

NBER WORKING PAPER SERIES

DO ESTATE AND GIFT TAXES AFFECT THE TIMING OF PRIVATE TRANSFERS?

B. Douglas Bernheim
Robert J. Lemke
John Karl Scholz

Working Paper 8333
<http://www.nber.org/papers/w8333>

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
June 2001

We are grateful to Arthur Kennickell and his colleagues at the Board of Governors of the Federal Reserve for their work developing and documenting the Surveys of Consumer Finances. Karen Pence provided exceptionally helpful advice and programming assistance calculating standard errors for estimates in the paper. We also thank David Joulfaian for helpful conversations and seminar participants at the University of Florida. The views expressed herein are those of the authors and not necessarily those of the National Bureau of Economic Research.

© 2001 by B. Douglas Bernheim, Robert J. Lemke and John Karl Scholz. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

Do Estate and Gift Taxes Affect the Timing of Private Transfers?

B. Douglas Bernheim, Robert J. Lemke and John Karl Scholz

NBER Working Paper No. 8333

June 2001

JEL No. H2

ABSTRACT

Proposals to alter the estate tax are contentious and have been debated largely in an empirical vacuum. This paper examines time series and cross-sectional variation to identify the effects of gift and estate taxation on the timing of private transfers. The analysis is based on data from the 1989, 1992, 1995, and 1998 waves of the Surveys of Consumer Finances. Legislative activity during this period reduced the tax disadvantage of bequests relative to gifts. Moreover, the magnitude of this reduction differed systematically across identifiable household categories. We find that households experiencing larger declines in the expected tax disadvantages of bequests substantially reduced inter vivos transfers relative to households experiencing small declines in the tax disadvantages of bequests. This implies that the timing of transfers is highly responsive to applicable gift and estate tax rates. These conclusions are based both on simple comparisons of the probability of giving across different time periods and groups, and on empirical specifications that control for a variety of potentially confounding factors, such as systematic changes in the fraction of wealth attributable to unrealized capital gains. The results also provide evidence of a systematic bequest motive for some high-wealth households.

B. Douglas Bernheim
Economics Department
Stanford University
and NBER
bernheim@stanford.edu

Robert J. Lemke
Economics Department
Florida International University
lemker@fiu.edu

John Karl Scholz
Economics Department
University of Wisconsin - Madison
and NBER
jkscholz@facstaff.wisc.edu

1. Introduction

In 1998 the federal estate tax raised \$28.4 billion. Though debates over proposals to eliminate this tax have been contentious,¹ until recently few studies have examined its behavioral effects. This paper helps address this gap by exploring the effect of gift and estate taxation on the timing of private transfers.

Learning more about the relationship between estate and gift taxation and the timing of transfers has immediate implications for tax policy. One cannot accurately forecast, for example, the revenue effects of various tax reform proposals without reliable estimates of pertinent behavioral responses. Moreover, since estate tax liabilities are not incurred until death, any evidence concerning associated behavioral effects illuminates the extent to which individuals anticipate and alter behavior in response to future taxes. But the topic has broader implications for transfer motives. If bequests result primarily from a combination of imperfect annuity markets and uncertainty concerning the timing of death (the “accidental bequest” hypothesis), one would not expect individuals to alter significantly the composition of transfers between gifts and bequests in response to changes in the tax rate imposed on the latter.² In contrast, if bequests primarily reflect either altruism or strategic interplay between family members (the “intentional bequest” hypothesis), then the tax treatment of bequests potentially plays an important role in

¹See, for example, the organization “Responsible Wealth” founded by William Gates, Sr. (http://www.responsiblewealth.org/tax_fairness/Estate_Tax/Estate_Tax_Call.html), which seeks to preserve the estate tax, and President George W. Bush’s initial budget document “A Blueprint for New Beginnings” (<http://www.whitehouse.gov/news/usbudget/blueprint/budtoc.html>), which proposes to repeal the estate (or “death”) tax.

²See Davies (1981) for an analysis of the accidental bequest motive, and Hurd (1987, 1989) for empirical studies suggesting people do not have purposeful bequest motives that are economically significant.

determining the timing of transfers.³

Though there is a substantial literature on gift and estate taxation, relatively little is known about the effects of these taxes on the timing of transfers.⁴ McGarry (2001) and Poterba (2001) both conclude that most households forego substantial tax savings by failing to exploit the advantages of gifts to the full extent permitted by law. This pattern could result from a failure to consider the tax consequences of giving. However, it is also consistent with the hypothesis that individuals balance tax minimization against other considerations. Uncertainty concerning future health status, long-term care needs, longevity, and future rates of return enhance the option value of retaining resources until death, and thereby inhibit an aggressive program of tax-favored giving. Donors may eschew early transfers because they are concerned that donees will waste the money or that the transferred resources will not benefit from the donor's superior investment skills. Parents may wish to retain resources as long as possible to maintain influence over their children.

When tax minimization competes with other non-tax priorities, a change in the relative tax rates applied to gifts and bequests can potentially cause significant changes in the timing of transfers. Joulfaian (2000) examines this relationship using cross-sectional variation in transfer tax rates and patterns of gifts and bequests. This is a challenging approach, as the pertinent tax rates are potentially correlated with both observable and unobservable characteristics (e.g. wealth, income, acquisitiveness) that presumably factor into decisions regarding the timing of

³See Becker (1974) and Barro (1974) for discussions of non-paternalistic altruism, Blinder (1974) for an analysis of paternalistic altruism, and Bernheim, Shleifer, and Summers (1985) for an investigation of the strategic motive.

⁴For a recent survey of the estate and gift tax literature, see Gale and Slemrod (2000).

transfers. Cognizant of this difficulty, Joulfaian uses the combined maximum federal and state statutory estate and gift tax rate to construct an instrument for tax prices. He finds evidence of a significant tax effect. The instrumental variables strategy may be problematic since a household's current state of residence may not be the state in which they pay estate taxes, leading to the well-known problems related to weak first-stage instruments. Also, estate tax laws may figure prominently into the retirement location decisions of high-wealth households, violating underlying assumptions of the instrumental variables approach.

In this paper, we exploit both time series and cross-sectional variation to identify the effects of estate and gift taxation on the timing of transfers. The analysis is based on the 1989, 1992, 1995, and 1998 waves of the Survey of Consumer Finances (SCF). Legislative activity during this period reduced the forward-looking tax disadvantage of bequests relative to gifts. Moreover, the magnitude of this reduction differed systematically across identifiable household categories. This suggests that it is possible to estimate the effects of interest by measuring the change in gift giving over time, and then comparing these changes across categories. This procedure eliminates potential biases resulting from fixed, unobserved characteristics that vary systematically with effective tax rates from one household category to the next.

We find that households experiencing larger declines in the expected tax disadvantages of bequests substantially reduced gift giving relative to households experiencing small declines in the tax disadvantages of bequests. Our estimates imply that the timing of transfers was highly responsive to applicable gift and estate tax rates. These conclusions are based on simple comparisons of the probability of giving across different time periods and groups, as well as on empirical specifications that control for a variety of potentially confounding factors, such as

systematic changes in the fraction of wealth attributable to unrealized capital gains.

2. Background concerning gift and estate taxation

U.S. estate and gift taxes share a common progressive rate schedule and a unified lifetime exemption. Marginal estate and gift tax rates are high, starting at 37 percent and rising to 55 percent for taxable estates exceeding \$3,000,000.⁵ The unified exemption stood at \$600,000 (nominal) per person from 1986 through 1997, and, pending 2001 tax legislation, is increasing in steps to \$1,000,000 in 2006 (indexed for inflation thereafter). Although this unified structure creates the superficial appearance that gifts and bequests are treated equally for tax purposes, there are a number of important differences.⁶

Gifts receive favorable treatment relative to bequests under current tax law for at least three reasons. First, transfers of up to \$10,000 (indexed for inflation beginning in 1998) per year for each unique donor-recipient pair are exempt from taxation, and do not count against the lifetime unified exemption.⁷ Second, taxes on gifts are assessed on a tax-exclusive basis, while taxes on bequests are assessed on a tax-inclusive basis. To illustrate, imagine that a taxpayer wishes to part with \$150,000 (including taxes), and that the applicable unified gift and estate tax rate (both average and marginal) is 50 percent. If the transfer takes the form of a gift, the recipient receives \$100,000 and the donor pays \$50,000 (50 percent of \$100,000) to the IRS. In contrast, if the

⁵The marginal rate was 60 percent for estates between \$10 million and \$17.184 million in 2000, which effectively clawed back the benefit of estate tax rates lower than 55 percent for very large estates.

⁶A comprehensive list of tax provisions affecting the relative attractiveness of gifts and bequests is beyond the scope of this paper. A more complete discussion can be found in Joulfaïn (2000).

⁷An unlimited exemption also applies to gifts of tuition and medical expenses.

transfer takes the form of a bequest, the recipient receives \$75,000 and the donor's estate pays \$75,000 (50 percent of \$150,000) in taxes.⁸ Third, it is more tax-efficient to exhaust the unified exemption by giving gifts early in life, rather than by making bequests at the end of life. To illustrate, imagine that the unified exemption is fixed at \$600,000 (real). Consider a donor who is choosing between transferring assets worth \$600,000 immediately, and transferring them, along with all earnings and capital appreciation, at death as bequests. The first option triggers no estate or gift tax liabilities. In contrast, the second option triggers tax liabilities on the earnings and appreciation.

The tax system confers at least one important offsetting advantage upon bequests: for the purpose of computing personal income taxes, the basis of an appreciated asset is "stepped up" to market value when the asset is bequeathed, but not when it is given as a gift. As a consequence, the recipient never has to pay capital gains taxes on past accumulations associated with bequeathed property. In contrast, the sale of an asset received as a gift triggers capital gains tax liabilities on all past accumulations, including those occurring before the date of the transfer. These provisions reduce the attractiveness of gifts relative to bequests. Previous studies have nevertheless concluded that, on balance, the tax system ordinarily provides strong incentives to transfer resources through gifts rather than bequests (McGarry, 2001; Poterba, 2001).

To illustrate some of the incentive effects of the unified estate and gift tax, we derive expressions for the benefits of using one dollar today to finance, respectively, either a current gift

⁸More generally, if the marginal tax rate for estates is e , then the corresponding rate for gifts is $e/(1+e)$.

or a future bequest.⁹ From these expressions, we infer the effect of changes in the tax system on incentives to give gifts rather than make bequests. It is useful to distinguish between four cases: (1) the sum of bequests and taxable gifts (those exceeding the annual exemption) is below the lifetime exemption, (2) taxable gifts are zero (gifts are below the annual exemption) and bequests exceed the lifetime exemption, (3) taxable gifts are strictly positive and less than the lifetime exemption, while the sum of taxable gifts and bequests exceeds the lifetime exemption, and (4) taxable gifts exceed the lifetime exemption. We consider each of these cases in turn.

Case 1: The sum of bequests and taxable gifts is below the lifetime exemption. Under this assumption, the household incurs no gift and estate tax liability. We will examine the net benefits of changing the timing of transfers by making an immediate one dollar gift, rather than holding onto the dollar and passing it through an estate. This comparison will depend upon the manner in which the dollar is invested.

First imagine that the dollar is invested in taxable interest-bearing securities. Let r denote the real after-tax rate of return earned by the parent, and let s denote the real after-tax rate of return earned by the child. These rates may differ because parents and children face different tax rates, or because they have different skills at managing investments. For simplicity, we assume that the parent will die with certainty in T periods. If the parent retains the dollar until death, the child will eventually receive $(1+r)^T$. From the child's perspective, this is equivalent to receiving an immediate gift of $\left(\frac{1+r}{1+s}\right)^T$. The net gain from using the dollar to fund a gift rather than a

⁹McGarry (2001) performs a related exercise. She finds that the most aggressive plan of tax-free giving would reduce the aggregate estate tax bill among wealthy households in the AHEAD data by roughly two-thirds.

bequest is then

$$\Delta_{1A} = 1 - \left(\frac{1+r}{1+s} \right)^T$$

Note that this term is strictly positive (negative) if and only if $r < (>) s$. In general, an increase in the parent's after-tax rate of return enhances the attractiveness of bequests relative to gifts, as does a decrease in the child's after-tax rate of return. This reflects the principle that it is tax-efficient to place ownership of assets in the hands of the party with the lowest marginal capital income tax rate. Henceforth, in the interests of simplifying formulas, we eliminate this effect by assuming that parent and child earn the same rate of return ($r = s$).

Next imagine that the dollar is invested in an asset that generates income as capital gains. Assume in particular that the value of the asset appreciates at the rate r . Let B denote the cost basis of the asset, and let t denote the capital gains tax rate. If the parent retains the dollar until death, the child will receive $(1+r)^T$ in T periods, after tax (due to the step-up of basis at death). If the parent transfers the asset immediately as a gift, the child will receive $(1+r)^T(1-t) + tB$ in T periods, after tax (assuming realization of gains in period T). Thus, the net gain from using the asset to fund a gift rather than a bequest, discounted to the present, is

$$\Delta_{1B} = t \left(\frac{B}{(1+r)^T} - 1 \right)$$

Provided that the cost basis of the asset is not too large ($B < (1+r)^T$), this term is strictly

negative.¹⁰ Consequently, the step-up of basis at death confers an advantage on bequests relative to gifts. The magnitude of this advantage falls with the cost basis B (it is greater for assets with larger unrealized gains) and rises with the capital gains tax rate t .

For all subsequent cases, we imagine that the incremental dollar is invested in an asset that generates income as capital gains. To obtain corresponding formulas for interest-bearing assets, simply set $B = 1$ and $t = 0$, and interpret r as the real after-tax rate of return.

Case 2: Taxable gifts are zero and bequests exceed the lifetime exemption. Let e denote the marginal estate tax rate. If the parent retains the asset until death, the child's after-tax proceeds in T periods will be $(1-e)(1+r)^T$. If the parent transfers the asset immediately as a gift, the child will once again receive $(1+r)^T(1-t) + tB$ in T periods, after tax (assuming realization of gains in period T). Thus, the net gain from using the asset to fund a gift rather than a bequest, discounted to the present, is

$$\Delta_2 = e - t \left(1 - \frac{B}{(1+r)^T} \right)$$

This expression is identical to the formula for Δ_{1B} , except for the inclusion of the estate tax rate e . Thus, the qualitative effect of the asset's capital gains tax basis, B , is unchanged. Notice that the estate tax confers an advantage on gifts relative to bequests, and that the magnitude of this advantage rises with the estate tax rate e . Setting $t = 0$, we have $\Delta_2 = e > 0$. Thus, from a tax perspective, it is always desirable to make cash transfers as early as possible as non-taxable gifts (below the annual exemption), rather than as bequests.

¹⁰If $B > 1$, tax minimization would require the parent to liquidate the asset immediately to realize the loss.

Case 3: Taxable gifts are strictly positive and less than the lifetime exemption, while the sum of taxable gifts and bequests exceeds the lifetime exemption. If the parent retains the asset until death, the child's after-tax proceeds in T periods will be $(1-e)(1+r)^T$. If the parent transfers the asset immediately as a gift, the child will receive $(1+r)^T(1-t) + tB - e$ in T periods, after tax (assuming realization of gains in period T). Note that this is the same expression as for Case 2, except that we have subtracted the taxes due on one dollar of bequests, e . This is appropriate because the incremental gift uses up one dollar of the unified exemption, thereby exposing one incremental dollar of bequest to estate taxation. Thus, the net gain from using the asset to fund a gift rather than a bequest, discounted to the present, is

$$\Delta_3 = e \left(1 - \frac{1}{(1+r)^T} \right) - t \left(1 - \frac{B}{(1+r)^T} \right)$$

This expression is identical to the formula for Δ_2 , except for the inclusion of the second term in the first pair of brackets. Accordingly, the qualitative effect of the asset's capital gains tax basis, B , is unchanged.

Observe that $1 - (1+r)^{-T} > 0$. Consequently, the value of Δ_3 is strictly increasing in the transfer tax rate, e . Note in particular that gifts are strictly favored over bequests ($\Delta_3 > 0$) in the absence of capital gains taxation (equivalently, when the dollar in question is invested in an interest-bearing asset). This advantage reflects the principle that it is more tax-efficient to exhaust the unified exemption by giving gifts early in life, rather than by making bequests at the end of life. It is also easy to verify that Δ_3 is strictly increasing in the asset's capital gains tax basis, B .

Case 4: Taxable gifts exceed the lifetime exemption. If the parent retains the asset until death, the child's after-tax proceeds in T periods will be $(1-e)(1+r)^T$. In contrast, an immediate transfer triggers a contemporaneous gift tax liability. To pay this incremental tax, the parent must liquidate a portion of the asset, which may in turn generate a capital gains tax liability. We need to compute the value transferred to the child after liquidating a large enough fraction of the asset to pay all associated gift and capital gains taxes.

Let G denote the value of the assets transferred to the child after all gift and capital gains taxes. Since gifts are taxed on a tax-exclusive basis, the associated gift tax liability is eG . The parent liquidates all residual assets, valued at $1 - G$, to pay for taxes on the gift. Liquidating $(1 - G)$ would yield $(1 - G)(1 - t(1 - B))$ after capital gains taxes. These proceeds need to be just sufficient to pay all incremental gift tax liabilities, so $eG = (1 - G)(1 - t(1 - B))$. Solving for G , we obtain:

$$G = \frac{1 - t(1 - B)}{1 - t(1 - B) + e}$$

Notice if there are no capital gains taxes or if there are no unrealized capital gains associated with the asset, then the gift totals $1/(1+e)$ and the tax-exclusive marginal gift tax rate is $e/(1+e)$.

Likewise, if there is no gift tax, the parent can transfer the entire dollar. Note that the amount of the gift declines with e and rises with B .

If the parent transfers the amount G immediately as a gift, the child will receive $G[(1+r)^T(1-t) + tB]$ in T periods, after tax (assuming realization of gains in period T). Thus, the net gain from using the asset to fund a gift rather than a bequest, discounted to the present, is

$$\Delta_4 = G(1 - t) + \frac{tBG}{(1 + r)^T} - (1 - e)$$

Accordingly,

$$\frac{\partial \Delta_4}{\partial e} = 1 - \frac{(1 - t(1 - B(1 + r)^{-T})) (1 - t(1 - B))}{(1 - t(1 - B) + e)^2}$$

With $e, r > 0$ and $B, t \in (0,1)$, it is straightforward to verify that this derivative is strictly positive and less than unity. It is also easy to check that $\frac{\partial G}{\partial B} > 0$, from which it follows immediately

that $\frac{\partial \Delta_4}{\partial B} > 0$.

Our analysis of Case 4 implies that the net gain from using the marginal dollar to make a gift rather than a bequest rises with both the gift and estate tax rate, e , and with the asset's tax basis, B . To obtain some sense for magnitudes, imagine that $t = 0.20$, $B = 0.20$, $r = 0.06$, $T = 5$ and $e = 0.55$. Then the net gain from transferring the marginal dollar as a gift rather than as a bequest, discounted to the present (Δ_4), is \$0.0515. If e falls to 50 percent, then this gain falls by 3.13 cents to \$0.0202. If the asset's capital gains tax cost basis increases from 0.20 to 0.40, the net gain rises from \$0.0202 to \$0.0483.

Together, Cases 1 through 4 imply that the net gains from making the marginal transfer as a gift rather than as a bequest rise with the gift and estate tax rate and with the asset's capital gains

tax basis at all levels of gift giving (though the magnitude may be small). Consequently, an increase in e or B should shift the composition of transfers towards gifts and away from bequests. Case 2 is particularly important in the context of our subsequent analysis from the perspective of understanding a parent's incentives to transfer the first dollar of gifts (which is necessarily non-taxable). A tax policy change that exposes a household to estate taxation, or that raises the rate of estate taxation, necessarily increases the value of Δ_2 , and thereby enhances the household's incentives to transfer the first dollar of gifts. Consequently, we would expect the frequency of gift giving to rise with the applicable rate of gift and estate taxation. A central purpose of the subsequent empirical analysis is to test these unambiguous predictions.

3. Sources of variation in effective tax rates

To identify the separate effects of gift taxes and estate taxes on the timing of transfers, one must exploit sources of independent variation in the two tax rates. This is potentially problematic, as U.S. estate and gift taxes have shared a common rate schedule and a unified lifetime exemption since 1976. Fortunately for our purposes, various features of the tax code (some of which are discussed in the previous section) cause the effective marginal tax rates to diverge, creating cross-sectional variation in the ratio of these rates across households.

In the current study, we also make use of time series variation in applicable tax rates. The sources of this variation require further discussion. Transfer taxes were essentially unchanged from 1986 to 1997. As part of tax legislation signed in August 1997 (TRA97), the unified lifetime exemption was scheduled to increase from \$600,000 in 1997 to \$650,000 in 1999, \$675,000 in 2000 and 2001, \$700,000 in 2002 and 2003, \$850,000 in 2004, \$950,000 in 2005

and \$1,000,000 thereafter (with indexation for inflation). When deciding whether to give gifts in 1997 or retain resources until death, individuals expecting to survive beyond the current year should have taken these higher exemptions into account. Minimal estate planning permits married couples to shelter an amount equal to twice the exemption. Consequently, for couples expecting to survive past 2006, the value of the unified estate and gift tax exemption, as of 1997, increased from \$1.2 million to \$2 million.¹¹

It is important to emphasize that the effects of TRA97 on the incentives to give gifts rather than bequests varied systematically across identifiable segments of the population. Our empirical strategy exploits this variation. Those who expected their bequests and taxable transfers to be below the original exemption were unaffected. All else equal, we would not expect to observe a substantial change in the composition of transfers for this first group of households. Those who expected their bequests and taxable transfers to be above the original exemption but below the new exemption experienced a substantial reduction in the effective marginal gift and estate tax rate, e . If taxes influence the composition of transfers, we would expect to observe a reduction both in the frequency of gift giving, and in the average amount transferred through gifts for this second group of households.

A third group of households expected their bequests and taxable transfers to exceed the new exemption, but they still may have experienced changes in the effective marginal gift and estate

¹¹A separate source of time series variation – one that we do not exploit – results from the constancy of the nominal unified exemption, and hence the declining real value of the exemption, prior to 1998. All else equal, this should have produced an increase in taxable gifts among decedents. IRS data on estate tax returns reveal that the fraction of individuals with taxable estates who also made taxable *inter vivos* gifts did indeed rise significantly between 1989 and 1998 for all groups with taxable estates exceeding \$1,000,000. For example, among those with estates between \$2.5 million and \$5 million, the percentage of returns with taxable gifts rose from 28.0 percent to 33.8 percent. See http://www.irs.gov/tax_stats/soi/est_etr.html, files 98ES01SI.XLS and 89ES02TB.EXE, for the pertinent data.

tax rate. With a larger unified exemption, an estate of any given size may fall within a lower tax bracket. In most of these instances, there was presumably a moderate decline in the applicable marginal tax rate due to the progressivity of the rate structure. However, in some instances, the applicable marginal tax rate may have been higher after TRA97 (the marginal tax rate actually declines from 60 percent for estates between \$10 million and \$17.184 million, to 55 percent for estates over \$17.184 million). In addition, those who anticipated that their transfers would exceed the new exemption may have expected to benefit from further reductions in transfer taxation. If taxes influence the composition of transfers, we might expect to observe a reduction both in the frequency of gift giving, and in the average amount transferred through gifts for this third group of households, but we would expect these effects to be smaller than for the second group.¹²

It is also important to acknowledge that the *expected* tax disadvantages of bequests almost certainly began to decline well before August 1997. During the first part of that year, House Speaker Newt Gingrich identified estate tax relief as one of the three top Republican tax priorities. Other key lawmakers, including the Senate Majority Leader, Senate Majority Whip, Finance Committee Chairman and House Ways and Means Committee Chairman campaigned aggressively and publicly for an expansion of the unified exemption.¹³ The popular press actively covered these efforts, describing them as “aggressive” and “surprisingly successful” well

¹²For the second and third groups of households, the expansion of the unified exemption also created positive wealth effects, which may have led to increased giving.

¹³“Treasury Official Slams Estate Tax Rollback Effort,” Clay Chandler, *Washington Post*, April 22, 1997, page C1.

in advance of adoption.¹⁴ At a minimum, it seems likely that estate planners and tax accountants were aware of these developments, and were advising their clients to act appropriately early in 1997 (e.g. by delaying planned gifts that they would choose not to make if the law changed)

A closer examination of legislative activity suggests that wealthy households (or their financial advisors) could have reasonably anticipated future increases in the unified gift and estate tax exemption as early as 1993. In that year, Representative Chris Cox (R, CA) introduced legislation to abolish the estate tax, and advocacy organizations, such as 60-Plus, began lobbying for related reforms.¹⁵ Increasing the unified exemption was an element of the highly publicized Contract with America when Republicans took control of the House of Representatives in 1994 for the first time since the Truman Administration.¹⁶ Consequently, between 1993 and mid-1997, transfer behavior may have changed in response to evolving expectations.

4. Data

For this study, we use data obtained from the 1989, 1992, 1995, and 1998 Surveys of Consumer Finances (SCF). These surveys are fielded every three years (beginning in 1983) by the Board of Governors of the Federal Reserve System. They gather detailed information on the assets and liabilities of a random, stratified cross-section of American families. The SCFs intentionally oversample wealthy households, which is useful for our purposes. They are widely

¹⁴“GOP Inherits Momentum to Reduce Federal Estate Tax,” Janet Hook, *Los Angeles Times*, April 19, 1997, page A11.

¹⁵See for example, www.house.gov/cox/deathtax/ and www.60plus.org/KilltheDthtax/deathtax.htm.

¹⁶See www.house.gov/house/Contract/CONTRACT.html, specifically, the Job Creation and Wage Enhancement Act.

regarded as the most reliable sources of information on the financial status of U.S. households.

All of the SCFs fielded between 1989 and 1998 share a similar structure. Each gathers extensive information on assets, liabilities, and demographic characteristics. In addition, all of these surveys include a module concerning financial support provided to individuals who are not members of the household.¹⁷ Respondents are first asked the following question: “During [the previous year], did you (or anyone in your family living here) provide any (other [than alimony or child support]) financial support for relatives or friends who do not live here?” If the answer is yes, the followup question asks: “How much support did you (and your family) pay?” Subsequent questions indicate to whom the support is given. Answers to these questions provide the central focus for our empirical analysis.

The creators of the SCF provided five separate imputed values (replicates) for each missing variable.¹⁸ They also selected 999 sample replicates from the final data in a way that allows users to capture important dimensions of sample variation (for details see Kennickell, McManus and Woodburn, 1996). The sample replicates are particularly useful because confidentiality concerns prohibit the release of information on the survey’s stratification design. The results in Table 3 through Table 6 use both the five imputation replicates and the sampling replicates. We adjust standard errors for the imputation and sampling variance inherent in the SCF data.

Table 1 presents weighted tabulations of net worth, equity (including securities held through

¹⁷The 1983 SCF did not gather information on this topic, and the pertinent questions in the 1986 survey are not consistent with the questions asked in later years.

¹⁸The SCF imputation procedure is described in Kennickell (1998). As noted in the SCF documentation, multiple imputation offers two distinct advantages compared with single imputations. First, because multiple imputation yields multiple outcomes from a random process, it supports more efficient estimation than single imputation. Second, multiple imputation allows users to make straightforward estimates of the degree of uncertainty associated with the missing information.

mutual funds), and *inter vivos* transfers for the 1989, 1992, 1995 and 1998 samples. Real net worth changed relatively little between 1989 and 1995, but increased by roughly 20 percent between 1995 and 1998. The fraction of households with equity and the conditional mean and median value of equity also increased sharply over time. The effects of the 1990s stock market boom are readily apparent. It is also clear that the equity holdings of the typical family were not large even among those who hold these securities. Consequently, the performance of the stock market during this period probably did not have a substantial effect on the behavior of the typical equity-holding household.

From the final three rows of table 1, it appears that there may have been a slight decline in both the frequency and quantity of *inter vivos* transfers during this period. However, evidence of a trend is weak. In each year, roughly 12 percent of households provided financial support to individuals outside of the household. Among those making such transfers, the mean values were roughly \$5,400, and the medians ranged from \$2,000 to nearly \$2,700.

As noted earlier, the transfer information collected in each year of the SCF refers to payments made in the preceding calendar year. Transfer information in the 1998 SCF refers to payments made in 1997, but the 1997 tax bill (TRA97) was not signed into law until August of that year. As mentioned in section 3, however, proposals to reduce estate and gift taxation received considerable attention in Washington and in the popular press during the first half of 1997, and Congressional action was widely expected. It is therefore reasonable to assume that many of the affected households anticipated the estate and gift tax provisions of TRA97 prior to its adoption. Moreover, these provisions had formed a prominent part of the Republican Congressional agenda since 1993. Though it is impossible to measure the rate at which

expectations concerning estate and gift taxation evolved between 1993 and mid-1997, it would seem difficult to dispute the proposition that households regarded an increase in the unified exemption as more likely after 1993. Consequently, although the quantitative patterns remain if we analyze separately each wave of the SCFs, we focus our empirical analysis on comparisons between the 1989 and 1992 waves of the SCF on the one hand, and the 1995 and 1998 waves on the other.

5. Classification of households

The estimation strategy outlined in section 3 requires us to place each household into one of three categories: those expecting to pay no transfer taxes under the statutes prevailing prior to TRA97 (the “old regime”), those expecting to pay transfer taxes under the old regime but not under TRA97 (the “new regime”), and those expecting to pay transfer taxes under both regimes. We treat a household as expecting to pay transfer taxes if its projected estate exceeds the applicable unified exemption. That is, we classify each household according to whether its projected estate is below the original exemption (“group 1”), between the original exemption and the new exemption (“group 2”), or above the new exemption (“group 3”). For the reasons discussed in section 3, it is natural to assume that reductions in the expected tax disadvantages of bequests were largest for the second group and smallest for the first group.

To implement this classification system, we must resolve two practical issues. First, since TRA97 included a scheduled phase-in, there is some ambiguity concerning the applicable unified exemption under the new regime. Second, we must settle on a method or methods for projecting each household’s estate.

With respect to the first issue, we note that the life expectancy of almost every household in the 1998 SCF extended well beyond 2006.¹⁹ It is therefore reasonable to assume that, for all but the oldest and sickest households in the SCF, expected estate tax liabilities after TRA97 were governed primarily by the fully phased-in provisions. Accordingly, we use \$1,000,000 for single individuals and \$2,000,000 for couples as the applicable unified exemptions under the new regime.²⁰

The second issue is potentially more problematic. In practice, households may be uncertain about the size of their ultimate bequests. Even so, reasonable forecasts of these estates should be systematically related to changes in expectations concerning estate taxes over the time period in question.

We adopt two distinct methods for projecting the value of a household's estate at death. For the first method, we simply set each household's projected estate equal to its current net worth. Since wealth tends to change rather slowly with age, and since the classification brackets are extremely wide (\$0 to \$1,200,000, \$1,200,000 to \$2,000,000, and over \$2,000,000 for married couples), transitions between categories are relatively uncommon. Classification of households by current net worth should therefore closely resemble classification by expected estate. It is nevertheless important to acknowledge that this procedure may systematically misclassify some observations. In particular, current wealth may tend to understate the value of estates at death for young wealth-accumulating households, and to overstate the value of estates for older (and

¹⁹In 1998, life expectancies for single men under the age of 80 and single women under the age of 83 extended beyond 2006. The likelihood that at least one member of a married couple would survive past 2006 was significantly higher than the corresponding likelihood for individuals (www.cdc.gov/nchs/data/nvs47_28.pdf).

²⁰For the purpose of determining the applicable unified exemption, widows are treated as married, and cohabitating individuals are treated as single. This treatment is consistent with estate tax provisions.

generally wealthier) wealth-decumulating households.

For our second method, we use estimated age-wealth profiles along with life tables to predict the expected value of the estate for each household. This eliminates the source of systematic misclassification mentioned in the previous paragraph. Specifically, we estimate quantile regressions explaining the 10th, 30th, 50th, 70th, and 90th percentile values of net worth as functions of age (using a fifth order polynomial) and binary variables measuring educational achievement, marital status, number of children, previous receipt of an inheritance, decade of birth, and year of survey.²¹ We then place households into net worth quintiles based on current net worth and age. Using the age coefficients from the appropriate quantile regression (10th percentile for households in the first quintile, 30th percentile for households in the second quintile, and so on), we then adjust each household's net worth to its predicted age of bequest. We compute the latter variable using 1998 life expectancy tables published by the Center for Disease Control.

Table 2 shows the relationship between household classifications based on our two methods of projecting the value of estates at death. Of the 78,260 observations, only 1,121 (1.43%) are classified differently.²² As one might expect, discrepancies between the two classification systems are concentrated among relatively young households that have significant assets and many years of accumulation ahead of them, as well as among newly retired households with substantial assets and long life expectancies. Notice that there are no households classified as

²¹Complete results for each specification mentioned in the paper are available from an author upon request.

²²Recall that there are only 15,652 household in the SCF samples and each household is included five times to allow for the imputation of missing values. Of these 15,652, 487 (or 3.11 percent) households switch classification groups for at least one imputation.

“group 1” for one method of projection and as “group 3” for the other method.

6. The basic patterns

Tables 3 and 4 exhibit the frequencies of transfers broken down by time period and household group. For Table 3, we classify households based on current net worth. For Table 4, we classify household based on projected net worth at the expected date of bequest.

The frequency of transfers changed very little over the pertinent time period for households in group 1. In Table 3, 11.3 percent of these households made transfers in 1989 and 1992, vs. 11.6 percent in 1995 and 1998. The figures in Table 4 indicate an even smaller change (11.4 percent vs. 11.5 percent). In contrast, the frequency of transfers fell sharply among group 2 households (from 28.7 percent to 16.6 percent in Table 3, and from 25.7 percent to 15.3 percent in Table 4). A smaller reduction in transfers is observed for group 3 households (from 32.9 percent to 30.1 percent in Table 3, and from 31.5 percent to 29.8 percent in Table 4).

The bottom panels of Tables 3 and 4 indicate the extent to which the changes across time periods in the frequency of giving differed across household groups.²³ The frequency of giving among group 2 fell sharply relative to the frequency of giving among both groups 1 and 3. Bearing in mind that fewer than 29 percent of group 2 households made transfers in 1989 and 1992, the absolute relative changes are large: 12.4 percentage points for group 2 vs. group 1 in Table 3, 10.6 percentage points for group 2 vs. group 1 in Table 4, 9.4 percentage points for group 2 vs. group 3 in Table 3, and 8.7 percentage points for group 2 vs. group 3 in Table 4. The

²³The change in relative frequencies of giving exhibited in Tables 3 and 4 are also apparent when one compares either the 1989 or 1992 SCF individually with either the 1995 or 1998 SCF. The smallest absolute value of the “difference-in-differences” is 9.1 percent for group 2 vs. group 1, and 5.3 percent for group 2 vs. group 3.

relative changes for group 2 vs. group 1 are statistically significant at conventional levels of confidence. Due to the smaller sample sizes involved, the comparisons between groups 2 and 3 do not pass conventional tests for statistical significance.

It is worth reiterating our interpretation of these patterns. For the reasons discussed in section 3, it is natural to assume that reductions in the expected tax disadvantages of bequests were large for group 2, significantly smaller for group 3, and non-existent for group 1. Consequently, the sharp declines in giving among group 2 relative to groups 1 and 3, as well as the smaller declines in giving among group 3 relative to group 1, are consistent with the hypothesis that gift and estate taxation strongly influences the timing of transfers.

As the change in the frequency of giving is non-monotonic in wealth, it is difficult to imagine other natural explanations for these patterns.²⁴ It is nevertheless important to examine systematically the roles of other potentially important variables. For example, the booming stock market of the 1990s presumably left many wealthy households with substantial unrealized capital gains. Indeed, IRS data indicate that the fraction of taxable estates held in the form of public equity increased from 26.7 percent in 1989 to 37.0 percent in 1998.²⁵ The analysis of section 2 suggests that this development may have depressed *inter vivos* giving. This is potentially troubling because equity holdings (and hence changes in the importance of capital gains) may have differed across our three household groups. The purpose of the next two sections is to

²⁴The 1993 Omnibus Budget Reconciliation Act increased the top marginal tax rates to 36 and 39.6 percent, from 31 percent, repealed the income cap on Medicare taxes, increased the transportation fuels excise tax by 4.3 cents per gallon, increased the taxable portion of social security benefits, permanently extended the phaseout of personal exemptions and itemized deductions for high-income taxpayers, and created a 35 percent tax rate for corporations (Tempalski, 1998). Given the group 2 and group 3 comparisons, we think it is unlikely that the 1993 tax bill accounts for the patterns observed in this paper.

²⁵See footnote 11 for references to the data source.

explore our findings in greater detail, and to provide further evidence concerning other potential explanations for the basic patterns.

7. Regression analysis

The next step in our analysis is to examine the extent to which the changes across time periods in the frequency of giving differed across household groups, controlling for other variables that potentially influence transfer decisions. Table 5 reports estimates of a probit model explaining the decision to make a positive *inter vivos* transfer as a function of age (using a fifth order polynomial),²⁶ income, net worth, the percentage of net worth attributable to unrealized capital gains, and binary variables measuring educational achievement, health status, marital status, gender, the presence of children, previous receipt of an inheritance, year of survey, and household group.²⁷ We also include two interaction terms: the group 2 dummy multiplied by the 1995 SCF dummy, and the group 2 dummy multiplied by the 1998 SCF dummy.

The two interaction terms are the focus of our analysis. With the inclusion of group dummies (which control for time-invariant differences between the three household groups) and survey wave dummies (which control for baseline variation in giving over time), the interactions capture the extent to which the change in behavior for group 2 between the first two waves of the SCF (1989 and 1992) and either the 1995 or 1998 wave differed from the corresponding change

²⁶We obtain similar results when we replace the fifth order polynomial in age with a collection of age dummies.

²⁷Descriptive statistics for the sample are given in Appendix Table A.

for groups 1 and 3.²⁸ We expect the coefficients on these interactions to be negative. That is, holding other observable variables constant, we expect the probability of making an *inter vivos* transfer to be lower in the 1995 and 1998 waves than in the earlier waves for families that were significantly affected by the estate tax changes, relative to families who were unaffected or mildly affected at the margin.

Table 5 reports two probit regressions, one corresponding to each of our two methods for projecting the value of a household's estate at death. When household classifications are based on current net worth, the interaction terms indicate that the probability of making a positive *inter vivos* transfer among group 2 households declined by 5.7 percentage points relative to group 1 and 3 households between the early waves of the SCF and the 1995 wave, and by 6.5 percentage points between the early waves and the 1998 wave. When household classifications are based on net worth adjusted to age at the expected date of death, the corresponding figures are 5.1 percentage points and 6.3 percentage points. All four coefficients are statistically significant at conventional levels of confidence. Bearing in mind that fewer than 29 percent of group 2 households made transfers in 1989 and 1992, the measured effects are also economically significant.²⁹

²⁸Note that we combine groups 1 and 3 for this purpose. As is apparent from tables 3 and 4, the frequency of giving declined to a somewhat greater extent for group 3 than for group 1, but the difference is rather small and not statistically significant. Relaxing this restriction does not alter the results, as indicated in footnote 29.

²⁹When the specification is expanded to include interaction terms between the group 2 dummy and the 1992 survey dummy, as well as between the group 3 dummy and the 1992, 1995, and 1998 survey dummies, our results remain qualitatively unchanged. In particular, the coefficients for the group 2 interaction terms are -1.7 (*t*-stat of 0.32) for 1992, -6.1 (*t*-stat of 2.12) for 1995, and -6.9 (*t*-stat of 2.76) for 1998, while the coefficients for the group 3 interaction terms are -4.5 (*t*-stat of -1.93) for 1992, -2.2 (*t*-stat of -0.7) for 1995, and -3.7 (*t*-stat of -1.13) for 1998. Although the group 3 interactions are not statistically significant at conventional levels of confidence, the observed pattern is consistent with the hypothesis that these households reduced the frequency of giving, albeit by a smaller amount than group 2 households, in response to moderate reductions in the anticipated tax advantages of gifts.

The other coefficients in Table 5 are generally sensible. As one would expect from the sample means in Table 3, the year dummies do not exhibit any systematic trends. The age coefficients imply that the frequency of giving increases steadily until age 55, after which it declines. The likelihood of a transfer rises with education, wealth, and income. It is higher for single individuals, males, parents, recipients of inheritances, and people who are in good health. Notably, gift giving is less common among those who attribute larger fractions of their equity holdings to unrealized capital gains. This is consistent with our analysis of tax incentives (recall the discussion of capital gains tax basis in section 2).

Thus far, our discussion has focused exclusively on the *probability* of making a transfer. We have also estimated Tobit specifications that explain the value of gifts, but that are otherwise analogous to the Probit models in Table 5. When households are classified by projected estate value, the coefficients for the group 2 interactions terms are -10,422 (*t*-stat of -2.48) for 1995, and -7,996 (*t*-stat of -1.61) for 1998. Results are similar when households are classified by current net worth, except that the coefficient of the 1998 interaction term is estimated with less precision. These findings are consistent with the hypothesis that estate tax have large effects on *inter vivos* transfers.

8. Robustness and sensitivity

In this section, we consider a number of potential reservations concerning the results presented in section 7. In particular, we explore and find little support for alternative explanations of the sizeable relationship we observe between expected estate taxes and *inter vivos* transfers.

The first reservation concerns the phase-in provisions of TRA97. As noted previously, the unified credit is scheduled to increase in stages, with full implementation in 2006. It is conceivable that our results could be sensitive to the inclusion of older households who might reasonably expect to die prior to 2006. To evaluate this possibility, we estimate the probit specifications for a sub-sample from which we exclude any family for which the household head is more than 75 years old. The impact on our results is minimal. The 1995 interaction effect decreases (in absolute value) by only 0.4 percentage points, and the 1998 interaction effect increases by 0.2 percentage points.

A second concern is that the estate tax might affect net worth. As noted by Heckman (1996), the validity of the estimation method used in section 7 depends on the assumption that the policy variable (the estate tax) does not influence the classification variable (net worth).³⁰ The existence of a significant causal link between estate taxation and wealth accumulation has not been documented. Even so, we do not wish to rely exclusively on the mere assumption that no relation exists.

We address this concern by estimating a specification that classifies families based on educational attainment rather than by net worth. Educational attainment is almost certainly exogenous with respect to the estate tax reforms.³¹ It is also highly correlated with income and saving behavior, and consequently with the likelihood that a family will be subject to estate

³⁰Problems arise if estate taxation causes families to switch between categories. Suppose, for example, that families in the upper range of group 1 under the old regime increase net worth in response to TRA97. Under the new regime, they may find themselves in the low range of group 2. If the probability of giving is related to underlying tastes for accumulating wealth, this compositional change could produce apparent “policy effects,” even if the estate tax does not influence the probability of making a transfer. The direction of the resulting bias is indeterminant.

³¹Other studies make similar assumptions concerning the exogeneity of education. See, for example, Blundell, Duncan and Meghir (1998), who examine the effects of taxation on labor supply.

taxation. We split the sample into those with an advanced degree (i.e., MA, MBA, Ph.D., DDS, Law, etc.), and all other families. Slightly less than 10 percent of the sample falls into the advanced degree category. This classification scheme is, of course, rather crude. First, many highly educated households are not subject to estate taxation. Indeed, estate taxes affect a significantly smaller fraction – only 3.7 percent – of our sample. Second, among households without advanced degrees, some certainly accumulate sufficient wealth to trigger estate tax liabilities. Consequently, although it is reasonable to assume that TRA97 had a larger effect on expected estate taxation for the highly educated group, the difference between expected tax rates across these two groups is certainly smaller than the statutory change for those whose projected estates fell between the unified exemptions under the old and new regimes. Consequently, we expect to find smaller relative changes when comparing households classified by educational achievement.

The estimates of this alternative specification generally support our interpretation of the original results. The coefficients for the advanced degree interaction terms are -0.1 (*t*-stat of -0.05) for 1995, and -3.8 (*t*-stat of -2.93) for 1998. When we restrict the sample to households over age 34 (in order to eliminate individuals who may not have had sufficient time to obtain advanced degrees) and under age 65 (to homogenize the economic significance of an advanced degree), the coefficients for the advanced degree interaction terms are -2.2 (*t*-stat of -1.12) for 1995 and -4.6 (*t*-stat of -2.81) for 1998.

A third concern is that the reduction in transfer frequencies among group 2 households results from some spurious factor that we have thus far failed to identify. As mentioned previously, any alternative explanation must account for the fact that this effect is non-monotonic

across the three household groups. Unobserved factors that are, for example, correlated with wealth would not produce this non-monotonic pattern.

We provide further evidence on the plausibility of alternative explanations by estimating identical probit specifications explaining the likelihood of making a charitable contribution, rather than an *inter vivos* transfer. As long as charitable bequests are fully deductible for the purpose of computing estate tax liabilities, a change in the rate of estate taxation does not, in general, systematically alter incentives affecting the timing of contributions.

To illustrate this point, we derive expressions for the benefits of using one dollar today (after personal income taxes) to finance, respectively, either a current contribution or a future charitable bequest. We assume that charitable contributions are fully deductible for the purpose of personal income taxation as well as for estate taxation. For simplicity, we imagine that the dollar is held in an interest-bearing security. If the benefactor retains the dollar until death, the charitable organization will receive $(1+r)^T$ in T periods, after tax. If the benefactor forgoes the after-tax dollar to finance an immediate contribution, the charitable organization receives $1/(1-m)$ (where m is the marginal personal income tax rate). After T periods, this grows to $(1+s)^T/(1-m)$, where s denotes the rate of return earned by the charity. Since the charity pays no tax on capital income, it is natural to assume that $s > r$. Note that the net benefit of making an immediate contribution, $(1+s)^T/(1-m) - (1+r)^T$, is independent of the estate tax rate, e . Note also that the residual inheritance received by heirs is unaffected by the timing of the contribution, provided that the charitable bequest is fully deductible for the purpose of computing estate tax liabilities.

A few additional clarifying comments are in order. The previous discussion does not imply that charitable contributions and bequests are independent of the estate tax. On the contrary,

estate taxation does affect the marginal sacrifice experienced by heirs when the benefactor contributes an additional dollar to charity. However, since both charitable gifts and charitable bequests remove the donated resources from the benefactor's estate (assuming full deductibility), estate taxation does not affect the tradeoff between contributing immediately and contributing at death. In other words, with respect to charitable contributions, the estate tax may induce some substitution between alternative uses of funds, but it should not have a pure timing effect.

In general, the timing of decisions tends to be much more responsive to taxation than other aspects of behavior (Slemrod, 1990). Consequently, our empirical analysis should identify much smaller effects for charitable giving than for transfers to friends and family members. If the results for charitable giving are comparable to those for non-charitable gifts, we would be inclined to conclude that our central empirical finding probably results from some unobserved spurious factor. However, if we do not find similar effects for charitable giving, we would tend to rule out a potentially large class of alternative explanations that invoke systematic variation in unobserved characteristics affecting giving in general (e.g. anything related to the degree of altruism within group 2).

Results for charitable giving appear in Table 6. When the household groups are defined using current net worth, the coefficients for the group 2 interaction terms are positive but statistically insignificant. When the groups are defined using projected estates, the 1995 interaction term is negative, while the 1998 interaction term is positive, but small in magnitude and statistically insignificant.³² As all of these coefficients are associated with large standard

³²When evaluating magnitudes, it is important to keep in mind that the frequency of charitable giving is more than two-and-a-half times that of *inter vivos* gifts. Consequently, the same absolute effect represents a much smaller proportional effect.

errors, strong inferences are not justified. However, the crucial pattern is certainly more robust, and more significant for *inter vivos* gifts than for charitable contributions.

9. Conclusions

This paper contributes to a growing literature concerning the effects of estate taxation on economic behavior. Recent papers by Kopczuk and Slemrod (2001a,b) examine the relationship between transfer taxes and, respectively, wealth accumulation and the timing of death. Joulfaian (1991, 1999) provides evidence that the estate tax influences charitable bequests. McGarry (2001) and Poterba (2001) document the fact that many households could reduce their estate and gift tax liabilities by making greater use of *inter vivos* transfers.

In this paper, we exploit time series and cross-sectional variation in effective rates of estate and gift taxation to measure the effects of these taxes on the timing of transfers. In particular, we compared changes in the frequencies of *inter vivos* transfers for families who were affected by the expansion of the unified exemption in 1997 to the corresponding changes for families who were not affected, or who were at least affected to a smaller extent. The reduction in the frequency of transfers is roughly 10 to 12 percentage points larger among affected families. After conditioning on other characteristics in a regression framework, we estimate that the expected and actual 1997 estate and gift tax changes reduced the likelihood of making *inter vivos* transfers by 5.7 percentage points in 1994 and by 6.5 percentage points in 1997, relative to what would have been observed in the absence of these changes. This effect is large, given that only 25 to 29 percent of these families made transfers prior to 1993. The estimated effect is robust with respect to plausible alternative specifications.

The responsiveness of transfers to changes in estate taxes provides additional evidence that bequests arise intentionally and are likely due to altruism, strategic interplay between families member, or some combination of the two.

References

- Barro, Robert J. 1974. "Are Government Bonds Net Wealth?" *Journal of Political Economy*, 82(6), 1095-1117
- Becker, Gary S. 1974. "A Theory of Social Interactions," *Journal of Political Economy*, 82(6), 1063-1093
- Bernheim, B. Douglas, Andrei Shleifer, and Lawrence H. Summers. 1985. "The Strategic Bequest Motive." *Journal of Political Economy* 93, 1045-76.
- Blinder, Alan S. 1974. *Toward an Economic Theory of Income Distribution*. Cambridge, Mass.: MIT Press.
- Blundell, Richard, Alan Duncan, and Costas Meghir. 1998. "Estimating Labor Supply Responses Using Tax Reforms," *Econometrica* 66, 827-861.
- Davies, James B. 1981. "Uncertain Lifetime, Consumption, and Dissaving in Retirement." *Journal of Political Economy* 89, 561-77.
- Gale, William G. and Joel B. Slemrod. 2000. "Rethinking the Estate and Gift Tax: Overview". Paper prepared for "Rethinking Estate and Gift Taxation" sponsored by the Office of Tax Policy and Research.
- Heckman, James J. 1996. "Comment," in Empirical Foundations of Household Taxation, Feldstein and Poterba (eds.), University of Chicago Press, 32-38
- Hurd, Michael. 1987. "Saving of the Elderly and Desired Bequests," American Economic Review, 77, 298-312
- Hurd, Michael. 1989. "Mortality Risk and Bequests," Econometrica, 57, 779-814
- Joulfaian, David, 1991, "Charitable Bequests and Estate Taxes," National Tax Journal, 44(2), 169-180
- Joulfaian, David, 1999, "Estate Taxes and Charitable Bequests of the Wealthy," prepared for the NBER research conference "The Economics Effects of Taxation," November 19-20
- Joulfaian, David. 2000. "Choosing Between Gifts and Bequests: How Taxes Affect the Timing of Wealth Transfers," OTA Paper 86, U.S. Department of the Treasury.
- Kennickell, Arthur B. 1998. "Multiple Imputation in the Survey of Consumer Finances." Board of Governors. Federal Reserve. <http://www.federalreserve.gov/pubs/oss/oss2/method.html>.

- Kennickell, Arthur B., Douglas McManus, and Louise Woodburn. 1996. "Weighting Design for the 1992 Survey of Consumer Finances." Board of Governors. Federal Reserve. <http://www.federalreserve.gov/pubs/oss/oss2/method.html>.
- Kopczuk, Wojciech, and Joel Slemrod. 2001a. "The Impact of the Estate Tax on the Wealth Accumulation and Avoidance Behavior of Donors." In W. Gale, J. R. Hines Jr., and J. Slemrod, (eds.), *Rethinking Estate and Gift Taxation*. Brookings Institution Press, Washington, D.C., forthcoming.
- Kopczuk, Wojciech, and Joel Slemrod. 2001b. "Dying to Save Taxes: Evidence from Estate Tax Returns on the Death Elasticity." NBER Working Paper 8158.
- McGarry, Kathleen. 2001. "The Cost of Equality: Unequal Bequests and Tax Avoidance." *Journal of Public Economics* 79, 179-204.
- Poterba, James. 2001. "Estate and Gift Taxes and Incentives for *Inter Vivos* Giving in the United States." *Journal of Public Economics* 79, 237-264..
- Slemrod, Joel. 1990. "The Economic Impact of Tax Reform." In J. Slemrod (ed.), *Do Taxes Matter? The Impact of the Tax Reform Act of 1986*, Cambridge: MIT Press, 1-12.
- Tempalski, Jerry, 1998, "Revenue Effects of Major Tax Bills," Office of Tax Analysis Working Paper 81, December

Table 1. Net Worth, Equity, and Transfers, Weighted SCF Data in Constant 1998 Dollars.

	1989 SCF	1992 SCF	1995 SCF	1998 SCF
Mean Net Worth	\$245,909	\$218,910	\$223,404	\$282,980
Median Net Worth	\$61,717	\$60,512	\$59,467	\$71,700
Percent of Households with Equity	19.0%	20.0%	21.5%	27.2%
Conditional Mean	\$79,803	\$77,477	\$100,997	\$153,192
Conditional Median	\$10,516	\$11,618	\$12,835	\$22,000
Percent of Households gave a Transfer	12.8%	11.4%	12.5%	11.6%
Conditional Mean	\$5,448	\$5,407	\$5,379	\$5,376
Conditional Median	\$2,629	\$2,324	\$2,674	\$2,000

Note: Authors' calculations from the Surveys of Consumer Finances.

Table 2: Observations by Household Classification.

Estate Group: Current Net Worth	Estate Group: Predicted Estate Value		
	Group 1	Group 2	Group 3
Group 1:	59,580	352	0
Group 2:	429	2,950	148
Group 3:	0	292	14,509

We assign each household in the SCFs to one of three groups based on our expectation of their estate, i.e., their net worth at the time of their death. Households in Group 1 (Group 3) are not expected (are expected) to be subject to the estate tax pre- and post-TRA97. Households in Group 2 are expected to be subject to the estate tax pre-TRA97 but not subject to the estate tax post-TRA97. Each household's expected estate value is calculated in two ways. First we assume their estate value will equal their current net worth. Second we predict an estate value using quantile regression that controls for an array of individual characteristics. Using life tables, we then adjust the household's net worth to account for their life expectancy. Table 2 reports the distribution of households under each classification system.

Table 3. Frequencies of Transfers by Time Period and Current Net Worth

Classification by current net worth	Frequency of Transfers in 1989 and 1992 SCF	Frequency of Transfers in 1995 and 1998 SCF	Difference in frequencies:
Group 1: \$0 to \$600,000 for singles. \$0 to \$1,200,000 for couples.	11.3 (0.358)	11.6 (0.370)	0.229 (0.545)
Group 2: \$600,000 to \$1,000,000 for singles. \$1,200,000 to \$2,000,000 for couples.	28.7 (4.25)	16.6 (2.96)	-12.2 (5.31)
Group 3: Greater than \$1,000,000 for singles. Greater than \$2,000,000 for couples.	32.9 (3.84)	30.1 (2.51)	-2.76 (4.70)
Difference in Differences:			
Group 2 Relative To Group 1:			-12.4 (5.29)
Group 2 Relative To Group 3:			-9.39 (7.19)

Note: Data are weighted. Standard errors accounting for the sample variance and imputation variance associated with the SCF data are reported beneath the frequency of giving.

Table 4. Frequencies of Transfers by Time Period and Predicted Estate Value

Classification by Predicted Estate Value	Frequency of Transfers in 1989 and 1992 SCF	Frequency of Transfers in 1995 and 1998 SCF	Difference in Frequency
Group 1: \$0 to \$600,000 for singles. \$0 to \$1,200,000 for couples.	11.4 (0.364)	11.5 (0.368)	0.175 (0.545)
Group 2: \$600,000 to \$1,000,000 for singles. \$1,200,000 to \$2,000,000 for couples.	25.7 (4.02)	15.3 (2.47)	-10.4 (4.52)
Group 3: Greater than \$1,000,000 for singles. Greater than \$2,000,000 for couples.	31.5 (3.57)	29.8 (2.20)	-1.71 (4.25)
Difference in Differences:			
Group 2 Relative To Group 1:			-10.6 (4.46)
Group 2 Relative To Group 3:			-8.72 (5.89)

Note: Data are weighted. Standard errors accounting for the sample variance and imputation variance associated with the SCF data are reported beneath the frequency of giving.

Table 5. Marginal Effects on the Probability of Making an *Inter Vivos* Transfer (Probit Regressions)

	Household Groups Defined By Current Net Worth			Household Groups Defined By Projected Estate Value		
	Marginal Effect	Standard Error	<i>t</i> -statistic	Marginal Effect	Standard Error	<i>t</i> -statistic
Age	-0.031	0.029	-1.077	-0.029	0.029	-0.993
Age ²	0.116	0.113	0.116	0.108	0.117	0.108
Age ³	-0.177	0.208	-0.853	-0.160	0.219	-0.730
Age ⁴	0.113	0.181	0.624	0.095	0.192	0.494
Age ⁵	-0.024	0.059	-0.396	-0.017	0.064	-0.266
High school degree	0.019	0.005	3.651	0.019	0.005	3.773
Some college	0.070	0.010	7.095	0.070	0.009	7.533
College	0.051	0.011	4.441	0.052	0.011	4.654
More than college	0.081	0.006	12.797	0.083	0.006	14.068
Poor health	-0.015	0.006	-2.378	-0.016	0.006	-2.453
Married	-0.010	0.004	-2.776	-0.011	0.004	-2.658
Widow	0.003	0.008	0.421	0.002	0.007	0.282
Female	-0.020	0.006	-3.498	-0.020	0.006	-3.290
No children	-0.034	0.001	-22.864	-0.035	0.002	-19.790
Ever received inheritance	0.028	0.001	20.064	0.028	0.001	20.476
Net worth	1.45e-06	3.83e-07	3.786	1.79e-06	2.93e-07	6.109
Income	1.02e-05	1.08e-05	0.944	1.08e-05	1.19e-05	0.908
Percent net worth in capital gains	-0.021	0.011	-1.935	-0.021	0.011	-1.963
SCF year = 1992	-0.015	0.008	-1.967	-0.016	0.008	-2.049
SCF year = 1995	-0.004	0.002	-2.288	-0.005	0.001	-4.625
SCF year = 1998	-0.015	0.004	-3.643	-0.015	0.004	-3.805
Group One	-0.099	0.014	-6.864	-0.079	0.014	-5.739
Group Three	0.007	0.016	0.413	0.013	0.010	1.233
Group Two * SCF year = 1995	-0.057	0.025	-2.314	-0.051	0.008	-6.784
Group Two * SCF year = 1998	-0.065	0.020	-3.188	-0.063	0.016	-3.856

Note: Data are weighted. Standard errors account for the sample and imputation variance inherent in the SCF data.

Table 6. Marginal Effects on the Probability of Giving to Charity (Probit Regressions)

	Household Groups Defined By Current Net Worth			Household Groups Defined By Projected Estate Value		
	Marginal Effect	Standard Error	<i>t</i> -statistic	Marginal Effect	Standard Error	<i>t</i> -statistic
Age	0.154	0.083	1.845	0.154	0.084	0.154
Age ²	-0.463	0.336	-0.463	-0.466	0.337	-1.384
Age ³	0.707	0.650	1.088	0.718	0.651	1.102
Age ⁴	-0.533	0.604	-0.882	-0.545	0.605	-0.901
Age ⁵	0.157	0.217	0.724	0.162	0.217	0.746
High school degree	0.145	0.013	10.972	0.145	0.013	10.791
Some college	0.277	0.015	18.285	0.277	0.015	18.036
College	0.377	0.016	23.038	0.377	0.016	22.888
More than college	0.452	0.017	27.364	0.453	0.017	27.119
Poor health	-0.091	0.016	-5.631	-0.091	0.016	-5.618
Married	0.164	0.011	15.009	0.165	0.011	14.921
Widow	-0.134	0.012	-10.956	-0.136	0.012	-11.207
Female	0.029	0.014	2.020	0.030	0.014	2.133
No children	0.001	0.011	0.052	-0.000	0.011	-0.029
Ever received inheritance	0.060	0.010	6.186	0.061	0.010	6.223
Net worth	7.86e-05	2.32e-05	3.388	7.86e-05	2.28e-05	3.447
Income	8.83e-04	1.77e-04	4.976	8.79e-04	1.77e-04	4.967
Percent net worth in capital gains	0.028	0.014	1.950	0.027	0.014	1.903
SCF year = 1992	-0.013	0.013	-1.061	-0.013	0.013	-1.019
SCF year = 1995	-0.029	0.013	-2.243	-0.026	0.013	-2.024
SCF year = 1998	0.018	0.014	1.277	0.019	0.014	1.350
Group One	-0.083	0.068	-1.234	-0.133	0.069	-1.924
Group Three	-0.088	0.045	-1.966	-0.123	0.047	-2.647
Group Two * SCF year = 1995	0.122	0.091	1.344	-0.018	0.076	-0.239
Group Two * SCF year = 1998	0.111	0.089	1.247	0.031	0.091	0.339

Note: Data are weighted. Standard errors account for the sample and imputation variance inherent in the SCF data.

Table A. Descriptive Statistics for the 1989 through 1998 SCFs (weighted).

Variable	Mean	Stnd. Dev.	Minimum	Maximum
Gave a transfer.	0.120	0.326	0	1
Dollar value of transfer.	651	4,436	0	1,069,554
Age	48.396	17.351	17	95
Education: no high school degree	0.215	0.411	0	1
Education: high school degree	0.297	0.457	0	1
Education: some college	0.221	0.415	0	1
Education: college degree	0.151	0.358	0	1
Education: more than a college degree	0.116	0.320	0	1
Health of head of household is poor.	0.083	0.276	0	1
Head of household is married.	0.647	0.478	0	1
Head of household is widowed.	0.113	0.317	0	1
Head of household is female.	0.280	0.449	0	1
Number of children in household.	2.301	2.018	0	18
Household has no children.	0.218	0.413	0	1
Household has 1 child.	0.147	0.354	0	1
Household has 2 children.	0.248	0.432	0	1
Household has 3 children.	0.169	0.374	0	1
Household has 4 or more children.	0.219	0.413	0	1
Net worth of household (in \$1,000)	243	1503	-27,936.77	2,028,628
Annual income of household (in \$1,000)	52	232	-2,038	176,900
Household owns common stock.	0.220	0.414	0	1
Dollar value of equity holdings.	23,858	403,907	0	318,000,000
Percent of net worth in capital gains.	0.255	0.300	0	1
Household received an inheritance.	0.212	0.409	0	1
Dollar value of inheritance received.	18,265	369,379	0	273,000,000
Gave to charity.	0.317	0.465	0	1
Dollar value of charitable contribution.	1,013	26,272	0	53,500,000
SCF observation year = 1989.	0.238	0.426	0	1
SCF observation year = 1992.	0.246	0.430	0	1
SCF observation year = 1995.	0.254	0.435	0	1
SCF observation year = 1998.	0.263	0.440	0	1
Net worth group one.	0.963	0.189	0	1
Net worth group two.	0.017	0.130	0	1
Net worth group three.	0.020	0.139	0	1
Net worth group one & year = 95 or 98	0.498	0.500	0	1
Net worth group two & year = 95 or 98.	0.008	0.088	0	1
Net worth group three & year = 95 or 98.	0.011	0.103	0	1