Poster Session #1
Time: Monday, August 6, 2012 PM

Paper Prepared for the 32nd General Conference of
The International Association for Research in Income and Wealth

Boston, USA, August 5-11, 2012

The Income and Wealth of 2007 Estate Tax Decedents

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Statistics of Income

IRS

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The Statistics of Income (SOI) Division of the Internal Revenue Service (IRS) has periodically combined wealth data reported on Federal estate tax returns, filed for relatively wealthy decedents, with income tax data reported by these decedents for the last full year prior to death. Such linked datasets provide unique windows into the relationship between realized income and wealth. Of particular interest is how the composition of income varies among decedents in different phases of the life cycle. Past research has shown that older top wealth holders report less income than similar, younger decedents (see, for example, Steuerle 1983, Steuerle 1985, and Johnson & Wahl 2004). This paper updates previous research using a new dataset focused on decedents who died in 2007, a group with sufficient wealth to place them in the top 1 percent of the wealth distribution. Unlike some earlier datasets, the relatively large sample size of the dataset used in this research allows us to examine differences among demographic groups in detail, and its focus on a single year of death reduces inter-temporal effects on results. In this article, we compare our findings with those from earlier studies and find surprising similarity in the estimated aggregate rates of return on assets over the more than 3 decades represented in these studies.

The Data

The estate tax return, IRS Form 706, provides a rich source of information about an individual at the time of death, including demographic characteristics, asset portfolio composition, and charitable bequests. This article focuses on data reported on estate tax returns filed for Year-of-Death 2007 decedents that have been linked to income, deduction, and tax liability information reported on the Form 1040 filed by the decedent for the year prior to death, Tax Year 2006.[1] Form 1040 is used to report income earned by single filers or the joint income of married couples.[2] The misalignment of the unit of observation between the estate and income data for joint income tax filers is an important limitation of these data.

Demographics

A total of 36,352 Forms 706 were filed between 2007 and 2009 for decedents who died in 2007 with estates at or above the $2 million filing threshold in effect for that year of death.[3,4] Figure A shows the mean and median age of decedents, by gender and filing status. Estate tax returns filed for male decedents made up almost 57 percent of 2007 decedents. The overall average age for male decedents was 78 and the median age was 80. The majority of male decedents, 65.2 percent, were married at death. Married males were, on average, younger at death than those who were single. Female decedents were, on average, older than their male counterparts. With an average age at death of almost 85, single female decedents were the longest lived, surviving, on average, 9 years longer than married female decedents.[5]

Age at death is an important factor in examining the income reported by these decedents, especially when considering income from sources such as salaries and wages, pensions, and Social Security. Age often plays an important role in portfolio allocation decisions, as well, with older investors eschewing risk in favor of tax-preferred, income-generating assets. The data show a significant drop-off in the number of decedents receiving income from wages and salaries for those 70 and older, so age also serves as an indicator of retirement status. Hereafter, we focus on two broad age groups, those under age 70 and those 70 or older, who were more likely retired. Figures B and C show the relatively small percentage of this population who were of working age at time of death. Only 23.1 percent of males and 14.1 percent of females were under age 70 when they died.

Wealth

The 36,352 estate tax decedents owned more than $225.5 billion in total gross estate at the time of death in 2007. Male decedents had an average estate of $6.3 million and a median estate size of $3.2 million. The mean for female decedents was $6.1 million and the median was $3.1 million. Figure D

[1] For detailed information about Individual income tax returns filed for Tax Year 2006, see *Statistics of Income—Individual Income Tax Returns, 2008,* Publication 1304.

[2] For purposes of this analysis, we assign each decedent's marital status based on the filing status reported on the matched individual income tax return. Marital status is grouped into two broad categories, single (including those who filed as single, widowed, head of household, and married filing separately) and joint.

[3] The relatively long data collection period is required because an estate has up to 15 months after a decedent's death to file the Form 706.

[4] Due to limitations in linking estate tax data to income tax data, a small number of estate tax decedents from Year-of-Death 2007 were excluded from this analysis. For more information on 2007 estate tax decedents, see http://www.irs.gov/pub/irs-soi/11essumbulestatereturns.pdf.

[5] More than 80 percent of single female decedents were widowed.

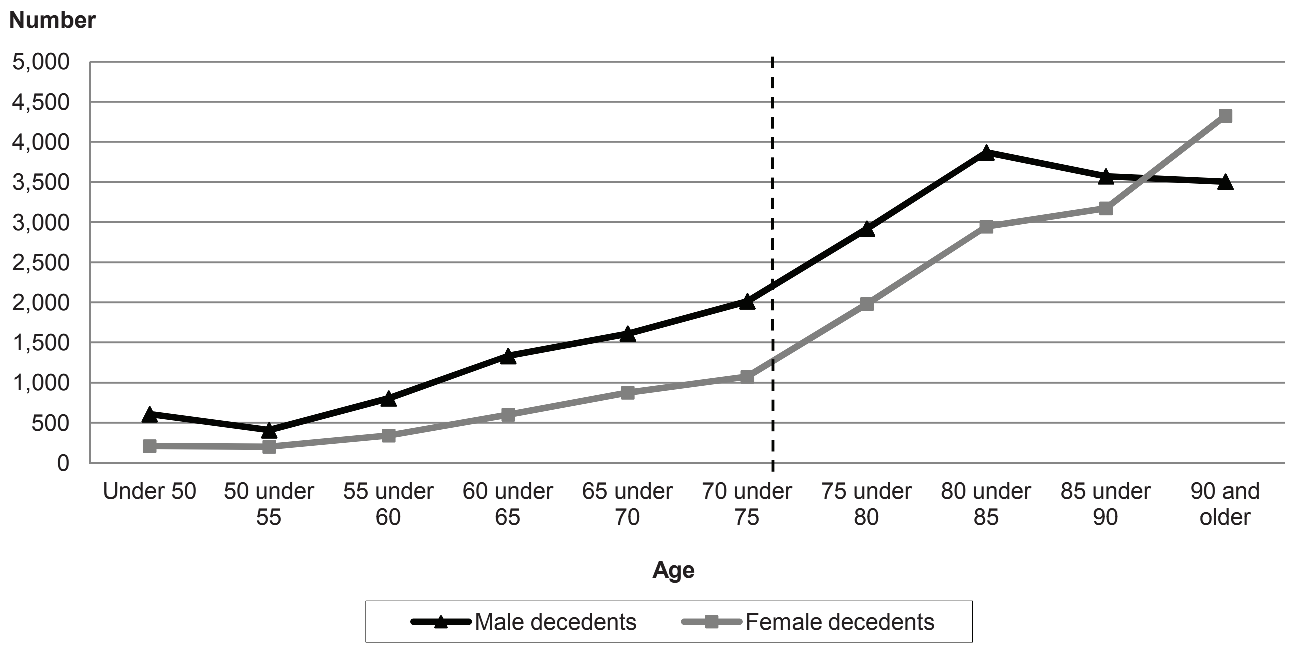
Figure A

Mean and Median Age of 2007 Estate Tax Decedents, by Gender and Filing Status

Filing status	Male decedents			Female decedents		
	Number	Mean age	Median age	Number	Mean age	Median age
	(1)	(2)	(3)	(4)	(5)	(6)
All	20,633	78.0	80.0	15,719	82.0	84.0
Single	7,173	80.9	84.0	10,847	84.7	87.0
Married	13,460	76.4	79.0	4,872	76.1	78.0

Figure B

2007 Estate Tax Decedents, by Gender and Age



shows that the distribution of gross estate was remarkably similar for the gender-age groups shown.

Figure E shows portfolio allocation, as a percentage of total estate, for single decedents by gender and age. Overall, compared to other gender-age groups, both male and female decedents over age 70 devoted larger shares of their estates to tax-exempt bonds, consistent with models of life-cycle risk management. Similarly, dividend-producing assets, including publicly traded stocks and certain mutual funds, featured more prominently in the portfolios of older decedents than for the under age 70 group. Conversely, retirement assets (annuities, IRAs, 401K plans) made up a smaller share of the total for these older decedents. For some older decedents, these assets may have been consumed.[6] For younger decedents, the personal residence made up a somewhat larger share of the estate. Significantly, business assets (including limited partnerships, farms, non-corporate businesses, and closely held corpora-

[6] For the oldest decedents in the sample, these types of assets may not have been a practical option. The Employee Retirement Income Security Act (ERISA) of 1974 introduced individual retirement arrangements (IRAs) for employees not covered by a qualified employment-based retirement plan. These were expanded to all taxpayers under the age of 70½ by the 1981 Economic Recovery Tax Act (ERTA). The Revenue Act of 1978 led to the creation of section 401K of the Internal Revenue Code, although deferred compensation arrangements predate the Act.

Figure C

2007 Estate Tax Decedents: Cumulative Percentage, by Gender and Age

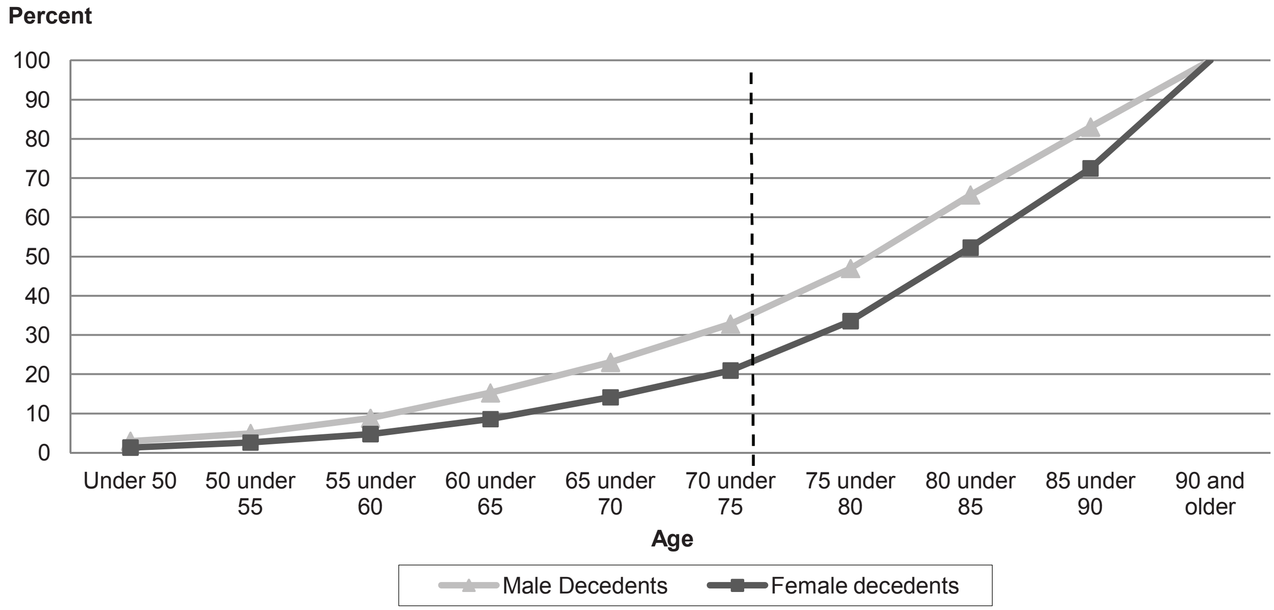


Figure D

Distribution of Gross Estate, by Gender and Age

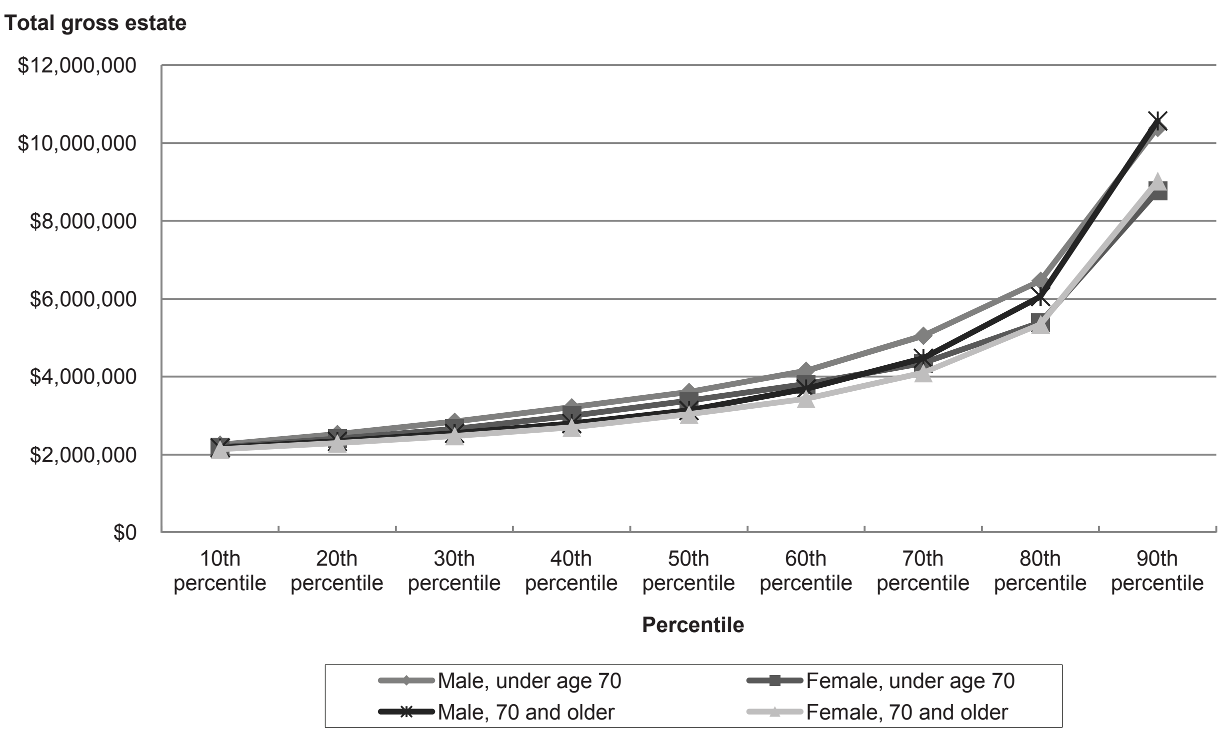
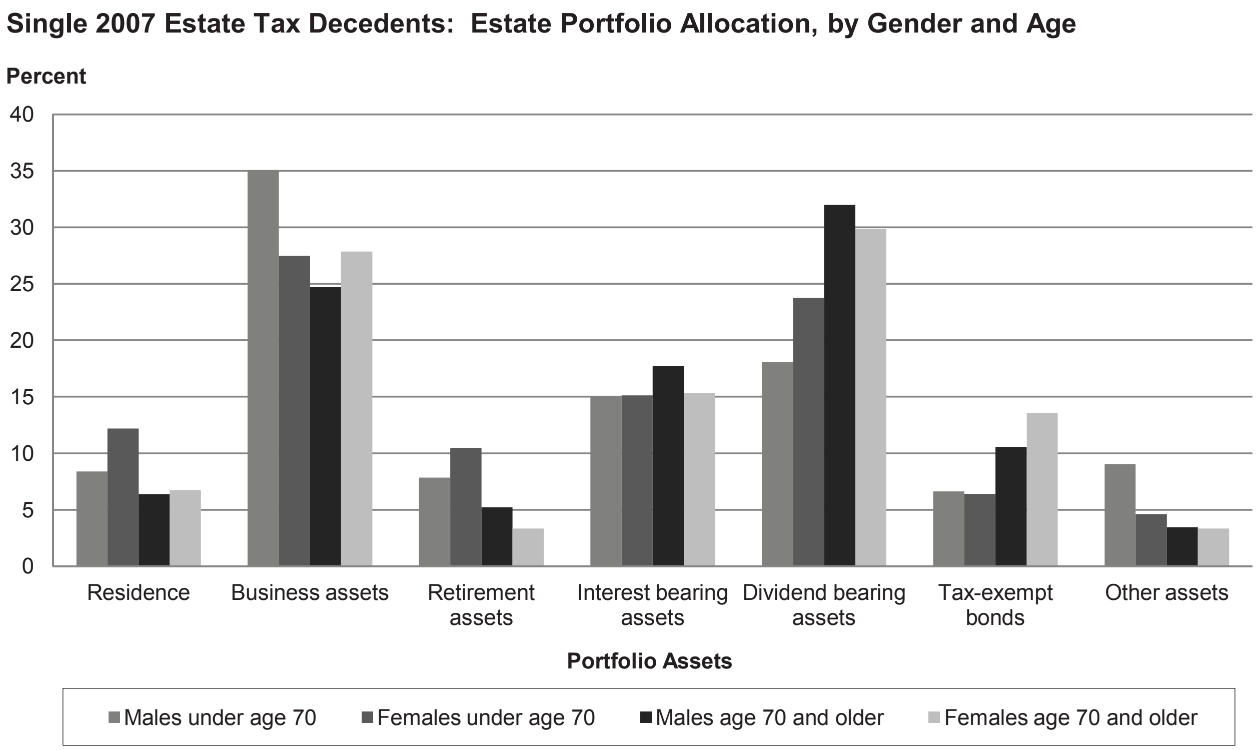


Figure E



tions) made up the largest share of the portfolio of younger males.

Figure F shows similar portfolio information for married decedents. For these decedents, the portfolio allocation patterns among the categories presented were more similar for men and women in the same age groups than was the case for single decedents. Estates of married decedents under age 70 contained higher percentages of business assets and retirement assets, while those of older decedents were composed of higher shares of financial assets. These patterns again suggest both simplification of the portfolio and reduction of risk for older decedents. Figure G summarizes the data shown in Figures E and F by marital status and age for all decedents.

Income

In this section, we look at the income of 2007 estate tax decedents during the last year of life, using data reported by decedents on Tax Year 2006 Forms 1040. Given the similarities between gender groups highlighted in the previous section, and to mitigate the unit-of-observation challenges inherent in the data, we focus on age and marital/filing status rather than gender for the remainder of the paper.

Adjusted Gross Income

We begin by examining how income earned by 2007 decedents in Tax Year 2006 compares with income reported by all taxpayers that year, focusing here on Adjusted Gross Income (AGI). Figure H shows that almost 70 percent of all decedents reported income in the top decile of the AGI distribution for Tax Year 2006, with 21 percent of all decedents in the top 1 percent. Conversely, almost 2 percent reported zero or negative AGI, and 3.8 percent had AGI in the lowest 50th percentile. A higher percentage of single filers had AGI that fell below the 75th percentile, while almost 69 percent of older joint filers reported income above the 95th percentile cutoff.

Figure I shows median effective income tax rates paid in Tax Year 2006 by 2007 estate tax decedents. To maintain comparability with other SOI publications (see Mudry and Bryan 2009), we calculate the effective tax rate as total tax divided by AGI and limit the analysis to those who reported positive AGI. Overall, 8 percent of decedents had no tax liability in 2006. Higher percentages of single decedents in both age groups paid no tax, when compared with those who were married. More than half, 52.2 percent, of all decedents paid taxes at effective rates of less

Figure F

Married 2007 Estate Tax Decedents: Estate Portfolio Allocation, by Gender and Age

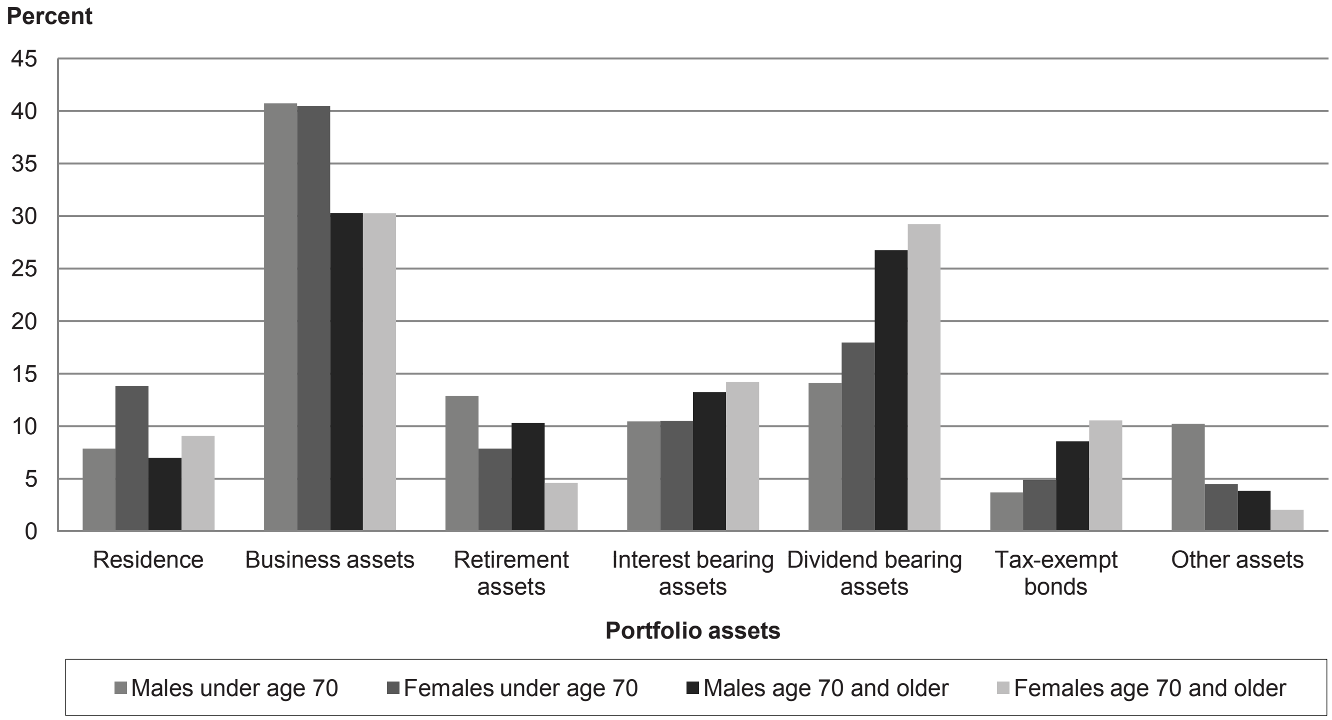


Figure G

2007 Estate Tax Decedents Portfolio Allocation, by Marital Status and Age

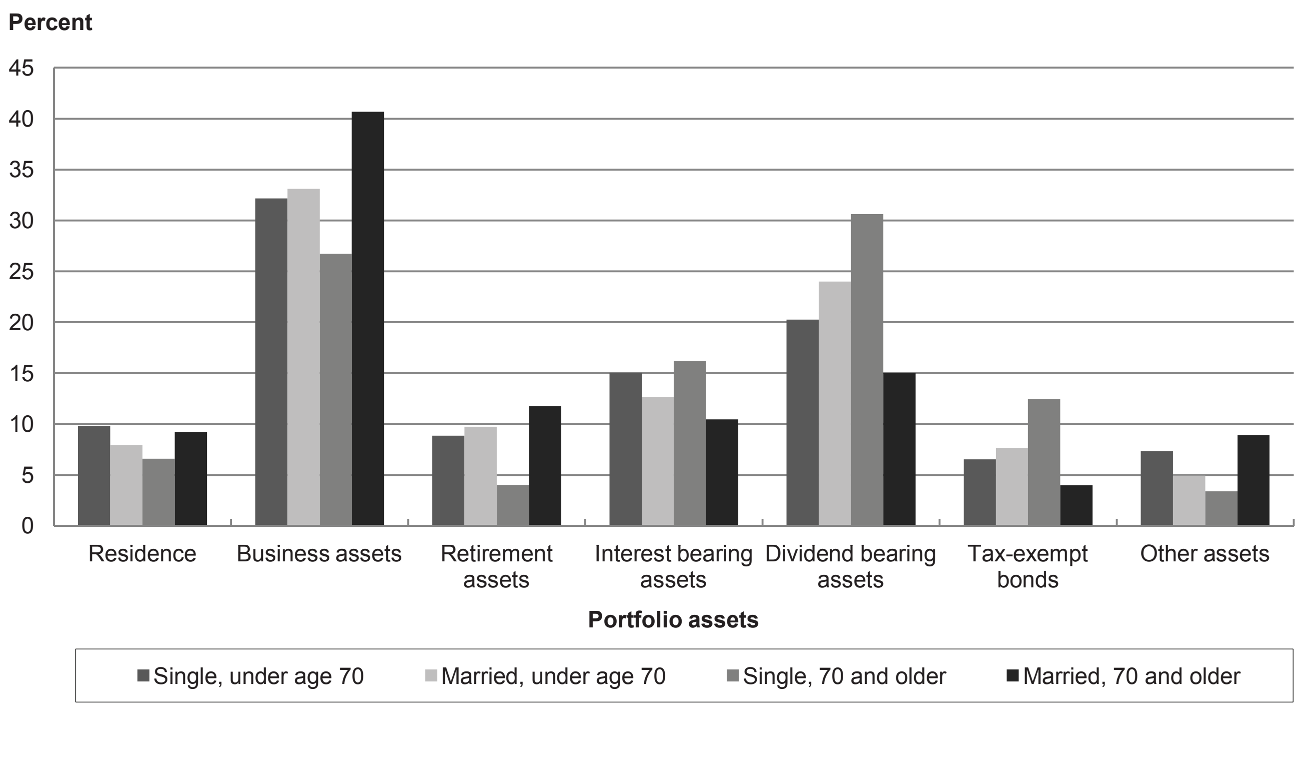


Figure H

2007 Estate Tax Decedents Who Reported Adjusted Gross Income (AGI) for Tax Year 2006: AGI Distribution, by Filing Status and Age

AGI category	Total	Single		Joint	
		Age		Age	
		Under 70	70 and older	Under 70	70 and older
	(1)	(2)	(3)	(4)	(5)
Total	100.0	100.0	100.0	100.0	100.0
0 or negative AGI	1.9	4.0	1.9	2.7	1.4
lowest 50th percentile	3.8	8.4	4.9	2.6	2.1
50th < 75th percentile	8.2	13.9	13.3	3.6	2.9
75th < 90th percentile	16.9	19.2	24.6	8.4	10.5
90th < 95th percentile	15.2	13.0	17.6	10.6	14.5
95th < 99th percentile	33.3	22.5	26.6	36.5	41.6
99th-99.9th percentile	17.9	16.2	9.6	30.2	23.4
Top 0.1th percentile	2.9	2.8	1.4	5.5	3.6

NOTE: Percentile categories for the U.S. are taken from Table 5 included in Mudry, Kyle, "Individual Income Tax Rates and Shares, 2008," Statistics of Income Bulletin, Winter 2011, Volume 30, Number 3. Table 5 is titled "Returns with Positive Adjusted Gross Income (AGI): Number of Returns, Shares of AGI and Total Income Tax, AGI Floor on Percentiles in Current and Constant Dollars, and Average Tax Rates, by Selected Descending Cumulative Percentiles of Returns Based on Income Size Using the Definition of AGI for Each Year, Tax Years 1986-2008," available at: http://www.irs.gov/taxstats/indtaxstats/article/0,,id=133521,00.html.

Figure I

Tax Year 2006 Effective Income Tax Rates for 2007 Estate Tax Decedents with Positive AGI, by Filing Status and Age

Effective tax rate	Total	Single decedents		Married decedents	
		Under 70	70 and older	Under 70	70 and older
	(1)	(2)	(3)	(4)	(5)
Total	100.0	100.0	100.0	100.0	100.0
No tax paid	8.0	10.3	11.8	4.2	4.5
Under 5 percent	8.1	7.2	9.8	5.4	7.1
5 under 10 percent	13.8	12.8	14.3	10.4	14.7
10 under 15 percent	22.3	18.5	24.2	16.5	22.7
15 under 25 percent	38.1	34.1	34.3	40.7	42.2
25 under 28 percent	5.0	6.6	2.9	11.1	5.0
28 under 33 percent	3.7	8.4	1.8	10.0	3.1
33 under 35 percent	0.5	1.5	0.3	1.4	0.3
35 percent	0.5	0.6	0.6	0.5	0.3
Median effective tax rate	13.9	14.5	12.5	17.4	14.6

NOTE: Excludes an estimated 695 decedents who reported negative AGI, 10.4 percent of whom had a tax liability in Tax Year 2006.

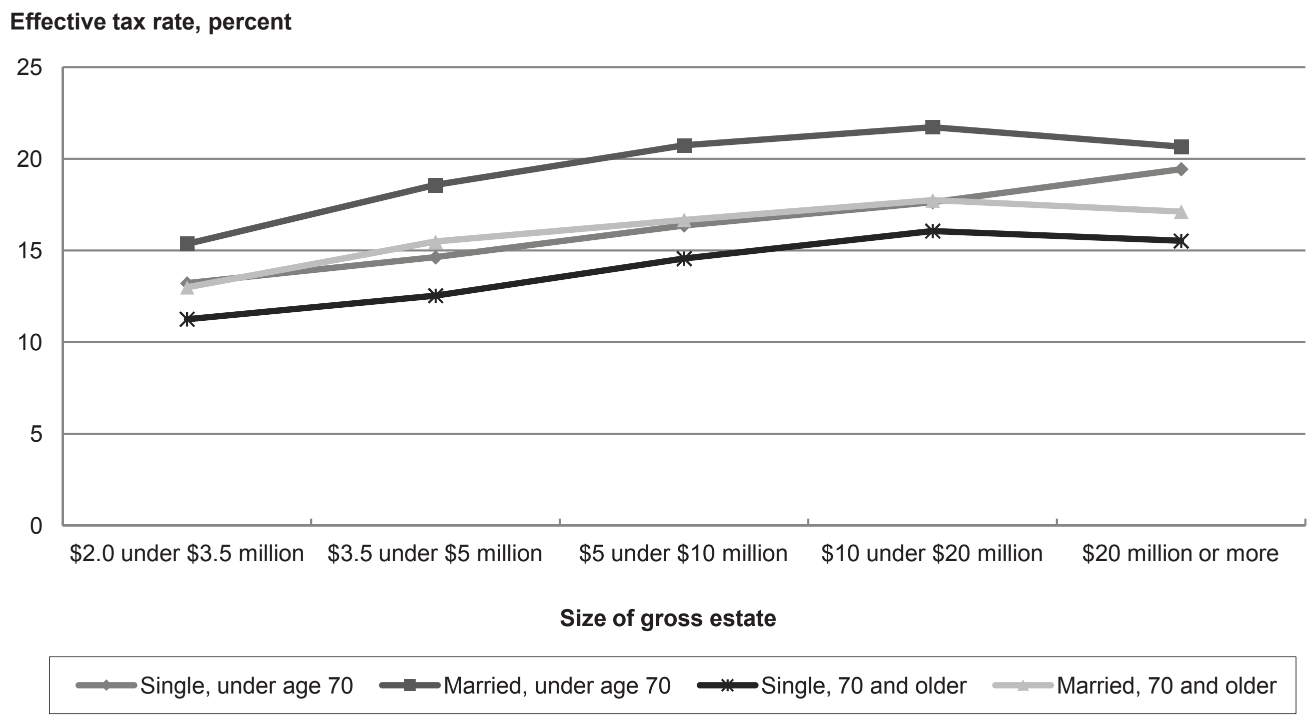
than 15 percent in 2006. Larger percentages of both single and married younger decedents, 51.2 percent and 62.6 percent, respectively, paid taxes at effective tax rates of 15 percent or higher. The overall median effective tax rate for 2007 decedents was 13.9 percent, and the highest median effective tax rate, 17.4 percent, was that of married decedents under 70.[7]

Figure J shows median effective income tax rates by gross estate size for the filing status-age groups used in the previous tables. For all groups, the median effective tax rate generally increased with estate size. Younger married decedents in all wealth categories paid tax at the highest median effective tax rates, which rose from 15.3 percent for those with gross estates of less than $3.5 million to about 21 percent for those with gross estates of $5 million or more. Single decedents who were 70 and older at death had the lowest median effective tax rates in all gross estate categories, ranging from 11.3 percent for those with less than $3.5 million to 16.1 percent for those with estates of $10 million but less than $20 million.

[7] By comparison, the average effective tax rate for all returns with positive AGI in 2006 was 12.6 percent.

Figure J

Median Effective Income Tax Rate, by Size of Gross Estate for 2007 Estate Tax Decedents, Filing Status, and Age



Income Components

In order to present a more complete accounting of income earned by 2007 decedents, we create a new measure, gross income, by adding to total income reported on Form 1040 the value of tax-exempt interest income; non-taxable portions of individual retirement arrangement (IRA) distributions, pensions, and annuities; and Social Security benefits. To calculate gross income, we then subtract the value of IRA rollovers, IRA recharacterizations, and Roth IRA conversions. Gross income, therefore, includes forms of realized income that are not used in calculating income tax and excludes transactions that reflect the shifting of retirement assets from one form to another, rather than true economic income. Figure K shows that 2007 estate tax decedents reported a mean gross income of nearly $500,000 for Tax Year 2006, with a median value of a little more than $200,000. Both mean and median gross incomes of married decedents were roughly twice those of single decedents. The mean gross income of single decedents age 70 and older was lower than that of their younger counterparts, although the median was slightly higher. Older married decedents reported lower mean and median gross income than younger married decedents.

Figure K also shows that mean and median gross incomes were higher for decedents who had larger estates at the time of death. For example, mean and median gross incomes for decedents with between $10 million and $20 million were roughly 5 times higher than the comparable values for decedents in the lowest wealth class. The distribution of incomes was most skewed in the unbounded wealth class, as evidenced by the large difference between the median and mean for both married and single decedents; the mean and median gross incomes reported for these decedents were much higher than for the other decedent groups examined.

Figure L shows selected types of income as a percentage of gross income for single decedents, by age. Capital gains income was the largest income category for single decedents, accounting for more than 30 percent of the total for each age group shown. As expected, salaries and wages and business income accounted for markedly higher shares

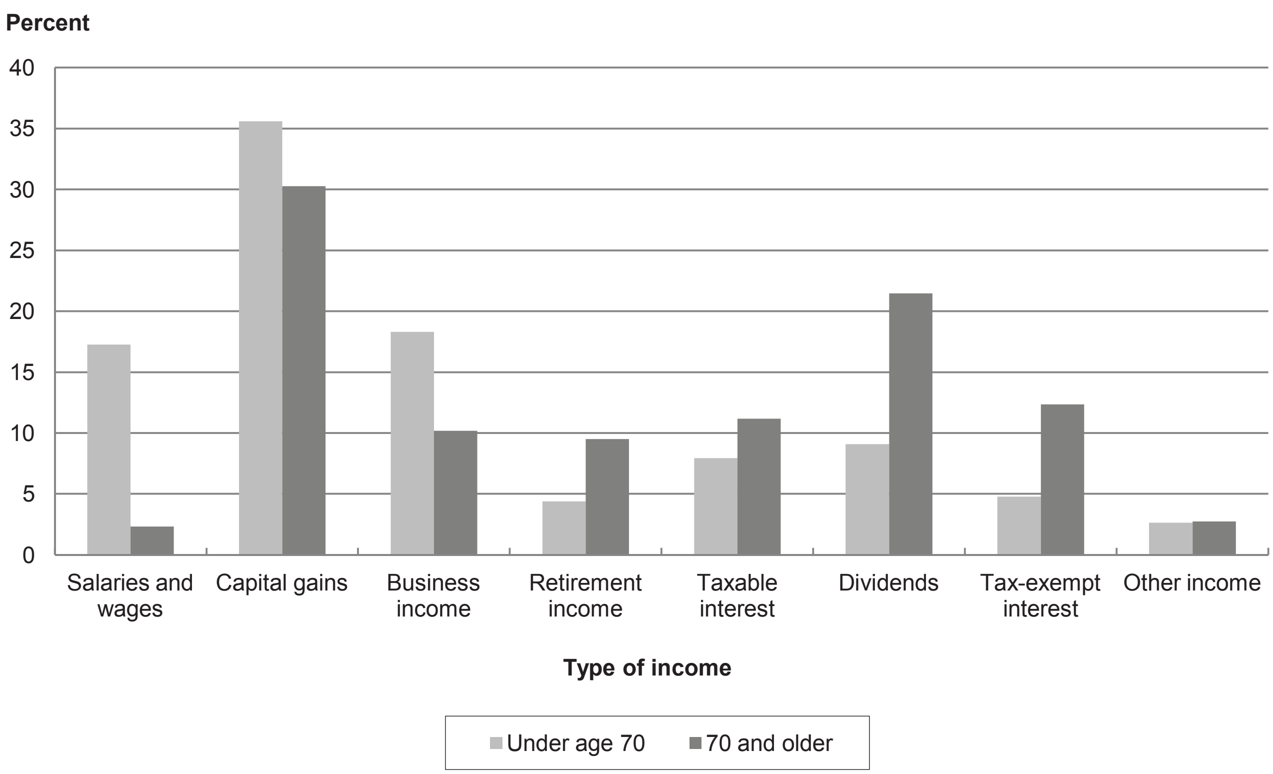
Figure K

Mean and Median Gross Income for Tax Year 2006, 2007 Estate Tax Decedents

Age of decedent, size of estate	All decedents		Single decedents		Married decedents	
	Mean	Median	Mean	Median	Mean	Median
	(1)	(2)	(3)	(4)	(5)	(6)
All	485,329	200,194	319,359	147,854	647,030	270,812
Age of decedent						
Under 70	648,713	249,767	381,421	134,292	768,883	296,524
70 and older	310,839	148,796	313,607	149,385	603,859	262,964
Size of estate						
\$2.0 < \$3.5 million	222,544	148,715	142,434	110,175	304,557	200,675
\$3.5 < \$5.0 million	331,298	225,269	216,293	175,578	432,563	291,213
\$5.0 < \$10.0 million	558,251	352,559	360,350	269,767	741,655	470,309
\$10.0 < \$20.0 million	1,127,629	676,906	774,467	506,533	1,472,166	954,409
\$20.0 million or more	4,286,264	1,730,282	2,982,764	1,371,500	5,503,587	2,173,522

Figure L

Single 2007 Estate Tax Decedents: Income Types as a Percentage of Gross Income, by Age



of gross income for decedents under age 70 than for decedents age 70 and older. As a consequence, dividends, taxable interest, and tax-exempt interest each made up smaller shares of gross income for younger decedents, as did retirement income, defined as IRA distributions plus gross pension and annuity income, less IRA rollovers, IRA recharacterizations, and Roth IRA conversions. Other income, primarily composed of Social Security income, made up a similarly small share for single decedents in both age categories.

As shown in Figure M, the income composition reported by married decedents differed from that of single decedents. Salaries and wages and business income made up larger shares of gross income, while dividends, taxable interest, and tax-exempt interest made up smaller shares, regardless of age. Together, Figures L and M suggest that wealthy individuals transition from a reliance on wage and business income to realizing greater shares of income from dividend- and interest-bearing investments after retirement.

Figure N shows that the gross income composition reported by single decedents varied significantly by size of estate. Dividends, capital gains, and tax-exempt interest generally accounted for larger shares of gross income for single decedents with larger estates than for those in the smaller estate categories, while the share made up of retirement and other income declined markedly for estates in larger size classes. Somewhat surprisingly, salaries and wages made up relatively similar percentages of gross income, between 3.7 percent and 4.9 percent, for single decedents across the size-of-estate spectrum.

Figure O shows that, in general, the composition of gross income, by size of estate, for married decedents is similar to that of single decedents. As seen earlier, however, salaries and wages and business income made up overall larger shares of gross income, while dividends, taxable interest, and tax-exempt interest made up smaller shares for all estate size classes. One notable difference, however, is that salaries and wages declined markedly as a share of gross income for estate size classes of 3.5 million or more, falling from 14.4 percent to 6.1 percent across the categories presented. Together, Figures N and O show that the wealthiest decedents realized a majority of their income in capital gains and dividends and were much less reliant on wages, retirement income, and other income (primarily Social Security) than their less-wealthy counterparts.

Return on Assets

Steuerle (1983) discusses in detail the limitations of using realized income as a measure of well-being, especially for the wealthy, in part because realization of income on capital is, to a great degree, discretionary. To examine the relationship between realized income in the year prior to death and wealth at death, he calculated rates of return, both on overall wealth, for various asset classes. In this section, we do the same and begin by examining the overall return on wealth using three related measures of return:

Measure 1: *Gross income / Total gross estate*

Measure 2: *[Gross income—(Wages + Social Security Income)] / Total gross estate*

Measure 3: *[Gross income—(Wages + Social Security Income)—Capital gains] / Total gross estate*

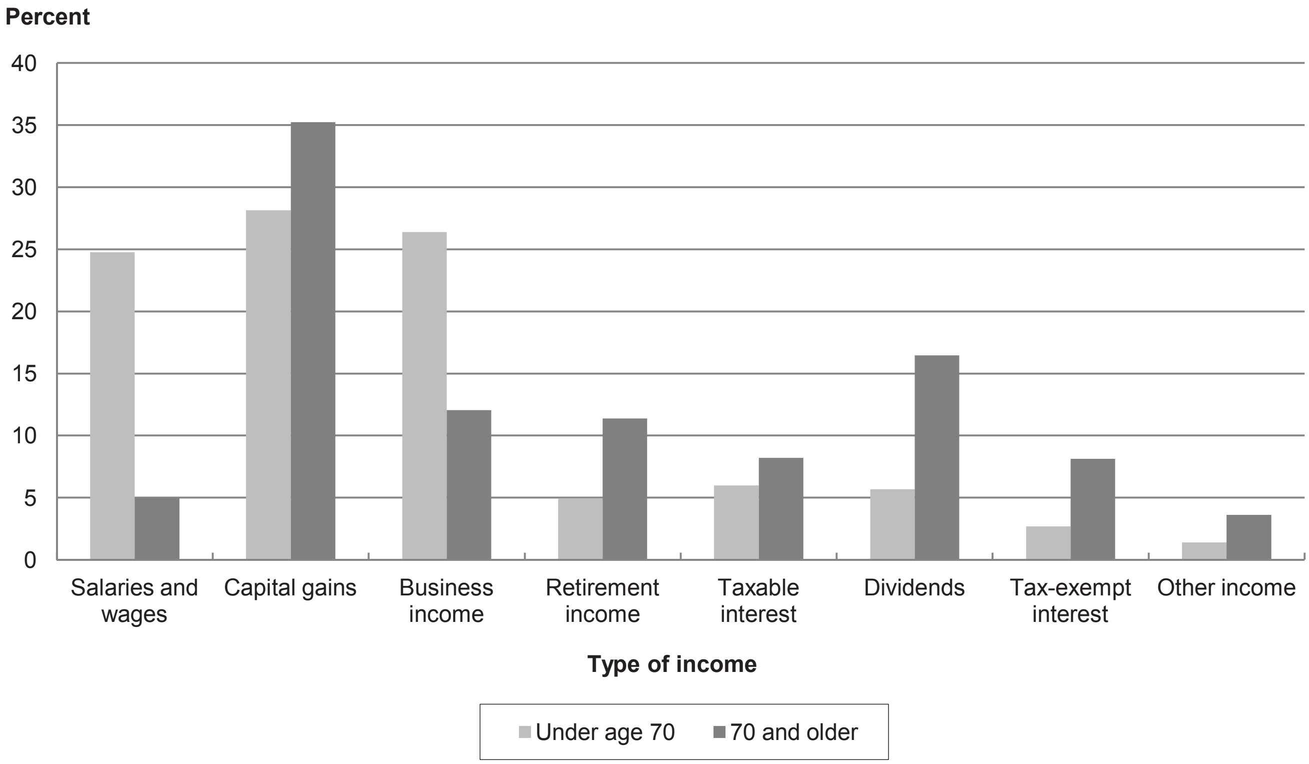
Measure 1 captures all of the decedent's realized income and, therefore, includes income from sources such as wages and Social Security that may not be directly related to the decedent's asset holdings. Measure 2 more closely aligns income and wealth by excluding these items, but may underestimate the realized return on capital for decedents whose businesses paid them a salary. Measure 3 attempts to recognize that at least some income from capital gains recognized in 2006 will have been used for consumption (for example, to pay medical expenses) and will have disappeared from the decedent's balance sheet at death. A drawback to using this measure is that the rate of return will be understated to the extent that realized 2006 capital gains were reinvested rather than consumed. Therefore, this measure forms, at best, a lower bound estimate of the realized rate of return.

Overall Return

Overall, 2007 estate tax decedents reported a median rate of return on assets of 5.56 percent, calculated using gross income, for Tax Year 2006. Excluding wage and Social Security income, the median rate of return was 4.49 percent. Removing capital gains from this measure yielded a rate of 3.61 percent. Figure P shows the median return on assets separate-

Figure M

Married 2007 Estate Tax Decedents: Income Types as a Percentage of Gross Income, by Age



ly for single decedents and married decedents, by age of decedent and size of gross estate.

Using all three measures of income, the median return on assets was higher for older single decedents than for those under age 70. The disparity was greatest when wages, Social Security, and capital gains were excluded from the income measure. Married decedents had a higher median return on assets than single decedents in each age and size of estate class, which is expected, because our income measures include the income of both the decedent and a spouse, while wealth is observed for the decedent only. Unlike singles in the same age group, the return on gross income for younger married decedents was higher than that for older married decedents. However, for income measures that exclude wages and Social Security, the relationship reversed—older decedents had higher median rates of return than their younger counterparts. This suggests that, for the younger married decedents, wages earned by the surviving spouse contributed significantly to our gross income measure.

Another broad pattern shown in Figure P is a decline in median return on assets across wealth categories, regardless of the measure of income used. This pattern was the least pronounced when return on assets was calculated using gross income less wages and Social Security and were likely influenced by the declining share that wages and Social Security income contribute to adjusted gross income/gross income for decedents in higher wealth categories. Excluding capital gains, which make up larger shares of income reported by decedents in higher wealth categories, exaggerated the trends seen using the less restrictive income measures. The robustness of this decline in rates of return across increasing wealth size classes seems to affirm the voluntary nature of income realization for the very wealthy.

Return by Asset Class

We next decompose overall rates of return by calculating rates of return on specific asset types. We construct broad asset and income categories to minimize misclassification of either assets or income,

Figure N

Single 2007 Estate Tax Decedents: Income Types as a Percentage of Gross Income, by Size of Estate

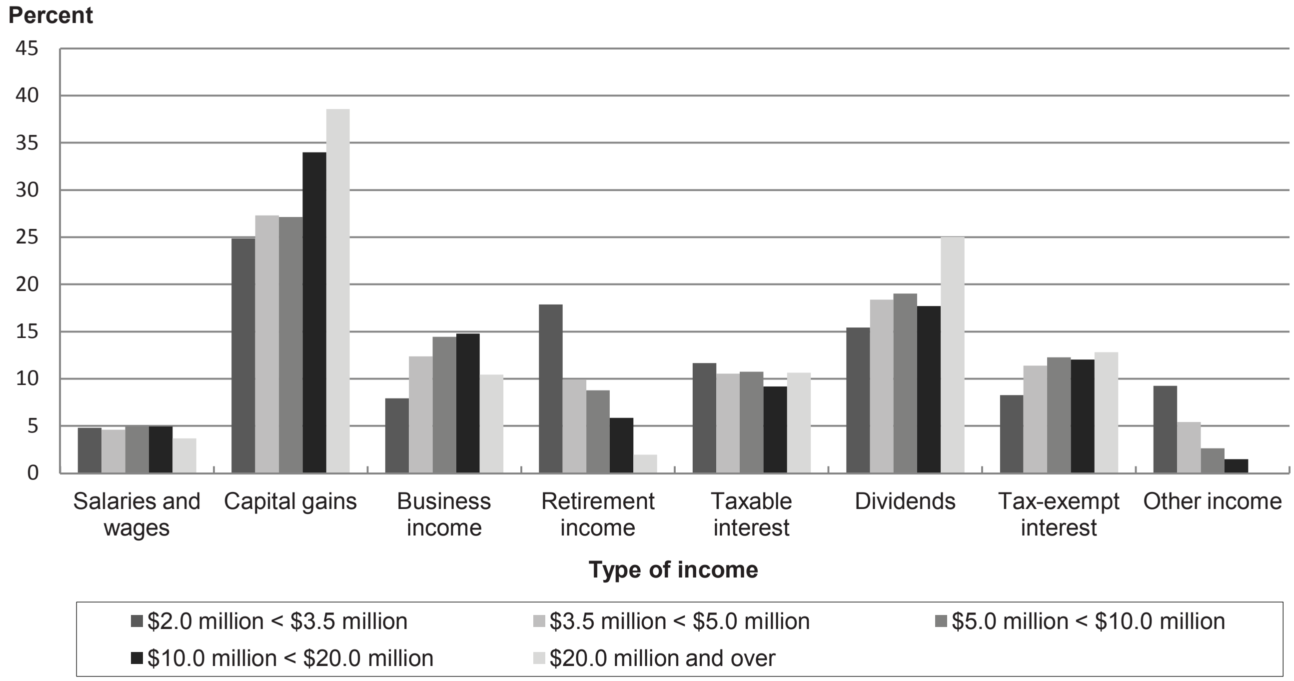


Figure O

Married 2007 Estate Tax Decedents: Income Types as a Percentage of Gross Income, by Size of Estate

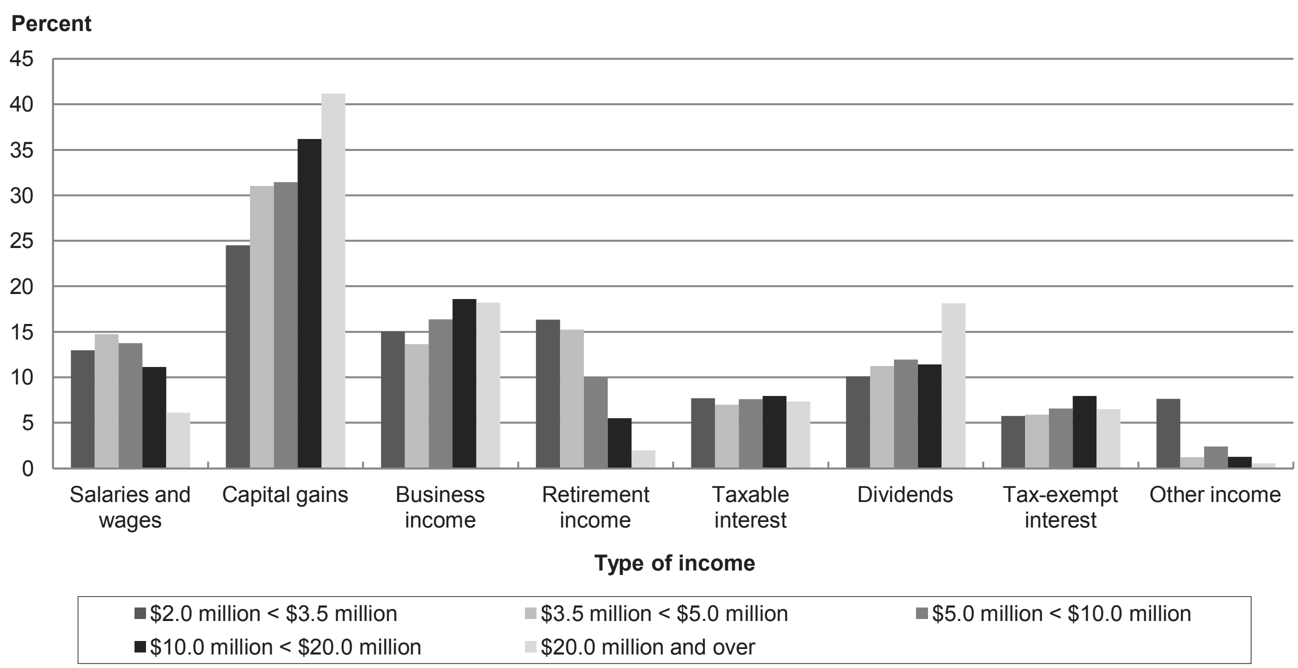


Figure P

Single and Married 2007 Estate Tax Decedents: Overall Median Return on Assets

[Rates of return are percentages]

Age of decedent, size of estate	Single decedents			Married decedents		
	Measure 1:	Measure 2:	Measure 3:	Measure 1:	Measure 2:	Measure 3:
	Gross income	Less wages and Social Security	Less capital gains	Gross income	Less wages and Social Security	Less capital gains
	(1)	(2)	(3)	(4)	(5)	(6)
All	4.26	3.65	3.00	7.64	5.80	4.57
Age of decedent						
Under 70	4.08	2.84	2.03	8.13	4.41	3.17
70 and older	4.28	3.73	3.09	7.47	6.30	4.88
Size of estate						
$2<$3.5 million	4.40	3.65	3.06	7.98	5.92	4.79
$3.5<$5 million	4.20	3.65	3.07	7.40	5.68	4.51
$5<$10 million	4.04	3.74	2.98	7.05	5.63	4.20
$10<$20 million	3.80	3.57	2.71	7.06	5.81	3.95
$20 million or more	3.55	3.46	2.64	6.37	5.87	3.54

recognizing that even these broad categories are subject to some classification error. For example, we include all common stock and most mutual funds in the "dividend-bearing assets" category because we are unable to separately identify common stock and growth-oriented mutual funds from preferred stock and income funds. The results are shown in Figures Q and R. Figure S shows the distribution of rates of return on overall assets and specific asset classes in box plot form. The box displays the 25th, 50th (median), and 75th percentiles, while top of the upper "whisker" shows the value at the 95th percentile. The bottom of the lower "whisker" shows the value at the 5th percentile.

Notably, rates of return varied significantly by asset class.[8] Looking first at single decedents, the median rate of return ranged from a scant 0.09 percent for business assets to 5.78 percent for retirement assets (Figure Q). The low median value for businesses was because the rate of return was zero or negative for more than 50 percent of decedents (Figure S). The high median rate of return on retirement assets and, more generally, the large dispersion of rates reflected the eclectic nature of this category, which included both investments-generated income from 401K plans, as well as income from traditional pension plans for which there was no associated asset in the estate.

In asset classes for which there was variation across wealth groups, rates of return were often lower for those in the higher wealth categories. For single decedents, the return on interest-bearing assets and tax-exempt bonds did not vary significantly by level of wealth for single decedents. This was expected, because these types of assets likely provide the taxpayer little control over the timing and amount of realized income. In contrast, the return on retirement assets declined markedly for decedents in higher wealth categories.

As expected, overall rates of return in each asset class were greater for married decedents, ranging from 1.1 percent on business assets to 8.33 percent on tax-exempt bonds. The patterns by wealth class generally mirrored those for single decedents, with the exception of the returns on tax-exempt bonds and dividend-bearing assets, which, although relatively constant for single decedents, declined notably for the married decedents.

Figures Q and R also show that single and married decedents age 70 and older realized higher median rates of return on assets for most asset classes than their younger counterparts. For retirement assets and dividend-bearing assets, this result is expected, because many decedents in the under 70 category

[8] Calculations for return by asset class exclude observations for which income from a particular asset class was reported but no corresponding asset was present. These cases may result from the sale of assets between the filing of Form 1040 and the date of death.

Figure Q

Single 2007 Estate Tax Decedents: Median Rate of Return, by Asset Class
[Rates of return are percentages]

Age of decedent, size of estate	Business assets	Retirement assets	Interest-bearing assets	Dividend-bearing assets	Tax-exempt bonds
	(1)	(2)	(3)	(4)	(5)
All	0.09	5.78	2.55	2.72	4.85
Age of decedent					
Under 70	0.02	0.00	2.09	2.16	4.39
70 and older	0.09	6.95	2.65	2.77	4.87
Size of estate					
$2 < $3.5 million	0.01	6.26	2.51	2.74	4.83
$3.5 < $5 million	0.19	5.50	2.72	2.78	4.88
$5 < $10 million	0.17	5.13	2.64	2.71	4.89
$10 < $20 million	0.38	5.72	2.37	2.51	4.80
$20 million or more	0.17	4.50	2.35	2.41	4.84

Figure R

Rate of Return by Asset Class, Married 2007 Estate Tax Decedents
[Rates of return are percentages]

Age of decedent, size of estate	Business assets	Retirement assets	Interest-bearing assets	Dividend-bearing assets	Tax-exempt bonds
	(1)	(2)	(3)	(4)	(5)
All	1.14	7.20	5.10	4.18	8.33
Age of decedent					
Under 70	1.56	0.00	4.48	3.60	7.07
70 and older	1.04	10.23	5.29	4.39	8.48
Size of estate					
$2 < $3.5 million	1.06	8.26	5.24	4.40	8.55
$3.5 < $5 million	1.36	7.53	5.03	4.09	8.08
$5 < $10 million	1.06	5.29	4.75	4.03	8.17
$10 < $20 million	1.32	5.50	4.88	3.59	7.42
$20 million or more	1.41	4.59	5.39	3.38	7.33

would have been too young in 2006 to realize income from their pensions, annuities, and retirement plans. The higher returns on dividend and interest-bearing assets for older decedents is consistent with life-cycle investment models that predict that older individuals are more likely to prefer less risky, income-generating assets than younger individuals.

Comparison with Prior Studies

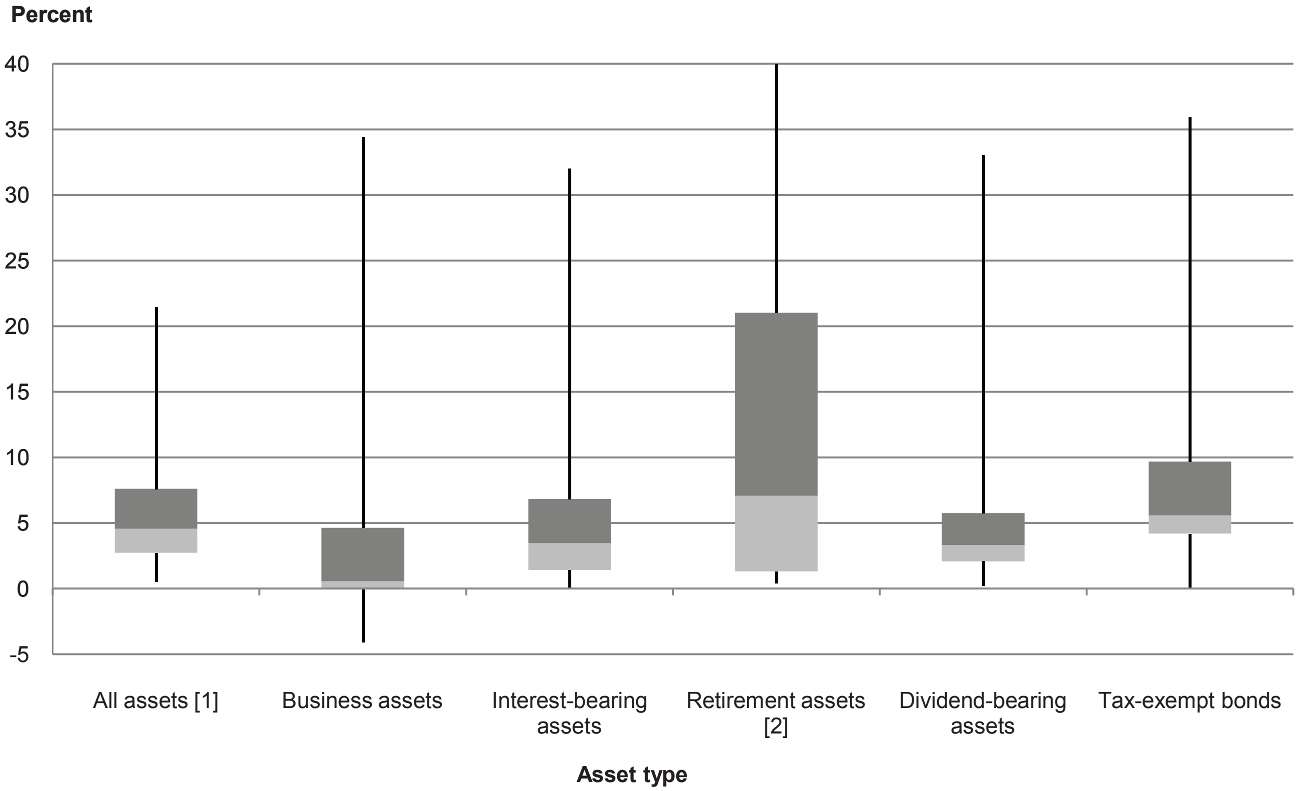
As discussed, this work replicates that of three prior studies that have used linked data from estate tax returns and individual income tax returns to estimate rates of return on assets in the year prior to a decedent's death. Combined with ours, these studies span 25 years that encompass significant changes in tax policy and the economy, some of which are summarized in Figure T. The selected economic data associated with each study year were chosen to provide some context to the rates of return presented for each period. In addition, we present data on contemporary tax law provisions, because a substantial body of research suggests that the amount of income reported on tax returns is affected by the level and structure of tax rates.[9,10] Of particular note are changes to both overall income tax rate schedule, as well as the tax rates that applied to capital gains and dividends.[11]

The overall return on assets, here calculated using AGI less wages in the numerator for consistency

Figure S

Box Plots of Rates of Return on All Assets and Selected Asset Types

(Boxes represent the 25th, median and 75th percentile values, whiskers show the 5th and 95th percentile values)



[1] Return on assets calculated using gross income less wages and Social Security income.
[2] The 95th percentile value for return on retirement assets was trimmed to 40 percent to fit the graph.

across the four studies, was significantly lower in the 1972 decedent study than in the other three studies, an expected result because the 1972 study was based on a very small sample of observations chosen for the condition that the decedent's estate was composed primarily of small business assets. As we have shown, the realized return on business assets tends to be much lower than the return on other asset types.

A surprising result is the relative similarity of overall rates of return on assets among the 1976, 1992, and 2007 decedent studies. Overall return on assets calculated using AGI less wages stayed within a relatively narrow band of 4.21 to 5.90 percent. Broadly speaking, rates of return on individual asset categories, by wealth class, are also very similar. Of particular note is the similarity of overall rate of return found by Steuerle (1985) in his study of 1976 decedents to that calculated for our 2007 decedents, despite overall top marginal income tax rates that were 50 percent lower, and rates on capital gains and dividends that were 66 percent lower in the latter period. This suggests that the income realization choices of the wealthy decedents in these studies were based more on attitudes toward risk and consumption needs than the tax regime in effect at the time.

[9] For a review, see Saez et al. (2009).
[10] See, for example, Auerbach (1988).
[11] Corporate issuance of dividends surged following the 2003 reduction in the dividend tax rate. See Chetty et al. (2004).

Figure T

Estate Tax Decedents: Return on Assets Comparison, Selected Years 1972–2007 [1]

[All rates and return rates are percentages]

Item	1972 Decedents (Steuerle, 1983)	1976 Decedents (Steuerle, 1985)	1992 Decedents (Johnson/Wahl 2004)	2007 Decedents
	(1)	(2)	(3)	(4)
Year of income tax data	1971	1975	1991	2006
Filing threshold (nominal/constant 2007 dollars)	$60,000/$238,200	$60,000/$178,800	$600,000/$834,000	$2.0 million
Inflation (GDPCTPI)	5.00	9.46	3.48	3.15
3-month T-bill rate	4.33	5.78	5.38	4.73
30-year conventional mortgage rate	7.38	9.04	9.25	6.41
S&P 500 annual return	14.31	37.20	30.47	15.79
S&P 500 dividend yield	3.35	4.99	3.72	1.75
Top individual income tax rate	70	70	31	35
Top long-term capital gains tax rate	39	45	28	15
Top dividend tax rate	70	70	31	15
Return on assets, all decedents				
AGI less wages	1.88	4.5	5.9	4.21

One key source of difference in the data across the four studies is the estate tax filing threshold in effect for the year of death. For 1972 and 1976, the filing threshold was nominally $60,000, or $238,200 and $178,800, respectively, in constant 2007 dollars. The inflation-adjusted filing threshold for 1992 was significantly higher at $834,000 and higher still for 2007, at $2 million. These filing threshold increases may affect comparisons of aggregate rates of return on assets, because all four studies show that wealthier individuals tended to report lower overall return on assets than less-wealthy individuals. Thus, all other things being equal, one would expect that the inclusion of more low-wealth decedents in the earlier estimates would inflate the rates of return relative to those calculated for the higher wealth decedents observed in 2007. In an attempt to present more comparable information, Figure U shows estimated trend lines for all three studies, generated using constant 2007 dollar gross estate categories.[12] Although based on a limited number of data points in each year, the figure shows a steady decline in the rate of return on assets for increasing wealth within a relatively narrow band of returns. Rates of return for decedents with more than $5 million in gross estate were lowest in 2007, the year with the lowest interest rates and dividend yield, and highest in 1992.

Conclusion

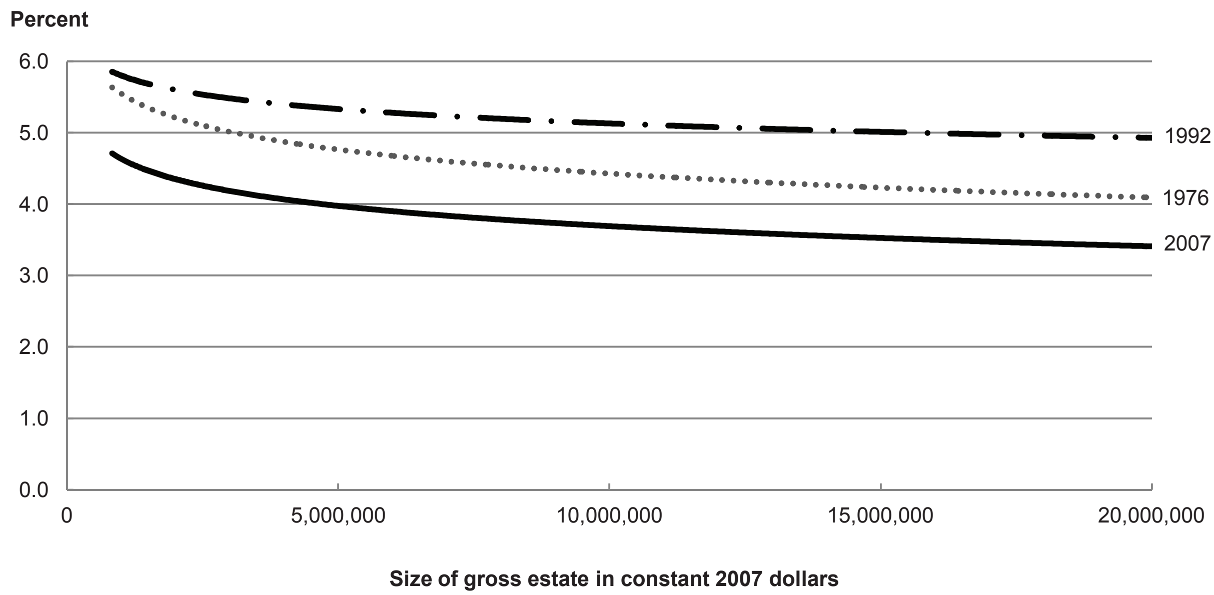
In this preliminary look at a new dataset combining wealth and 1 year of income data, we have shown that the portfolios owned by the nation's wealthiest individuals, at death, and the income earned by these individuals in the year just prior to death vary by both marital status and age, defined in broad categories. In general, the portfolio held by older decedents favors low-risk, low-return assets. Likewise, income sources shift from wages and businesses for younger decedents to fixed-income, lower-risk sources for those above the usual retirement age. We have also shown surprisingly little change in realized rates of return on assets between 1976 and 2007, despite significant changes in the income tax structure between the study periods. This suggests that the income realization choices of the wealthy decedents in these studies were based more on attitudes toward risk and on consumption needs than the tax regime in effect at the time.

An important consideration in computing rates of return on assets using these data is the effect of estate planning on asset values. Mechanisms for smoothing the transition of family wealth between generations, such as family limited partnerships, can result in significantly discounted asset values for estate taxation purposes (see Raub et. al 2010). These types of

[12] We omit the rate of return for highest wealth group in 1976 in determining the trend line because of its reliance on an extremely small sample size.

Figure U

Return on Assets, by Size of Gross Estate and Study Year



techniques have become more pervasive in recent years and could significantly affect the trends shown in Figure B. Therefore, the rates of return calculated for 2007 may actually be somewhat understated relative to the prior studies. It must also be emphasized that the results we show apply to individuals at the end of their lives, many of whom may have made extensive changes to their finances in anticipation of death, and thus may not be generalizable to healthy individuals in similar age and wealth cohorts. For example, we may observe higher pension income realization for younger single decedents or lower business income, in general, among those suffering a chronic illness. In the future, we would like to examine the influences of aging and anticipation of death due to illness on these results. To this end, we would like to construct a longitudinal panel of income data for our decedents and compare their income realization patterns over time with similar data for survivors.

Data Sources and Limitations

Analysts in the Special Projects Section of SOI's Special Studies Branch, with SOI staff in the Cincinnati Submission Processing Center, conduct the Estate Tax Study, which extracts demographic, financial, and bequest data from Form 706, the Federal estate tax return. SOI conducts the Estate Tax Study on an annual basis, which allows annual production of filing year data on estate taxation. By focusing on a single year of death for a period of 3 years, SOI is also able to produce periodic year-of-death estimates. Year-of-death estimates are advantageous in that the included estates have been subject to the same tax law and similar economic conditions. A single year of death is sampled for 3 calendar years, and 99 percent of all returns for decedents who die in a given year are filed by the end of the second calendar year following the year of death. The Estate Tax Study for the period 2007-2009 concentrates on Year-of-Death 2007, the most recent year-of-death estimates available.

For each study year, 2007-2009, a sample was selected from returns filed. The sample for Filing Year 2007 included 9,674 returns out of a total population of 38,000. In 2008, the year in which most returns for 2007 decedents were filed, 11,710 returns were sampled out of a total of 38,354. There were 9,105 returns from a total population of 33,515 sampled during Filing Year 2009. Of the 30,489 returns sampled during 2007-2009, there were 12,426 returns filed for 2007 decedents.

Estate tax returns were sampled while the returns were being processed for administrative purposes, but before any audit examination. Returns were selected on a flow basis, using a stratified random probability sampling method, whereby the sample rates were preset based on the desired sample size and an estimate of the population. The design had three stratification variables: year of death, age at death, and size of total gross estate plus adjusted taxable gifts. For the 2007–2009 filing years, the year-of-death variable was separated into two categories: 2007 year of death and non-2007 year of death. Age was disaggregated into four categories: under 40, 40 under 50, 50 under 65, and 65 and older (including age unknown). Total gross estate plus adjusted taxable gifts was limited to six categories: under $1.5million, $1.5 million under $2 million, $2 million under $3 million, $3 million under $5 million, $5 million under $10 million, and $10 million or more. Sampling rates ranged from 1 percent to 100 percent. Returns for more than half of the strata were selected at the 100-percent rate.

Because almost 99 percent of all returns for decedents who die in a given year are filed by the end of the second calendar year following the year of death, and because the decedent's age at death and the length of time between the decedent's date of death and the filing of an estate tax return are related, it was possible to predict the percentage of unfiled returns within age strata. The sample weights were adjusted accordingly, in order to account for returns for 2007 decedents not filed by the end of Filing Year 2009.

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