropic support. In contrast to the numerous econometric analyses of individual and corporate contributions, there has been only a limited amount of empirical work to explain charitable bequests. This may have more to do with the limited amount of appropriate data than with any assessment of the relative importance of bequests. In any case, a major objective of this chapter is to discuss previous work as well as to present new findings regarding the effect of federal taxation on bequests.

The first section of the chapter describes the federal tax structure affecting charitable bequests, and the second provides a statistical overview of the extent and distribution of such bequests. The third section describes the methods and results of previous econometric analyses of charitable bequests. The fourth section provides new estimates of the tax effects on bequests using a sample of 1976 estate tax returns. The final section presents a brief discussion of the likely effects of several proposed changes in the estate tax.

6.1 The Estate Tax

The present federal estate tax was adopted in 1916, although there were transfer taxes on inheritances and estates at various times in the nineteenth century (Pechman 1977, p. 222). The tax base consists of assets

owned by the decedent at time of death plus certain lifetime gifts less funeral and administrative expenses, certain debts, a deduction for certain property passing to the decedent's spouse, and a charitable deduction. This charitable deduction may include some lifetime gifts (to the extent that such gifts are included in gross estate), but charitable bequests make up most of the deduction. Following Sunley (1977, p. 2320), therefore, the amount of this deduction is referred to in this chapter as charitable bequests. Like the charitable deduction in the income tax, the estate tax charitable deduction covers bequests to nonprofit charities, government agencies, foundations, and the like. Unlike the income tax provision, though, there is no limit to the estate tax deduction, and gifts to foreign charities are not disallowed.[1]

In addition to these deductions, the estate tax is reduced by several tax credits, the most important of which is a "unified" credit that in 1977 replaced an exemption of $60,000. From 1943 to 1976, the $60,000 exemption applied to all returns, and the tax rate schedule was fixed in nominal terms, with rates ranging from 3 to 77 percent. Shoup (1966, p. 5) notes that, with the exception of the related gift tax, "the stability of the nominal rate scale and the exemption level of the estate tax over two and a half decades is without parallel in any significant federal, state, or local tax in the same period." The Tax Reform Act of 1976 modified the rate schedule, producing a top rate of 70 percent, and substituted the unified credit for the exemption, providing for it to grow over time (*1980 U. S. Master Tax Guide* 1979, p. 29). The size of this unified credit made it equivalent to a much larger exemption. For example, the minimum estate size required to be subject to the tax doubled in 1977 from $60,000 to $120,667 as a result of the credit. In addition, the credit was increased over time under the 1976 legislation. The Economic Recovery Tax Act of 1981 extended the 1976 act by further increasing the unified credit and again cutting the top tax rate over a four-year period, to 50 percent (*Internal Revenue Code* 1982, sec. 2001, p. 847). In addition, the 1981 act removed the previous limit of 50 percent of the estate that had applied to the marital deduction, making it an unlimited deduction.[2]

6.1.1 Effective Tax Schedules over Time

In order to compare the effective rate schedule of the estate tax over time, it is of course necessary to account for inflation. In particular, the stability of the nominal tax schedule between 1943 and 1976 masks a steady erosion in the real value of the exemption as well as an increase in

1. See Shoup 1966, pp. 60–61; and Pechman 1977.

2. *Internal Revenue Code* 1982, pp. 846–48. Between 1971 and 1981, the marital deduction was limited by the greater of $50,000 or one-half of the adjusted gross estate (U.S. Internal Revenue Service, *Statistics of Income—1976, Estate Tax Returns* 1979 p. 5).

progessivity, as the real bracket widths diminished over time.[3] Table 6.1 illustrates the effect of inflation on the real exemption level, which is effectively the minimum estate that can be taxed, as well as on the real tax rate schedule. The impact is especially evident over the thirty-four years between 1943 and 1976. During the period prices rose two-and-a-half times. The value of the exemption in 1972 dollars fell from about $166,000 to $45,338 over the period. The 1976 legislation put an end to this deterioration, however, by increasing the real filing level to some $86,000 in 1977 and to almost $90,000 in 1981. The effective exemption level was increased still more by the 1981 act. By 1987 the filing requirement was scheduled to rise to $228,000 in 1972 dollars, well above the 1942 level in real terms. Over the period 1943 to 1987, therefore, inflation and legislation have combined to cause a gradual decline, followed by a steep rise, in the size of the minimum estate subject to the estate tax.

The last three columns of table 6.1 show the marginal tax rate that would apply to estates (after deductions but before the exemption) of given real amounts over time. For example, an estate of $500,000 in 1972 dollars would be $180,700 in 1943 dollars, yielding a taxable estate of $120,700 after the exemption. This taxable estate fell into the 30 percent rate bracket. Over the period of fixed nominal rate schedules, 1943 to 1976, marginal rates for each real estate size rose, the greatest increase being the rise applying to a $5,000,000 estate—45 to 70 percent. The projected trends following the 1976 tax law reveal a more complex pattern. For the $500,000 estate rates are projected to rise from 35 to 43 percent. At the higher estate levels, however, rates will fall, from 53 to 50 percent at $2,000,000 and from 70 to 50 percent at $5,000,000. While the legislation of 1976 and 1981 has the effect of reducing the number of estates covered by the tax, therefore, the marginal rates have not been cut uniformly. For many estates, the marginal tax rates in the 1980s will be as high as at any time since 1943 for estates of equal real value.

A major effect of the erosion in the real exemption level up until 1976 was a gradual expansion in the coverage of the estate tax. As table 6.2 shows, the number of estate tax returns increased from about 14,300 in 1943 to over 200,000 in 1976. As a percentage of all deaths in the country, these returns grew from 1.0 to 10.5 percent over the period. There is little doubt, given the tax legislation of 1976 and 1981, that 1976 will represent a peak in coverage for the estate tax for at least some time to come. In contrast to measures of coverage based on the number of individuals, it is much more difficult to determine the proportion of the total wealth of decedents in any one year represented by the estate tax base. Pechman (1977, p. 225) estimated that before 1977 the taxable portion of the estate tax

3. See Clotfelter 1984 for a discussion of the relationship between inflationary bracket creep and progressivity.

Table 6.1 **Exemption and Unified Credit Levels and Marginal Tax Rates on Given Real Estates, Selected Years, 1943–87**

Year of Death	Exemption	Unified Credit	Equivalent Exemption[a]	Minimum Estate Subject to Tax in 1972 Dollars[b]	Marginal Tax Rate on Constant Dollar Estate (thousands of 1972 dollars)[c]		
					500	2000	5000
1943	60,000			166,021	30	35	45
1947	60,000			128,893	30	37	49
1950	60,000			111,940	30	39	53
1954	60,000			100,755	30	39	53
1958	60,000			90,854	32	42	56
1960	60,000			87,336	32	42	56
1962	60,000			84,973	32	42	56
1965	60,000			80,688	32	42	59
1969	60,000			69,132	32	45	63
1972	60,000			60,000	32	45	63
1976	60,000			45,338	35	53	70
1977		30,000	120,667	86,160	37	53	70
1978		34,000	134,000	86,900	39	57	70
1979		38,000	147,333	90,156	39	57	70
1980		42,500	160,563	89,880	39	61	70
1981		47,000	175,625	89,830	39	61	70
1982		62,800	225,000	108,575	41	65	65
1983		79,300	275,000	126,088	41	60	60
1984		96,300	325,000	141,673	41	55	55
1985		121,800	400,000	166,251	41	50	50
1986		155,800	500,000	198,650	43	50	50
1987		192,800	600,000	228,137	43	50	50

[a]Minimum exemption level that would result in zero tax with no unified credit. For 1977 to 1981, *1980 U.S. Master Tax Guide* 1979, p. 29; for 1982 to 1987, calculations from estate tax tables.

[b]Exemption or equivalent exemption deflated by GNP price deflator (U.S. Council of Economic Advisers 1983, p. 166).

[c]Refers to 1972 value of gross estate after deductions but before any exemption. Marginal tax rates were calculated using the nominal value for each real estate size.

base represented less than a quarter of the total wealth of decedents. Other evidence suggests that using the gross estate measure, estate tax returns may account for more than half of the aggregate estate of all decedents.[4] In sum, while fewer than a tenth of all decedents file estate tax returns, these returns account for a significant portion of the total estate being transferred in any one year.

Table 6.2 also shows that the tax's expanded coverage was accompanied by an increase in total reported charitable bequests. Between 1943 and 1976 such bequests grew from $202 million to $3.0 billion, almost four-and-a-half times. The average charitable bequest fell over the period, however, as the tax expanded over time to include less wealthy decedents. In 1972 dollars, the average fell from about $39,000 in 1943 to $11,300 in 1976. As a percentage of gross estate, which corresponds roughly to total assets at death, charitable bequests ranged from a high of 7.8 percent in 1969 to a low of 4.2 percent in 1949.

6.1.2 Lifetime Gifts and Trusts

In addition to the tax schedule itself, charitable bequests are also affected by the gift tax and the various tax provisions related to trusts. The gift tax is a progressive levy applied to lifetime (inter vivos) gifts that exceed an annual exemption.[5] Before 1977 the gift tax had a separate schedule, but now the gift and estate taxes are assessed as a unified transfer tax with a single schedule.[6] Since charitable gifts are deductible in the gift tax as are charitable bequests in the estate tax, the major practical importance of the gift tax for charitable giving lies in its role as protector of the estate tax. Without the gift tax, individuals could arrange to dispose of their wealth before death through gifts, thus escaping the estate tax and undercutting any incentive effect of the estate tax's charitable deduction.

Charitable giving is also affected by the tax treatment of trusts, both charitable and noncharitable. The tax treatment of charitable trusts and

4. David and Menchik (1981, table 2) present a sample of estates of husbands between 1947 and 1978, which can be used to give a very rough idea of the distribution of all estates. The percentages of estates in each net estate category were: no estate: 25.2 percent; $0–5,000: 12.7; $5,000–10,000: 14.6; $10,000–20,000: 23.1; $20,000–50,000: 16.7; $50,000 or more: 7.7. A weighted average of wealth was calculated using the midpoints of the first five categories, $50,000 for 0.8 percent of decedents, and $221,425 for the remaining 6.9 percent of decedents (corresponding to the average gross estate for estate tax returns in 1969). By this calculation, estate tax returns accounted for approximately 65 percent of the total estates of decedents.

5. In 1981 the exemption was raised from $3,000 to $10,000 per taxpayer (Sugarman and Feinberg 1981, p. 4).

6. Before 1977 the gift tax rates were generally three-fourths of the corresponding estate tax rates, although the gift tax rates applied to gifts net of the tax whereas the estate tax rates applied to the estate before the tax. In addition, gifts made within three years of death were usually counted as being made "in contemplation of death" in the pre-1977 law, but exceptions were possible (U.S. Internal Revenue Service, *Statistics of Income—1976, Estate Tax Returns 1979*, p. 5). See also Shoup 1966, Pechman 1977, or Sunley 1977.

Table 6.2 **Estate Tax Returns, Gross Estate, and Charitable Bequests, Selected Years (dollar amounts in billions)**

Year	Estate Tax Returns	As Percentage of Deaths	Gross Estate	Charitable Bequests	Charitable Bequests as Percentage of Gross Estate
1943	14.3	1.0	2,908	201.9	6.9
1947	23.4	1.6	4,775	223.1	4.8
1948	24.6	1.7	4,933	296.2	6.0
1949	25.9	1.8	4,918	205.9	4.2
1950	28.0	1.9	5,505	274.4	5.0
1953	36.7	2.4	7,412	354.5	4.8
1954	36.5	2.5	7,467	397.8	5.3
1958	46.5	2.8	11,648	668.9	5.7
1960	64.5	3.8	14,622	950.8	6.5
1962	78.4	4.4	17,007	876.0	5.2
1965	97.3	5.3	21,757	1,309.5	6.0
1969	133.9	6.9	27,445	2,132.1	7.8
1972	174.9	8.9	38,869	1,998.1	5.1
1976	200.7	10.5	48,202	2,993.9	6.2

Source: U.S. Internal Revenue Service, *Statistics of Income, Estate Tax Returns,* various years; data on deaths from U.S. Department of Health and Human Services 1982, part A, p. 1, table 1.1.

split-interest trusts is discussed in chapter 2. Noncharitable trusts also may have effects on giving. Probably the most important effect that noncharitable trusts can have is to blunt the effect of high statutory estate tax rates, most notably in the "generation-skipping" trust. Because the creation of a trust involves no transfer of property subject to the estate tax until the trust's termination, a trust can be used to avoid estate taxation. By designating his wife and/or his children to receive income as "life tenants" of a trust, a man can allow some of his heirs to receive the income from this property without paying estate tax. Only when the remainder interest is received, possibly by grandchildren, is estate tax paid. Although two generations of heirs benefit from the bequest, there is only one transfer that is subject to estate taxation.[7] Any incentive effect that the estate tax charitable deduction might otherwise have thus tends to be weakened when such trusts are used. Other than this possible blunting of the price effect of the estate tax, it is impossible to identify precisely the effect of trust use on charitable bequests. McNees (1973, p. 82) suggests that charitable bequests and trusts are alternative means of tax reduction and, as such, may be complements or substitutes. To view charitable bequests merely as a tax-reduction device is simplistic, however, since the net estate passed on to heirs is reduced by such gifts. Whatever the exact relationship between charitable bequests and the use of trusts, it seems likely that decisions regarding them are made simultaneously in the process of estate planning, whether or not trusts have charitable interests written into them.

In order to give some idea of the typical composition of trusts, table 6.3 gives the distribution of remainder interests for trusts created by millionaires in 1957. For trusts that provided income to the spouse during his or her life, over half of the dollar value was designated to go to the children following the death of the spouse. By contrast, about 6 percent of the value of such trusts went to charity, and less than 1 percent had both a charitable remainder and a remainder interest for children. For generation-skipping trusts that made the decedent's children the sole life tenants, grandchildren received four-fifths of the total value while charities accounted for about 1 percent. The use of trusts increases with estate size; and among those trusts that are established in lower- and middle-size estate categories, the most common form is that which provides lifetime income to the spouse and the remainder interest to the children (Jantscher 1967, pp. 83, 71). Finally, married or widowed decedents are more likely to employ the trust form than those who are single or divorced (Shoup 1966, p. 173, table B-11).

7. For discussions of the role of trusts, see Shoup 1966, pp. 33–45 or Jantscher 1967.

Table 6.3 **Distribution of Remainder Interests of Trusts Created by Millionaires in 1957 (dollar amounts in thousands)**

	Type of Trust			
	Surviving Spouse Sole Life Tenant		Children Sole Life Tenants	
Remaindermen	Amount	Percentage	Amount	Percentage
Children only	$ 52,427	51.2	$ 949	0.6
Grandchildren only	3,729	3.6	121,582	79.5
Charity only	6,495	6.3	1,418	0.9
Children and charity	609	0.6	—	—
Grandchildren and charity	—	—	513	0.3
Other	39,045	38.2	28,552	18.7
TOTAL	$102,305	99.9	$153,014	100.0

Source: Robert Anthoine, "Testamentary Trusts," in Shoup 1966, Appendix B, pp. 167, 168.

6.2 The Distribution of Charitable Bequests

Before turning to econometric analysis of charitable bequests, it is useful to describe the size and distribution of such bequests in general terms. One of the most striking aspects of bequest giving is the tremendous inequality in the size of gifts. Even more than lifetime charitable giving, bequest giving is dominated by a relatively tiny number of wealthy individuals. Not only do a relatively few estates ever get taxed, only a small minority of those whose estates are big enough to be taxed make any charitable bequests at all. At the other end, a few decedents make very large gifts indeed. In 1980 and 1981, for example, the bequests of the largest five donors accounted for 1.0 and 1.2 percent of all bequests nationally. In 1982 the largest five bequests added up to an astonishing 26.5 percent of the total.[8]

Table 6.4 presents summary data based on estate tax returns filed in 1977. For the most part, these were returns for individuals who died in 1976 and whose estates were subject to the 1976 tax law. Since decedents with estates less than $60,000 were not subject to tax, there were no returns for a majority of estates. Of the 200,741 returns that were filed, about 70 percent were taxable. Total charitable bequests amounted to

8. The top five bequests included a gift of $1.3 billion by J. Paul Getty and four gifts totalling $145 million (*Giving U.S.A.* 1983, pp. 18–19; 1981, pp. 12–13; and 1982, pp. 15–16). See Schaefer (1968, p. 27) for a similar point regarding the distribution of bequest giving.

Table 6.4 **Charitable Bequests and Estate Tax by Size of Gross Estate, Returns Filed in 1977**

Size of Gross Estate (thousands)	Returns		Charitable Bequests		Marginal[a] Tax Rate	Average Tax Rate after Credits[a]
	Total Number	Percentage with Charitable Bequests	Amount (millions)	As Percentage of Gross Estate		
Taxable returns	139,115	12.8	2,312.8	5.7	—	12.3
$60 under 70	3,972	5.3	0.2	0.1	3	0.1
$70 under 80	8,973	8.4	1.3	0.2	7	0.6
$80 under 90	8,673	7.9	1.7	0.2	11	1.6
$90 under 100	7,424	10.0	3.5	0.5	14	2.5
$100 under 120	11,653	9.4	6.1	0.5	18	4.1
$120 under 150	20,098	9.6	12.4	0.5	22	4.2
$150 under 200	24,754	11.3	28.0	0.6	28	6.2
$200 under 300	23,826	13.2	58.8	1.0	30	9.5
$300 under 500	16,424	17.6	109.6	1.7	30	12.6
$500 under 1000	9,078	21.8	142.0	2.3	32	15.5
$1000 under 2000	3,004	29.5	158.7	3.9	37	17.9
$2000 under 3000	681	42.1	98.8	6.0	45	20.1
$3000 under 5000	432	43.5	121.2	7.4	49	21.4
$5000 under 10,000	213	51.6	152.9	10.6	59	23.4
$10,000 or more	90	72.2	1,417.7	48.0	77	16.0

Nontaxable	61,632	10.7	681.1	8.9	—	—
$60 under 70	10,345	10.0	12.5	1.9	—	—
$70 under 80	7,145	8.1	13.3	2.5	—	—
$80 under 90	6,793	7.6	14.8	2.6	—	—
$90 under 100	5,823	8.6	17.6	3.2	—	—
$100 under 120	10,777	6.3	27.8	2.3	—	—
$120 under 150	9,455	10.7	44.2	3.6	—	—
$150 under 200	5,489	17.0	89.7	9.6	—	—
$200 under 300	3,955	19.0	106.3	11.2	—	—
$300 under 500	1,483	23.7	89.4	17.1	—	—
$500 under 1000	263	70.3	100.1	57.1	—	—
$1000 or more	104	76.0	165.4	58.1	—	—
TOTAL	200,747	12.2	2,993.9	6.2	—	10.3

Source: U.S. Internal Revenue Service, *Statistics of Income—1976, Estate Tax Returns* 1979, pp. 15–17, table 1.

[a]Based on 1976 law. Average tax rates are based on gross estate.

$3.0 billion, of which $2.3 billion was claimed on taxable returns. The proportion of returns claiming the charitable deduction was 12.2 percent overall and 12.8 percent for taxable returns. The inequality in the size of charitable bequests is amply illustrated in the table. The 90 taxable estates over $10 million, representing only 0.04 percent of estate tax returns, accounted for 47 percent of all reported bequests. In summary, the bulk of charitable bequests come from a relatively small number of large estates.

One of the most striking features of table 6.4 is the tendency for the ratio of charitable bequests to gross estate to rise with estate size. For taxable returns, charitable bequests rose from 5 percent of gross estate in the lowest class to 72 percent in the highest. For nontaxable returns it increased from 10 to 76 percent. This increasing propensity for charitable giving is consistent with the notion that wealthier individuals, being able to provide adequately for heirs with more left over are in a better position to leave bequests to charitable organizations.[9] A survey of married men with net assets over $100,000 produced other corroborating data. The proportion of those men planning to leave their wives with less than half of their estate was highest for those with the largest incomes and presumably the largest estates (Morgan, Dye, and Hybels 1977, p. 184, table 23).

An alternative explanation for the observed increasing propensity to make charitable bequests is that higher marginal tax rates induce more giving. Calculated at the class means, the marginal tax rate for taxable returns increased from 3 to 77 percent, reflecting the progressivity of the rate schedule. To what extent this marginal tax rate has a separate effect on charitable bequests can be determined only by multivariate statistical analysis.

Not only do the amounts contributed differ by estate size, but the distribution of organizations supported by charitable bequests also varies. Table 6.5 presents such a distribution for 1960, the last year for which data by type of organization are available. The types of donees listed are educational, scientific, and literary organizations, broken down by public and private, religious groups, and "other charitable"—a residual category including bequests to private foundations. For all estate tax returns, "other" bequests accounted for 79 percent of all charitable bequests, compared to 9 percent for religious gifts. In a pattern similar to that observed for contributions by living individuals, the relative importance of religious gifts falls as estate size grows. Bequests to religious organizations accounted for two-thirds of total charitable bequests in estates of $60,000 to $70,000, falling to less than 1 percent for the largest estate classes. The proportion of gifts made to educational, scientific, and literary organizations, principally colleges and universities, shows little clear relationship to estate size. Together they made up about 12 percent of charitable be-

9. See Shoup (1966, p. 64) for a statement of this argument.

Table 6.5 **Percentage Distribution of Charitable Bequests by Type of Recipient, 1960**

Gross Estate Class (thousands)	Type of Organization			
	Educational, Scientific, and Literary			
	Public	Private	Religious	Other Charitable
$60 under 70	2.1	1.4	66.0	30.5
$70 under 80	0.4	3.7	58.9	37.0
$80 under 90	0.2	7.8	53.9	38.1
$90 under 100	2.0	5.7	51.6	40.6
$100 under 120	2.9	2.9	48.0	46.1
$120 under 150	1.3	6.3	35.5	56.8
$150 under 200	2.9	5.9	28.3	62.9
$200 under 300	3.9	6.6	24.6	64.8
$300 under 500	4.7	7.0	20.9	67.3
$500 under 1000	3.5	11.4	12.3	72.8
$1000 under 2000	2.6	9.7	10.2	77.6
$2000 under 3000	9.7	5.6	5.4	79.2
$3000 under 5000	.03	8.3	11.2	80.5
$5000 under 10,000	2.9	25.4	1.1	70.7
$10,000 under 20,000	2.8	2.4	0.9	94.0
$20,000 or more	2.8	1.5	0.3	95.5
All returns	3.4	8.5	9.4	78.7

Source: U.S. Internal Revenue Service, *Statistics of Income—1960, Estate Tax Returns* 1964, pp. 48–49, table 3.

quests in 1960, most of which went to private institutions. The residual category increased from 31 to 96 percent of charitable bequests. The portion of this category attributable to private foundations is impossible to ascertain, but the table certainly suggests an increasing use of private foundations as estate sizes increase.[10]

6.3 Previous Studies

The previous empirical analysis of tax effects on charitable bequests consists principally of four econometric studies: analyses of individual estate tax returns by McNees (1973) and Boskin (1976), an analysis of aggregate tax return data by Feldstein (1977), and a study using probate records

10. Shoup (1966, pp. 62–63) reports that in 1957, 43 percent of the charitable bequests by estates over a million dollars went to "private" charitable organizations, and 41 percent in 1959.

by Barthold and Plotnick (1983). This section describes these studies briefly in order to give background for the new estimates presented in section 6.4. Following a discussion of the economic model of bequest giving, this section describes the data and findings of the previous studies.

6.3.1 Economic Models of Bequest Giving

Despite recent work seeking to explain patterns of bequests and wealth transmission,[11] economic analysis of bequest behavior is still a developing area of inquiry. As Boskin (1976) spells out in the most complete discussion of the theory of charitable bequests, the decision to bequeath assets to charity is a complex one, one that is related to an individual's decisions regarding labor supply, savings, consumption, lifetime gifts, lifetime contributions, and noncharitable bequests. Boskin shows that even a simplified utility function, including consumption, lifetime gifts, contributions, and charitable and noncharitable bequests, yields a system of demand equations with a number of tax-determined prices. The equation he obtains for charitable bequests is:

(1)
$$CB = f(K + (WH + rK)(1 - m_y), 1/(1 - m_g), 1 - m_y, q/(1 - m_e), q),$$

where K is initial wealth, WH is labor income, r corresponds roughly to the interest rate, q measures inflation relative to the interest rate, and m_y, m_g, and m_e are applicable marginal tax rates in the income tax, the gift tax and the estate tax. Charitable bequests are thus seen as a function of labor supply (which Boskin assumed to be fixed for convenience), initial wealth, savings, and the relative prices of gifts, bequests, contributions, and charitable bequests (Boskin 1976, pp. 29–32).

A central variable in studies of charitable bequests is their price. A model such as equation (1) makes it clear that there are a number of different prices, expressed here relative to the "price" of consuming a dollar's worth of goods, namely 1. For example, the relative price of making lifetime gifts versus bequests involves not only the real rate of interest but also the effect of deductibility. A lifetime gift reduces lifetime tax as well as estate tax, whereas a bequest reduces the estate tax only. The models used for estimation focus instead on the price of making charitable bequests relative to that of making certain noncharitable bequests. Specifically, the reference used is to noncharitable bequests other than to the taxpayer's spouse (which is itself subject to a deduction). The typical price variable is thus the ratio of the price of charitable bequests (q) to the price of noncharitable bequests ($q/(1 - m_e)$), which is simply $1 - m_e$. Consider an individual whose estate would be taxed at a 30 percent marginal rate. Because of the charitable deduction, a charitable bequest of $10,000 will

11. See, for example, Atkinson and Stiglitz 1980, pp. 85–88; or David and Menchik 1981, or Tomes 1981.

cost the estate $7000 net of tax, while a similar bequest to a son or daughter would cost a full $10,000. The price of the charitable bequest relative to the noncharitable bequest is 0.7, or one minus the marginal tax rate in the estate tax.[12]

Because of the increased number of options as well as the inevitably metaphysical nature of consumption decisions regarding events after one's death, this conception of price is a good deal more complex than that in the case of lifetime contributions. By the same token, however, it should be remembered that gifts and bequests are alternative uses to consumption and contributions during life, so that the price of lifetime giving is in principle more complex than it is usually portrayed. As in other applications, the proper complexity for a given model is dictated in part by the researcher's judgment about the importance of various influences. By this criterion, it seems reasonable to include in studies of both lifetime and bequest giving only the most immediate relative price, although this appears to be a more important limitation in the case of bequests.

The simple model discussed above is quite general as to behavioral assumptions and implied functional form. It implies that charitable bequests are a function of wealth or estate size and the relative price of charitable bequests. It would be as consistent with constant elasticities for price and estate size as it would with variable elasticities. One might imagine more specific behavioral assumptions about bequest giving. One possibility is that an individual has a target amount of wealth that he wishes to pass on to his heirs. Any increase in taxes would come out of planned charitable gifts. Changes in the price of bequest giving would have no effect on noncharitable bequests and thus would affect charitable bequests only through an increase in lifetime savings. Such behavior would imply a large wealth effect but no price effect on charitable bequests. An alternative model of bequest giving might be that individuals have a target instead for charitable giving. If it is measured in terms of the gross dollar gift, then obviously changes in neither wealth nor price would have any effect. If the target is measured in terms of the net cost to the estate, however, a fall in the price would be accompanied by an equiproportionate increase in charitable bequests. Under these circumstances, the price elasticity would be -1.[13] Models of bequest giving based on such targets are quite stylized and may be totally unrealistic, but it is useful to consider such special cases in evaluating estimated price and estate-size elasticities. The net cost target, for example, would provide a plausible explanation for a unitary price elasticity. The empirical work discussed in the remainder of the chapter embodies no assumptions regarding targets, but instead is based on a general model.

12. See Feldstein (1977, p. 1500) for a discussion of the price.

13. See Feldstein and Lindsey (1981) for a discussion of such behavior in the case of lifetime giving.

6.3.2 Data and Variables

McNees (1973) and Boskin (1976) employed estate tax files composed of information from individual returns. Both studies employed a sample of 1957 and 1959 returns that had been used in a special study of estate tax returns.[14] Variables on the file include estate size, state of residence, age, sex, marital status, an indirect measure of dependents, the use of trusts, and gift giving. In addition, charitable contributions are broken down for four categories of recipient organizations: (*a*) religious, (*b*) educational, scientific, and literary, (*c*) social welfare and (*d*) other. The 1969 file used by Boskin provided much the same information on estate size, age, sex, and marital status. It also provides more detail on the composition of assets. However, the 1969 file does not break down gifts by type of donee, nor is there information on trusts (Boskin 1976, p. 38). Both files provide ample information from which to calculate the marginal estate tax rate.

The aggregate data used by Feldstein (1977) is sparse in detail, providing only class means for estate size and charitable bequests. Following the procedure he used in his article on individual contributions (1975a), Feldstein calculated marginal tax rates based on class averages for the taxable estate quantity.

The measure of the decedent's estate is a central variable in explaining charitable bequests, and several alternative measures are available. *Gross estate* is defined in the tax law to include "the value of all property to the extent of the interest therein of the decedent at the time of his death" *(Internal Revenue Code* 1982, sec. 2033). In addition, transfers made within three years of death were included in this calculation before the full unification of the estate and gift taxes. The estate generally could be valued as of the time of death or six months later, at the discretion of the estate's executor.[15] Because it takes no account of most debts, gross estate can be a poor measure of economic wealth. This defect is remedied in the *economic estate* measure, which is defined as gross estate minus debts, administrative costs, funeral expenses, and lifetime gifts. Economic estate corresponds most closely with net worth available for disposition at time of death. A further modification can be made to subtract the estate tax liability from the economic estate, leaving *adjusted disposable estate.*[16] McNees used the economic estate measure. Boskin preferred adjusted disposable estate in analyzing the 1969 data. Feldstein, on the other hand, was forced by data limitations to use gross estate minus all deductions other than those for charity and marital bequests.

14. See Shoup (1966) for a more complete description of the data.

15. See U.S. 1979 Internal Revenue Service, *Statistics of Income—1976, Estate Tax Returns 1979*, pp. 4–5 for a full description of gross estate.

16. See Boskin (1976, pp.38–39) for a discussion of estate measures.

Although economic estate is the measure corresponding most closely to net worth at time of death, there is an important drawback to its use when the contributions deduction includes lifetime charitable transfers as well as charitable bequests. As previously noted, such lifetime gifts (generally those made within three years of death) are a small part of the charitable deduction on average. It is also believed that these charitable lifetime gifts are underreported since they have no tax consequence.[17] But for individuals who do make and report large lifetime charitable gifts, the exclusion of lifetime gifts from the measure of estate (as in the economic estate or adjusted disposable estate measures) will understate the relevant net worth while including the lifetime gift in the charitable deduction. A more appropriate measure of net worth is one that includes transfers made in the last three years of life. Accordingly, the basic measure of estate used in the analysis of the 1976 estate tax file presented in section 6.4 is economic estate plus lifetime transfers minus the estate tax, referred to as *net estate*.

The basic price measure used in the studies is the marginal estate tax rate or one minus that rate. McNees, who simply used the marginal tax rate, was careful to specify the rate independently of the amount of charitable bequests in order to obtain consistent estimates (McNees 1973, p. 82). Boskin and Feldstein defined their price terms analogously, except that Boskin was able to obtain information on state as well as federal tax rates in his 1969 sample.

6.3.3 Findings

McNees

Using the 1957–59 tax file, McNees estimated linear and logarithmic equations for charitable bequests, allowing estate size to enter quadratically. He estimated separate equations for estates above and below a million dollars. His principal finding is that the marginal estate tax rate was significant for the large-estate group, suggesting "a sizable incentive effect of the contributions deduction" (p. 84). The lack of information about the scale used in defining the variables makes it difficult to quantify this tax effect. McNees also found that bequests were strongly related to estate size. Charitable bequests tended to be lower for widows and those who used trusts; for large estates charitable giving tended to be positively related to inter vivos gift giving (McNees 1973, p. 83, table 1).

Boskin

As a result of preliminary regressions, Boskin used a simple dichotomous variable for decedents who were not married, rejecting other marital status variables as insignificant. He also used a single dummy variable

17. Their effect is to raise gross estate and deductions by the same amount.

for decedents under 65. More importantly, he split the price variable into three pieces, allowing separate coefficients and elasticities for prices below 0.6, between 0.6 and 0.8, and over 0.8. An illustrative regression using the 1969 sample and estimated using the Tobit procedure is given below:

$$(2)\quad CB = 0.326\,ADE - 347\,P(P < 0.6) - 443\,P(0.6 < P < 0.8) - 668\,P(P > 0.8) - 225\,\text{Married} - 245\,(\text{Age} < 65),$$

where CB is charitable bequests, ADE is adjusted disposable estate, and P is the price defined by the marginal estate tax rate.[18] All coefficients are significantly different from zero. The elasticity of charitable bequests with respect to estate size, calculated at the means, is 0.40. The price elasticity varies greatly, for -0.20 for decedents with the largest estates ($P < 0.6$) to -2.53 for those with smaller estates.

Table 6.6 summarizes the elasticities of charitable bequests with respect to estate size and price for this and other basic specifications. Two specifications for the 1957–59 sample included a single price term. The first, using the economic estate variable, yielded an estate-size elasticity of 0.52 and a price elasticity of -1.2, both calculated at the mean values. When adjusted disposable estate was substituted for economic estate, the estate elasticity rose to 1.1. One should be wary of the elasticities based on a simple linear model, however. As Boskin (1976, pp. 34–35) notes, such a model implies that a one percentage point rise in the price will cause the same dollar decrease in bequests in all estates, regardless of size. Breaking

Table 6.6 **Estimated Price and Estate Elasticities for Charitable Bequests (Boskin 1976)**

	Sample	
	1957–59	1969
Economic estate[a]	0.52	—
Price	−1.2	—
Adjusted disposable estate[b]	1.1	—
Price	−1.2	—
Adjusted disposable estate	0.54	0.40
Price < 0.6	−0.94	−0.20
0.6 < Price < 0.8	−1.4	−0.96
Price > 0.8	−1.8	−2.53

Source: Boskin 1976: 1957–59, p. 41, table 2, equations (2)–(4); 1969, p. 45, table 4, equation (1).

[a]Gross estate minus debts and expenses.

[b]Economic estate minus taxes that would be paid if there were no charitable bequests.

18. The method of estimation was Tobit. The intercept was not given.

up the price term, as shown in equation (2), is one way to allow this price response to vary over estates of different sizes. The elasticities based on this model are compared in table 6.6 for both samples. Both imply a smaller price elasticity for the biggest estates, but this difference is less in the 1957–59 sample, with elasticities ranging from -0.94 to -1.8. Boskin found similar patterns of price elasticities when he divided charitable bequests according to the type of donee. In average magnitude, the elasticities were largest for the residual category (Boskin 1976, p. 43), suggesting that the creation of private foundations may be especially sensitive to the charitable deduction in the estate tax.

Feldstein

Using a pooled time-series/cross-section sample of estate class averages over the period 1948 to 1963, Feldstein estimated models that allowed the price and estate-size elasticities to vary. The ratio of charitable bequests to estate size, or its logarithm, was the dependent variable, and independent variables were transformations of estate size and price. As in the Boskin study, the price was calculated for the first dollar of charitable bequests. State inheritance taxes were ignored by necessity since only national totals were available.[19]

The estimated elasticities showed great variation, as shown in table 6.7. Based on data for all estate-size categories, the basic models (A) and (B) imply price elasticities ranging from -4.0 to -0.1. When an interaction term including the logarithm of the estate size was added, however, all estimated price elasticities using this full sample were positive, and Feldstein rejects them as being unreasonable. The price elasticities based on equations for large estates only do yield uniformly negative elasticities, though the range of variation is still large. In evaluating the results, Feldstein acknowledges "the instability of the parameter estimates and the frequency of implausible estimates" (p. 1497) and concludes that the results provide little firm evidence regarding the magnitude of the price response.[20]

Barthold and Plotnick

In the only study not using federal tax return data, Barthold and Plotnick (1984) employed a sample of Connecticut estates probated during the 1930s and 1940s. Gross estate was used as the measure of estate size, and tax price was defined as in earlier studies but including the state as well as the federal tax rate. From probate records the authors obtained information on the decedent's heirs and religion. The authors used a logarithmic

19. Feldstein notes (1977, p. 1487) that inheritance taxes in 1963 were relatively insignificant in comparison to the federal estate tax. He calculated that the tax liability counting the federal estate tax, state transfer taxes, and federal credits was in no state greater than 1 percent more than the federal tax liability calculated without reference to state taxes.

20. For his own assessment of the results, see his conclusion (Feldstein 1977, pp. 1495, 1497).

Table 6.7 **Estimated Price Elasticities for Charitable Bequests (Feldstein 1977)**

	(A)	(B)	(C)	(D)
		Equations for All Estates		
Estate size				
$ 80,000	−4.04	−1.96	1.50	2.01
120,000	−2.06	−1.09	0.70	1.92
500,000	−1.45	−0.69	0.54	2.48
5,000,000	−0.31	−0.11	0.18	2.00
		Equations for Large Estates		
Estate size				
$ 500,000	−2.72	−9.50	−1.65	−1.27
1,000,000	−2.05	−6.42	−1.40	−0.92
5,000,000	−0.58	−2.13	−0.70	−0.19

Source: Feldstein 1977, table 3 (2.1–2.3, 2.6), p. 1493 and table 7 (6.1–6.3, 6.6), p. 1497.
Note: Models are as follows:
(A) $G/E = a + bP + cE$;
(B) $G/E = a + b_1P + b_2P^2 + c_1E + c_2E^2$;
(C) $G/E = a + b_1P + b_2P^2 + c_1E + c_2E^2 + c_3P \ln E$;
(D) $\ln(G/E) = a + b_1P + b_2P^2 + c_1E + c_2E^2 + c_3P \ln E$.
For each model, price is defined as $P1$, based on taxable estate plus charitable bequests.

functional form and obtained estimates using Tobit. The estate-size elasticity implied by the estimates was 0.4. The estimate also indicated that decedents with a surviving spouse and more heirs tended to leave smaller charitable bequests.

In contrast to most previous work, the tax price was not significant in any equation in the study. Barthold and Plotnick emphasize that the federal and Connecticut estate tax schedules were changed several times during the period covered by the sample, thereby reducing the collinearity between estate size and price. In particular, they note that the Connecticut law underwent a significant change in 1937, a year before a large proportion of the wills in their sample were probated. There were also changes in the federal tax schedule, notably in 1942, covering deaths in 1943 and after. These changes in law pose a problem, however. Unless individuals respond immediately to changes in the estate tax by revising their wills, some bequests will be a function of current tax laws while others will depend on past laws. This is especially serious where changes are large and time intervals are short. The result in this case is that the price term will be measured with error and its estimated coefficient will be biased toward zero. Without further information about the process of estate planning, it is impossible to say how much bias this effect would have had for this particular sample.

6.4 Analysis of 1976 Estate Tax Returns

In order to extend the empirical analysis of charitable bequests using more recent data, I analyzed a sample of federal estate tax returns for 1976. The basic data source was the 1976 estate tax file (U. S. Internal Revenue Service 1976) prepared by the Internal Revenue Service, a stratified random sample of all estate returns filed in 1977. Like the 1957–59 and 1969 estate tax files used in earlier analyses, the 1976 file provides information on estate size and composition, charitable gifts, other deductions, age, and marital status. Based on the information provided, it is possible to calculate the federal estate tax and tax rate. A 20 percent random sample of the file was drawn for use in the statistical analysis. A small portion of the returns included in the file in fact represented deaths in 1977, and these returns were excluded. Because the 1976 tax act provided for substantial modifications in the estate tax schedule beginning in 1977, it is quite difficult to guess what effect the new provisions had on bequests by decedents who died early in 1977. Finally, estates smaller than $5000 were excluded in order to focus on decedents with at least a minimum of net worth.[21] The resulting sample consisted of 6621 returns. A second sample consisting of all estates of $1 million or more was used in order to estimate separate behavioral parameters for the wealthiest decedents. This sample contained 2302 returns.

The basic measure of estate size in this analysis is net estate *(NE)*, defined as economic estate plus lifetime transfers minus the estate tax liability calculated without the charitable deduction. Adjusted disposable estate, defined as economic estate minus the tax, is used as an alternative. The new estate measure is preferred because it, like the charitable-giving measure, includes certain lifetime charitable gifts. The price of charitable bequests *(P)* is one minus the marginal estate tax rate that would apply in the absence of bequests. As Feldstein (1977) has emphasized, this price is exogenous with respect to the charitable-bequest decision if other deductions, in particular the marital deduction, are predetermined. In fact, the assumption that a person decides on the amount of the bequest to a spouse, up to half the estate, before deciding on charitable bequests seems reasonable. In practice, married decedents almost always left at least half of their estates to spouses. Previous research suggests that bequests are strongly influenced by both the age and marital status of decedents. The present study employs quite detailed measures of each in order to control for these important effects. Age at death was entered as a set of dichotomous variables for ages 50 to 59, 60 to 69, 70 to 79, and 80 and older. The excluded group consists of those under 50. Marital status was denoted by dichotomous variables for widows and widowers, single individuals, and

21. Preliminary analysis showed, however, that there were relatively few estates below this level and that their exclusion had little effect on the estimates.

those divorced or separated, with married individuals being the excluded group.

6.4.1 Estimates for All Estates

Table 6.8 gives the mean values for the principal variables employed in the analysis. The mean charitable bequest for the sample was about $32,000. The average gross estate was about $558,000, and the average economic estate was $465,000. Adjusting for lifetime gifts in gross estate and taxes yields net estate, with a mean value of about $407,000. The average net price of making charitable bequests for the sample was 0.77. About 35 percent of the decedents were over 80, and another 29 percent were in their 70s. One-half of the decedents were married and another third were widowed. Only 8 percent were never married.

Table 6.8 Means of Selected Variables and Tax Items, 1976 Estate Tax Returns

Full sample			
Charitable deduction, in thousands (*CB*)			32.3
Gross estate, in thousands			558.4
Economic estate, in thousands			465.4
Estate tax if no charitable deductions, after credits, in thousands			108.6
Lifetime transfers in gross estate, in thousands			50.6
Net estate, in thousands (*NE*)			407.4
Net price (*P*)			0.774
Age			
Under 50[a]			0.049
50–59			0.105
60–69			0.205
70–79			0.293
80 and over			0.348
Marital status			
Married[a]			0.546
Widow or widower			0.342
Single			0.080
Divorced or separated			0.032
By estate size (in thousands)			
	Price	Net estate	(N)
Less than $250	.860	123.8	(3887)
$250 under 500	.689	382.5	(1188)
$500 under 1000	.660	681.9	(1059)
$1000 or more	.545	2134.3	(487)

Note: Sample size was 6621.

[a]Categories omitted in estimation.

Three basic equations explaining the logarithm of charitable bequests are presented in table 6.9. The first two imply constant price and estate-size elasticities while the third allows for variation in the price elasticity. In equation (A) the Tobit coefficient of -11.8 for the logarithm of price implies an elasticity of expected charitable bequests with respect to the price of -1.67.[22] While this estimate exceeds in absolute value the overall elas-

Table 6.9 **Logarithmic Equations Explaining Charitable Bequests, 1976**

Explanatory Variables	(A)	(B)	(C)
ln P	−11.8	−20.4	
	(2.7)	(2.3)	
	[−1.67]	[−2.79]	
ln P, $P < .60$			−12.9
			(2.8)
			[−1.77]
ln P, $.80 > P \geq .60$			−17.9
			(3.4)
			[−2.46]
ln P, $P \geq .80$			−26.8
			(6.9)
			[−2.31]
ln NE	3.01		2.84
	(0.52)		(0.53)
	[0.42]		[0.39]
ln ADE		1.30	
		(0.41)	
		[0.18]	
Age			
50–59	1.39**	1.39**	1.41**
60–69	4.53	4.55	4.53
70–79	6.42	6.44	6.42
80+	8.82	8.85	8.79
Marital status			
Widow	4.94	3.94	4.73
Single	10.94	9.88	10.67
Divorced	6.29	5.18	6.15
Constant	−41.8	−34.4	−42.6
$F(z)$	0.141	0.137	0.138
Sample size	6621	6451	6621

Note: The numbers in parentheses are standard errors. All coefficients except those noted by double asterisks were statistically different from zero at the 95 percent level. The numbers in brackets are elasticities of the expected value of the dependent variable with respect to the explanatory variable.

22. Where b is the Tobit coefficient shown, and $F(z)$ is the cumulative normal distribution signifying the predicted probability of observing a positive bequest, the elasticity is $bF(z)$. See, for example, McDonald and Moffit 1980.

ticity obtained by Boskin for the 1957–59 data, it does not appear beyond the bounds of his 1969 estimates. The present estimate also falls well within the spread of values obtained by Feldstein (1977). The estate-size elasticity of 0.42 is quite close to that obtained by Barthold and Plotnick and by Boskin for 1969 and is somewhat smaller than Boskin's estimates for 1957–59. These estimates for the basic equation imply that bequest giving is affected both by estate size and the net price of giving. In addition, the latter effect is quite strong.

Before comparing price and income elasticities implied by various functional forms, it is useful to examine the estimated effects of age and marital status on bequest giving. The size of charitable bequests rises sharply with the age of the decedent. Although there is no significant difference between the gifts of decedents under 50—the excluded group—and those in their 50s, decedents 60 and older gave significantly more. Furthermore, the estimated age effects are monotonic. For example, equation (A) implies that decedents in their 70s gave 30 percent more than those in their 60s, and those over 80 gave 40 percent more than those in their 70s.[23] This increase in charitable giving with age is of course strikingly similar to the age pattern observed in giving by living donors.

The differences in bequest giving by marital status are also noteworthy. The group with the highest expected level of bequest giving is single decedents. Expected bequest giving by this group was over four times as high as that by married individuals. That single decedents give more than those who left spouses is not surprising since these decedents are also likely to have the fewest potential heirs within the family. This result also corresponds to the previous finding, noted above, that single and divorced decedents were least likely to employ trusts, instruments most often designed to provide for family members. Divorced or separated decedents were next highest in giving, averaging 2.4 times the amount donated by married individuals. Widows and widowers, who had no spouse but presumably did have roughly the same number of children as married decedents, gave at twice the rate as those who were married. The age and marital status effects observed in equation (A) are mirrored in the other equations presented below. From these results, it seems quite evident that both age and marital status have important influences on the level of bequest giving.

Equations (B) and (C) are variations of the basic equation. In equation (B) net estate is replaced by adjusted disposable estate. The implied estate-size elasticity is less than half the size of that in equation (A), probably re-

23. Where b_i is the Tobit coefficient for age group i, the ratio of giving between group i and group $i-1$ is $\exp(F(z)(b_i - b_{i-1}))$.

flecting the fact that the estate measure excludes lifetime gifts, some of which are included in the charitable deduction. The estimated price elasticity (-2.79), on the other hand, is much larger in absolute value than the corresponding elasticity in (A). The age and marital status variables are generally similar. In equation (C) the price elasticity is allowed to vary among estates according to three broad price categories, a variation that was suggested by the Boskin study noted above. Donors facing the lowest price (less than .60), those with the largest estates, had the smallest absolute price elasticity, -1.77. Those with prices between .60 and .80 had an elasticity of -2.46, and those in the highest price category had an implied elasticity of -3.70. This pattern of larger absolute elasticity values for smaller estates (higher prices) corresponds to Boskin's results for both the 1957–59 and the 1969 samples. However, the elasticities implied by the present analysis are consistently larger in absolute value. Moreover, the larger price elasticities found in the present analysis do not appear to be due to the functional forms that are used. A reestimation of Boskin's regression shown in equation (2) yielded much larger price elasticities and smaller estate elasticities than those implied by Boskin's estimates.[24]

One of the most important questions for tax policy is whether the price elasticity and the elasticity with respect to estate size vary significantly among estates of different sizes. This issue is addressed by Boskin and Feldstein and in tables 6.9 and 6.10 of the current chapter with different functional forms that allow some variation in elasticities. A more general functional form that allows interactions and nonlinear effects without specifying price or estate-size categories in the variable is a translog form. The estimated Tobit equation based on this form for the 1976 sample was:

$$
\begin{aligned}
(3)\quad \ln CB = {} & -121.9 \ln P - 23.9 \ln NE + 22.2 \ln P \ln NE \\
& + 31.7 (\ln P)^2 + 2.95 (\ln ADE)^2 + 1.60 (\text{Age } 50\text{–}59) \\
& + 4.49 (\text{Age } 60\text{–}69) + 6.50 (\text{Age } 70\text{–}79) + 8.12 (\text{Age } 80+) \\
& + 4.81 \text{ Widow} + 10.62 \text{ Single} + 6.25 \text{ Divorced} + 17.0, \\
& F(z) = 0.135, N = 6621.
\end{aligned}
$$

24. The equation was:

$$
\begin{aligned}
CB = {} & 0.0138 NE - 5564 P(P < 0.6) - 5158 P(0.8 > P \geq 0.6) \\
& - 4397 P(P \geq .80) - 284 \text{ Married} - 244 (\text{Age} < 65) \\
& + 2885, F(z) = 0.976.
\end{aligned}
$$

The price elasticities calculated at the mean giving for the sample and mean price for each group are -8.3, -10.8, and -12.4 from lowest to highest price category. The estimated estate-size elasticity if 0.17, but is not significantly different from zero.

The price and estate elasticities may be caculated by differentiating the equation and substituting appropriate values of price and estate size. Because of the interaction and squared terms both elasticities depend on the value of the price and the estate size. To illustrate the pattern of implied price and estate effects, table 6.10 presents elasticities calculated for the mean values corresponding to four estate-size classes. For comparison, it also presents elasticities based on the translog form using adjusted disposable estate. Both equations support the earlier finding that the price elasticity tends to shrink as estate size increases. In the equation using net estate, the elasticity is -3.3 for the average net estate under \$250,000 and goes in the positive direction until it is $+1.36$ for the largest estate class, a result that ranks with the implausible estimates obtained by Feldstein. These price elasticities appear to be balanced by an equally large variation in estate elasticities, from 0.17 for the smallest estates to 1.08 in the largest. The equation using adjusted disposable estate shows a similar pattern, but with less variation in both elasticities. For estates over \$1 million it implies a price elasticity of -1.42 and income elasticity of 0.34. While the two equations yield similar elasticities for the lowest estate-size class, therefore, there is considerable difference at the top end.

Given the strong effects of age and marital status apparent in the equations above, it is useful to explore, finally, whether the price elasticity of bequest giving varies according to such personal characteristics. It is particularly interesting to determine whether the charitable bequests of single individuals show any greater price sensitivity than others, in light of the general lesser importance of family ties to single individuals, coupled with

Table 6.10 **Elasticities of Charitable Bequests Based on Translog Function**

Elasticities by Estate Definition	Estate Class (thousands)			
	Under \$250	\$250 under 500	\$500 under 1000	\$1000 or more
Net estate				
Price	−3.30	−1.81	−0.46	1.36
Estate size	0.17	0.41	0.73	1.08
Adjusted disposable estate				
Price	−3.39	−2.61	−2.19	−1.42
Estate size	0.21	0.23	0.29	0.34

Note: The sample sizes for the regressions were 6621 using net estate and 6451 using adjusted disposable estate.

their higher rate of bequest giving. To test for such differential price sensitivity, equation (A) in table 6.9 was reestimated by splitting the price term between single decedents and others. The implied price elasticities, shown in table 6.11, were −2.30 for single individuals and −1.64 for others, the latter being roughly the same overall price elasticity estimated in table 6.9, equation (A). Although these point estimates tend to support the hypothesis that single decedents are more responsive to tax-induced price effects in their charitable bequests, the difference is not statistically significant. If it exists, this difference may be in part due to the availability to married individuals of the marital deduction and its increasing attractiveness at higher marginal tax rates. A similar specification was employed to determine whether this marital status effect differs by age group as well. As shown in the second part of table 6.11, there is little difference in price responsiveness by age among single decedents. For others, the price elasticity for those 60 or over is approximately the same as for the entire sample. For those comparatively few decedents under 60 years of age, the price term is small and not significantly different from zero. Again, the differences among the coefficients are small relative to the estimated standard errors.

6.4.2 Estimates for Large Estates

Because of the very large share of total bequests given by the wealthiest decedents, it is especially important to focus on the price and estate-size elasticities for these decedents. The estimates presented above clearly do not yield definitive estimates for these larger estates. In order to provide better information on the responsiveness of these decedents to taxes, bequests by those with net estates over $1 million or more were analyzed separately. The average net estate size in this class was $2.2 million.

Table 6.11 **Price Coefficients, Standard Errors, and Elasticities by Marital Status and Age Group**

		Single	Nonsingle
(A)	All	−16.29	−11.65
		(5.02)	(2.74)
		[−2.30]	[−1.64]
(B)	Under 60	−17.14**	−7.72**
		(9.18)	(5.88)
		[−2.42]	[−1.09]
	60 and over	−16.32	−11.80
		(5.02)	(2.74)
		[−2.31]	[−1.67]

Note: All coefficients except those denoted by double asterisks were significantly different from zero at the 95 percent level.

For this group the estimated basic model is given in equation (4), which is estimated again using Tobit:

$$
\begin{aligned}
(4)\ \ln CB = {} & -6.22 \ln P + 3.04 \ln NE + 1.52\ (\text{Age } 50\text{–}59) \\
& \quad (2.44) \qquad (1.01) \qquad (2.98) \\
& \quad [-2.66] \qquad [1.30] \\
& + 7.33\ (\text{Age } 60\text{–}69) + 9.55\ (\text{Age } 70\text{–}79) + 12.04\ (\text{Age } 80+) \\
& \quad (2.73) \qquad (2.69) \qquad (2.69) \\
& + 3.16\ \text{Widow} + 7.40\ \text{Single} + 3.06\ \text{Divorced} - 39.6, \\
& \quad (0.79) \qquad (1.20) \qquad (1.57) \qquad (7.0)
\end{aligned}
$$

$$F(z) = 0.427, N = 2302.$$

The coefficient of -6.22 for price implies an elasticity of the expected value of bequests of -2.66, and the corresponding estate-size elasticity is 1.30. Both of these estimates are clearly larger in absolute value than the values implied for large estates by the equations covering estates of all size. Their standard errors are also relatively larger, which is probably a reflection of the higher correlation between price and estate size for this more homogeneous group. The 95 percent confidence interval for the price elasticity is -0.61 to -4.70. While this range allows rejection of the hypothesis that the price elasticity is zero or positive, it nevertheless leaves considerable scope for uncertainty about the price response. For the estate elasticity the 95 percent confidence interval is 0.45 to 2.14, the lower value being close to the elasticity implied in the basic model (A) in table 6.9. To summarize, the point estimates in equation (4) imply that the estate tax exerts strong price and estate-size effects on bequests by very wealthy decedents, but these estimates are not extremely precise. The effects of age and marital status show similar patterns to those observed in equations for covering all estate classes, but the implied differences among groups are uniformly greater.

6.5 Summary and Implications

The deduction for charitable gifts in the estate tax complements the charitable deduction in the individual income tax by treating gifts at death in roughly the same way as lifetime giving. Although charitable bequests have averaged less than 10 percent of total giving, they are a significant portion of the total as well as a large percentage of gifts to certain types of organizations. The deduction has been a constant fixture of the tax over the years, but the changes in the effective tax schedule of the estate tax have altered tax liabilities and the relative price of charitable bequests.

There has been a limited amount of econometric analysis of bequest giving. Three basic conclusions emerge from it. First, bequests appear to be subject to a tax-induced price effect in much the same way as are contributions by living individuals. Second, the price elasticity of decedents with the largest estates appears to be not as large in absolute value as the elasticity of those with smaller estates. The third conclusion from the econometric work is a cautionary one, however. The estimates so far produced have not been as robust as those for individual giving. The estimates obtained by Boskin and those presented here appear most robust, but all together the econometric analysis of bequest giving suggests that point estimates should be applied only with caution.

With these reservations in mind, it is useful to consider the effect of recent and possible changes in the estate tax on charitable bequests. The effect of past tax policy can be understood only in the context of inflation; the consequence of policy and inflation was to raise marginal tax rates between 1943 and 1976 and increase bequest giving. Because the estate tax schedule was fixed in nominal terms over this period, an increasing proportion of estates became subject to the tax; thus the incentive effect of the deduction spread to more estates over time. In addition, as table 6.1 shows, the marginal tax rates applying to the largest estates rose over time, thus reducing the net price of bequest giving. For estates of $5 million in 1972 dollars, the increase in marginal tax rates resulted in a 45 percent decrease in price, from 0.55 to 0.30.

The changes since 1976 have reversed these trends. Tax legislation in 1976 and 1981 increased the minimum taxable estates through increases in the unified credit and lowered marginal tax rates for larger estates. The top marginal rate was reduced from 77 before 1976 to 70 percent between 1977 and 1981, and then, in steps, to 50 percent in 1985. As illustrated in table 6.1, this decline in tax rates implies for estates of $5 million in constant dollars an increase of almost 29 percent in the price of giving. Another change in the 1981 bill was the unlimited marital deduction. Although this provision certainly could have a significant impact on outright bequests by a married decedent, its long-run effect is likely to be considerably less since the marital exemption in the gift tax has long provided a limited means of delaying transfer taxation and since the estate is taxed at the time of the spouse's death.[25] The most important result of the 1981 tax

25. The 1981 law provided for special treatment of split-interest charitable remainder trusts. Under this treatment, a charitable deduction is allowed for the charitable portion at the time of death of the first spouse if the trust qualifies as a deductible charitable remainder unitrust or annuity trust and if the only noncharitable beneficiaries are the decedent or the spouse. This removes any incentive to make bequests to a spouse rather than leave a charitable bequest in a split-interest charitable remainder trust. See U.S. Congress, Staff of the Joint Committee on Taxation 1981, p. 238, or Arthur Andersen and Company 1982, pp. 48–51.

act on bequest giving appears to be, then, the restructuring of marginal tax rates, particularly the drop in tax rates for the very largest estates.

In order to give a rough idea of the effect of the post-1976 tax changes on bequests, table 6.12 presents two simulations of the change in bequest giving between 1976 and 1987. The number of estates by constant dollar class was assumed to be constant, and gross estate minus debt was assumed to increase with the price level. Taxes and tax rates were calculated using the respective tax schedules for 1976 and 1987. As can be seen in the third and fourth columns, the 1981 tax changes remove the tax liability for estates below $500,000 in 1976 dollars. Except in the $3 to $5 million class, estates larger than $500,000 will experience a decline in taxes. For the largest estate class the projected reduction in tax liability is 29 percent. Marginal tax rates for estates paying no tax in 1987 become zero, of course. Marginal rates for estates between $500,000 and $5 million are projected to rise while rates in the top two classes will fall.

Bequests in 1987 were estimated using the new values of net estate and price implied by these changes. For estates below $1 million, elasticity values of -1.6 for price and 0.4 for net estate were used. For estates over $1 million two sets of elasticities were used. The assumed price elasticity for this group was -1.0 in simulation I and -2.4 in simulation II. Estate elasticities for these top classes were 0.4 and 1.3 in simulations I and II, respectively. The first simulation generally reflects the results of equations based on estates of all sizes, while the second reflects the point estimates in equation (4). While these parameter values do not reflect the full variability of the parameter estimates, they are used to illustrate the implications of different values.

Both simulations imply that the 1981 estate tax changes will reduce bequest giving in real terms. Simulation I, using the comparatively smaller price elasticity for large estates, implies a fall in total bequests of 34 percent. The projected decline in the top class is over 50 percent. The second simulation, which gives greater weight to price changes as well as changes in net estate for wealthy decedents, implies even bigger declines. Total bequests fall by 52 percent, paced by a sharp decline in bequest giving in the top class. Obviously, the sheer size of bequests by the largest estates tends to dominate the overall change in bequests. Using methods such as those employed here, it is possible to project the likely effects of other changes in the estate tax, such as the elimination of the charitable deduction or its replacement with a credit. It is clear from the estimation and simulation results presented in this chapter, though, that the uncertainty surrounding the estimates of price and estate elasticities should serve as a caution flag in predicting the outcome of tax changes. As in discussing simulations of individual giving in chapter 3, two potential sources of error must be considered. First, the statistical uncertainty surrounding the coefficient estimates is important and much larger than that associated with models of

Table 6.12 **Estates, Charitable Bequests, and Taxes—1976 and 1987, Based on Taxable Estates in 1976 (dollar amounts in 1976 dollars)**

Gross Estate Class (thousands)	Charitable Bequests (millions)	Average Estate Tax Less Credits		Marginal Tax Rate		Simulated Charitable Bequests, 1987 (millions)[a]	
		1976	1987	1976	1987	I	II
60–70	0.2	0.1	0	.03	0	0.2	0.2
70–80	1.3	0.5	0	.07	0	1.2	1.2
80–90	1.7	1.3	0	.11	0	1.4	1.4
90–100	3.5	2.4	0	.14	0	2.8	2.8
100–120	6.1	4.5	0	.18	0	4.5	4.5
120–150	12.4	5.7	0	.22	0	8.5	8.5
150–200	28.0	10.8	0	.28	0	17.7	17.7
200–300	58.8	23.1	0	.30	0	34.6	34.6
300–500	109.6	48.2	0	.30	0	65.5	65.6
500–1000	142.0	105.2	45.4	.32	.39	176.1	175.1
1000–2000	158.7	240.9	210.6	.37	.35	181.7	234.4
2000–3000	98.8	486.2	404.8	.45	.50	110.7	134.2
3000–5000	121.2	809.8	826.9	.49	.50	123.3	126.5
5000–10,000	152.9	1583.2	1435.4	.59	.50	127.0	95.1
10,000 +	1417.7	5268.1	3715.9	.77	.50	667.8	203.3
TOTAL	2312.8	—	—	—	—	1523.0	1105.1

Source: U.S. Internal Revenue Service, *Statistics of Income—1976, Estate Tax Returns* 1979, p. 8; pp. 15–19, table 1; and p. 27, table 5; *Internal Revenue Code* 1982, sec. 2001 and 2002, pp. 847, 849.

[a]Price elasticities used in simulations were: for estates less than $1 million: −1.6; for estates over $1 million: −1.0 in I and −2.4 in II. Estate elasticities were: 0.4 for all estates in I and estates less than $1 million in II; 1.3 for estates over $1 million in II.

individual giving. Second, fundamental shifts in giving patterns, due perhaps to an increased need by donees, could also modify the changes predicted by static econometric models. Having noted these caveats, one can summarize the findings of this section by stating that, other things equal, the 1981 tax act will probably cause a significant decline in real bequest giving and that the effect in the largest estates will predominate.