

Top Wealth Shares in the United States, 1916–2000: Evidence from Estate Tax Returns

Abstract - This paper presents new homogeneous series on top wealth shares from 1916 to 2000 in the United States using estate tax return data. Top wealth shares were very high at the beginning of the period but have been hit sharply by the Great Depression, the New Deal, and World War II shocks. Those shocks have had permanent effects. Following a decline in the 1970s, top wealth shares recovered in the early 1980s, but they are still much lower in 2000 than in the early decades of the century. Most of the changes we document are concentrated among the very top wealth holders with much smaller movements for groups below the top 0.1 percent. Consistent with the Survey of Consumer Finances results, top wealth shares estimated from Estate Tax Returns display no significant increase since 1995. Evidence from the Forbes 400 richest Americans suggests that only the super-rich have experienced significant gains relative to the average over the last decade. Our results are consistent with the decreased importance of capital incomes at the top of the income distribution documented by Piketty and Saez (2003), and suggest that the rentier class of the early century is not yet reconstituted. The paper proposes several tentative explanations to account for the facts.

Wojciech Kopczuk

Columbia University,
New York, NY 10027

and

NBER, Cambridge, MA
02138

Emmanuel Saez

University of California,
Berkeley, CA 94720

and

NBER, Cambridge, MA
02138

National Tax Journal
Vol. LVII, No. 2, Part 2
June 2004

INTRODUCTION

The pattern of wealth and income inequality during the process of development of modern economies has attracted enormous attention since Kuznets (1955) formulated his famous inverted U-curve hypothesis. Wealth tends to be much more concentrated than income because of life cycle savings and because it can be transmitted from generation to generation. Liberals have blamed wealth concentration because of concerns for equity and in particular for tilting the political process in the favor of the wealthy. They have proposed progressive taxation as an appropriate counter-force against wealth concentration.¹ For conservatives, concentration of wealth is considered as a natural and necessary outcome of an environment that provides incentives for entrepreneurship and wealth accumulation, key elements of macro-econo-

¹ In the early 1930s, President Roosevelt justified the implementation of drastic increases in the burden and progressivity of federal income and estate taxation in large part on those grounds.

conomic success. Redistribution through progressive taxation might weaken those incentives and generate large efficiency costs. Therefore, it is of great importance to understand the forces driving wealth concentration over time and whether government interventions through taxation or other regulations are effective and/or harmful to curb wealth inequality. This task is greatly facilitated by the availability of long and homogeneous series of income or wealth concentration. Such series are in general difficult to construct because of lack of good data. In this paper, we use the extraordinary micro dataset of estate tax returns that has been recently compiled by the Statistics of Income Division of the Internal Revenue Service (IRS) in order to construct homogeneous series of wealth shares accruing to the upper groups of the wealth distribution since 1916, the beginning of the modern federal estate tax in the United States.

The IRS dataset includes detailed micro-information for *all* federal estate tax returns filed during the 1916–1945 period.² We supplement these data with both published tabulations and other IRS micro-data of estate tax returns from selected years of the second half of the century. We use the estate multiplier technique, which amounts to weighting each estate tax return by the inverse probability of death, to estimate the wealth distribution of the living adult population from estate data. First, we have constructed almost annual series of shares of total wealth accruing to various sub-groups within the two percent of the wealth distribution.³ Although small in size, these top groups hold a substantial fraction of total net

worth in the economy. Second, for each of these groups, we decompose wealth into various sources such as real estate, fixed claims assets (bonds, cash, mortgages, etc.), corporate stock, and debts. We also display the composition by gender, age, and marital characteristics. This exercise follows in the tradition of Lampman (1962), who produced top wealth share estimates for a few years between 1922 and 1956. Lampman, however, did not analyze groups smaller than the top .5 percent and this is an important difference because our analysis shows that, even within the top percentile, there is dramatic heterogeneity in the shares of wealth patterns. Most importantly, nobody has attempted to estimate, as we do here, homogeneous series covering the entire century.⁴

Our series show that there has been a sharp reduction in wealth concentration over the 20th century: the top 1 percent wealth share was close to 40 percent in the early decades of the century but has fluctuated between 20 and 25 percent over the last three decades. This dramatic decline took place at a very specific time period, from the onset of Great Depression to the end of World War II, and was concentrated in the very top groups within the top percentile, namely groups within the top 0.1 percent. Changes in the top percentile below the top 0.1 percent have been much more modest. It is fairly easy to understand why the shocks of the Great Depression, the New Deal policies which increased dramatically the burden of estate and income taxation for the wealthy, and World War II, could have had such a dramatic impact on wealth concentration. However, top wealth shares did not re-

² The estate tax return data was compiled electronically and, hence, saved for research purposes thanks to Fritz Scheuren, former director of the Statistics of Income division at the IRS.

³ For the period 1916–1945, because of very high estate tax exemption levels, the largest group we can consider is the top 1 percent.

⁴ Smith (1984) provides estimates for some years between 1958 and 1976 but his series are not fully consistent with Lampman (1962). Wolff (1994) has patched series from those authors and non-estate data sources to produce long-term series. We explain in detail in the third part of the fifth section why such a patching methodology can produce misleading results.

cover in the following decades, a period of rapid growth and great economic prosperity. In the early 1980s, top wealth shares have increased, and this increase has also been very concentrated. However, this increase is small relative to the losses from the first part of the twentieth century and the top wealth shares increased only to the levels prevailing prior to the recessions of the 1970s. Furthermore, this increase took place in the early 1980s and top shares were stable during the 1990s. This evidence is consistent with the dramatic decline in top capital incomes documented in Piketty and Saez (2003) using income tax return data. As they do, we tentatively suggest (but do not prove) that steep progressive income and estate taxation, by reducing the rate of wealth accumulation of the rich, may have been the most important factor preventing large fortunes to be reconstituted after the shocks of the 1929–1945 period.

Perhaps surprisingly, our top wealth shares series do not increase during the 1990s, a time of the Internet revolution and the creation of dot-com fortunes, extra-ordinary stock price growth, and of great increase in income concentration (Piketty and Saez, 2003). Our results are nevertheless consistent with findings from the Survey of Consumer Finances (Kennickell, 2003; Scholz, 2003), which also indicate hardly any growth in wealth concentration since 1995. This absence of growth in top wealth shares in the 1990s is not necessarily inconsistent with the income shares results from Piketty and Saez (2003) because the dramatic growth in top income shares since the 1980s has been primarily due to a surge in top labor incomes, with little growth of top capital incomes. This may suggest that the new high income earners have not had time yet to accumulate substantial fortunes,

either because the pay surge at the top is too recent a phenomenon, or because their savings rates are very low. We show that, as a possible consequence of democratization of stock ownership in America, the top one percent individuals do not hold today a significantly larger fraction of their wealth in the form of stocks than the average person in the U.S. economy, explaining in part why the bull stock market of the late 1990s has not benefited disproportionately the rich.⁵

Although there is substantial circumstantial evidence that we find persuasive, we cannot prove that progressive taxation and stock market democratization had the decisive role we attribute to them. In our view, the primary contribution of this paper is to provide new and homogeneous series on wealth concentration using the very rich estate tax statistics. We are aware that the assumptions needed to obtain unbiased estimates using the estate multiplier method may not be met and, drawing on previous studies, we try to discuss as carefully as possible how potential sources of bias, such as estate tax evasion and tax avoidance, can affect our estimates. Much work is still needed to compare systematically the estate tax estimates with other sources such as capital income from income tax returns, the Survey of Consumer Finances, and the Forbes 400 list.

The paper is organized as follows. The second section describes our data sources and outlines our estimation methods. The third section presents our estimation results. We present and analyze the trends in top wealth shares and the evolution of the composition of these top wealth holdings. The fourth section proposes explanations to account for the facts and relates the evolution of top wealth shares to the evolution of top income shares. The fifth

⁵ We also examine carefully the evidence from the Forbes 400 richest Americans survey. This evidence shows sizeable gains, but those gains are concentrated among the top individuals in the list and the few years of the stock market “bubble” of the late 1990s, followed by a sharp decline from 2000 to 2002.

section discusses potential sources of bias, and compares our wealth share results with previous estimates and estimates from other sources such as the Survey of Consumer Finances and the Forbes richest 400 list. The final section offers a brief conclusion. All series and complete technical details about our methodology are gathered in appendices of the longer NBER working paper version of the paper (Kopczuk and Saez, 2004).

DATA, METHODOLOGY, AND MACRO-SERIES

In this section, we describe briefly the data we use and the broad steps of our estimation methodology. Readers interested in the complete details of our methods are referred to the extensive appendices at the end of the NBER working paper version of the paper. Our estimates are from estate tax return data compiled by the Internal Revenue Service (IRS) since the beginning of the modern estate tax in the United States in 1916. In the 1980s, the Statistics of Income division of the IRS constructed electronic micro-files of *all* federal estate tax returns filed for individuals who died in the period 1916 to 1945. Stratified and large electronic micro-files are also available for 1965, 1969, 1972, 1976, and every year since 1982.⁶ For a number of years between 1945 and 1965 (when no micro-files are available), the IRS published detailed tabulations of estate tax returns (U.S. Treasury Department, Internal Revenue Service, various years a).⁷ This paper uses both the micro-files and the published tabulated data to construct top wealth shares and composition series for as many years as possible.

In the United States, because of large exemption levels, only a small fraction of decedents has been required to file estate

tax returns. Therefore, by necessity, we must restrict our analysis to the top two percent of the wealth distribution. Before 1946, we can analyze only the top one percent. As the analysis will show, the top one percent, although a small fraction of the total population, holds a substantial fraction of total wealth. Further, there is substantial heterogeneity between the bottom of the top one percent and the very top groups within the top one percent. Therefore, we also analyze in detail smaller groups within the top one percent: the top .5 percent, the top .25 percent, the top .1 percent, the top .05 percent, and the top .01 percent. We also analyze the intermediate groups: top 1–.5 percent denotes the bottom half of the top one percent, top .5–.25 percent denotes the bottom half of the top .5 percent, etc. Estates represent wealth at the individual level and not the family or household level. Therefore, it is very important to note that our top wealth shares are based on individuals and not families. We come back to this issue later. Each of our top groups is defined relative to the total number of adult individuals (aged 20 and above) in the U.S. population, estimated from census data. Column (1) of Table 1 reports the number of adult individuals in the United States from 1916 to 2002. The adult population has more than tripled from about 60 million in 1916 to over 200 million in 2000. In 2000, there were 201.9 million adults and, thus, the top one percent is defined as the top 2.019 million wealth holders, etc.

We adopt the well-known estate multiplier method to estimate the top wealth shares for the living population from estate data. The method consists in inflating each estate observation by a multiplier equal to the inverse probability of death.⁸ The probability of death is es-

⁶ Those data are stratified and, hence, always contain 100 percent of the very large estates.

⁷ Those tabulations are also based on stratified samples with 100 percent coverage at the top.

⁸ This method was first proposed in Great Britain almost a century ago by Mallet (1908). Atkinson and Harrison (1978) describe the method in detail.

timated from mortality tables by age and gender for each year for the U.S. population multiplied by a social differential mortality factor to reflect the fact that the wealthy (those who file estate tax returns) have lower mortality rates than average. The social differential mortality rates are based on the Brown et al. (2002) differentials between college educated whites relative to the average population and are assumed constant over the whole period (see Appendix B of the NBER working paper version for a detailed discussion and analysis of the validity of this assumption). The estate multiplier methodology will provide unbiased estimates of the wealth distribution if our multipliers are correct on average and if probability of death is independent of wealth within each age and gender group for estate tax return filers. This assumption might not be correct for three main reasons. First, extraordinary expenses such as medical expenses and loss of labor income may occur and reduce wealth in the years preceding death. Second, even within the set of estate tax filers, it might be the case that the most able and successful individuals have lower mortality rates, or inversely that the stress associated with building a fortune increases the mortality rate. Last and most importantly, for estate tax avoidance and other reasons, individuals may start to give away their wealth to relatives as they feel that their health deteriorates. We will later address each of these very important issues, and try to analyze whether those potential sources of bias might have changed over time.

The wealth definition we use is equal to all assets (gross estate) less all liabilities (mortgages, and other debts) as they appear on estate tax returns. Assets are defined as the sum of tangible assets (real estate and consumer durables), fixed claim assets (cash, deposits, bonds, mort-

gages, etc.), corporate equities, equity in unincorporated businesses (farms, small businesses), and various miscellaneous assets. It is important to note that wealth reported on estate tax returns only includes the cash surrender value of pensions. Therefore, future pension wealth in the form of defined benefits plans, and annuitized wealth with no cash surrender value is excluded. Vested defined contributions accounts (and in particular 401(k) plans) are included in the wealth definition. Social Security wealth as well as all future labor income and human wealth are obviously not included in gross estate. Estate tax returns include the full payout of life insurance but we include only the cash value of life insurance (i.e., the value of life insurance when the person is living) in our estimates.

Therefore, we focus on a relatively narrow definition wealth, which includes only the marketable or accumulated wealth that remains upon the owner's death. This point is particularly important for owners of closely held businesses: in many instances, a large part of the value of their business reflects their personal human capital and future labor, which vanishes at their death. Both the narrow definition of wealth (on which we focus by necessity because of our estate data source), and broader wealth definitions, including future human wealth, are interesting and important to study. The narrow definition is more suited to examine problems of wealth accumulation and transmission, while the broader definition is more suited to study the distribution of welfare.⁹

For the years for which no micro data is available, we use the tabulations by gross estate, age and gender and apply the estate multiplier method within each cell in order to obtain a distribution of gross wealth for the living. We then use a simple Pareto interpolation technique and the composi-

⁹ The analysis of income distribution captures both labor and capital income and is, thus, closer to an analysis of distribution of the broader wealth concept.

TABLE 1
REFERENCE TOTALS FOR POPULATION, WEALTH, AND INFLATION, 1916-2002

	Adult population		Personal Wealth				Wealth Composition (percent)				Inflation
	(1) Population (aged 20+) ('000s)	(2) Population covered by estate tax returns	(3) Total Wealth (billions 2000 \$)	(4) Average Wealth (2000 \$)	(5) Real Estate and Durables	(6) Fixed Claim Assets	(7) Corporate Equity	(8) Non-Corp. Equity	(9) Life Insurance Reserves	(10) Liabilities	(11) CPI-U (2000 base)
1916	60,063	0.454%	3,011	50,127	24.2	19.5	21.1	38.4	2.7	-5.7	6,324
1917	60,914	0.482%	2,770	45,481	26.5	20.3	17.8	38.4	2.7	-5.7	7,425
1918	60,477	0.571%	2,621	43,346	28.4	21.2	15.3	38.0	2.6	-5.6	8,716
1919	61,758	0.718%	2,709	43,868	29.2	20.5	15.6	37.3	2.3	-5.0	10,015
1920	63,117	0.770%	2,494	39,521	31.2	20.9	14.4	36.2	2.3	-5.0	11,598
1921	64,360	0.718%	2,667	41,432	31.4	23.1	14.3	34.1	2.6	-5.6	10,357
1922	65,237	0.716%	2,895	44,374	29.4	23.9	16.9	32.9	2.7	-5.8	9,704
1923	66,498	0.705%	3,000	45,110	29.8	23.7	17.7	32.2	2.8	-6.2	9,879
1924	67,945	0.734%	3,136	46,153	30.7	23.6	18.4	31.3	3.1	-7.0	9,899
1925	69,137	0.738%	3,298	47,709	30.1	22.8	20.7	30.6	3.2	-7.5	10,146
1926	70,348	0.738%	3,471	49,342	29.9	22.4	22.5	29.9	3.3	-8.0	10,248
1927	71,615	0.738%	3,796	53,005	28.9	21.8	25.2	29.1	3.4	-8.3	10,053
1928	72,882	0.739%	4,314	59,191	26.8	20.2	29.6	28.2	3.3	-8.1	9,922
1929	74,112	0.430%	4,773	64,401	25.1	19.0	34.6	26.1	3.2	-8.1	9,922
1930	75,505	0.380%	4,281	56,701	28.4	21.9	27.6	27.5	3.9	-9.2	9,674
1931	76,620	0.296%	3,892	50,792	31.1	25.7	20.8	27.6	5.0	-10.2	8,823
1932	77,683	0.416%	3,548	45,674	33.4	30.7	13.4	27.5	5.0	-10.2	7,914
1933	78,764	0.420%	3,785	48,052	31.4	29.7	14.8	27.7	6.5	-10.2	7,510
1934	79,915	0.423%	3,917	49,016	30.0	27.4	16.9	28.3	6.4	-10.2	7,766
1935	81,064	0.544%	4,054	50,006	28.8	25.7	18.4	29.2	6.5	-9.5	7,960
1936	82,156	0.608%	4,535	55,205	26.6	22.6	22.0	30.3	6.1	-8.0	8,040
1937	83,216	0.618%	4,417	53,080	28.2	22.2	20.4	30.3	6.4	-7.6	8,329
1938	84,344	0.604%	4,365	51,738	30.3	22.7	17.7	30.1	6.9	-7.8	8,171
1939	85,486	0.620%	4,570	53,464	30.2	21.8	18.1	30.4	7.0	-7.6	8,056
1940	86,832	0.620%	4,627	53,288	31.3	22.6	16.3	29.8	7.3	-7.5	8,137
1941	88,173	0.657%	4,610	52,287	32.9	24.4	13.4	28.9	7.6	-7.2	8,544
1942	89,560	0.663%	4,550	50,802	33.0	25.8	11.8	28.5	7.4	-6.6	9,458
1943	90,999	0.552%	4,867	53,485	31.4	26.8	12.1	28.5	7.0	-5.8	10,035
1944	92,376	0.700%	5,408	58,543	29.8	27.8	12.7	28.2	6.6	-5.2	10,205
1945	93,697	0.827%	6,025	64,306	27.7	28.3	14.4	28.0	6.1	-4.6	10,440
1946	94,933	1.176%	6,221	65,533	27.3	28.0	14.5	28.0	5.9	-4.6	11,328
1947	96,183	1.303%	5,918	62,727	29.4	26.7	12.7	30.7	5.9	-5.3	12,959
1948	97,552	1.341%	5,884	60,320	31.7	25.3	11.6	31.5	5.8	-6.0	13,969
1949	98,941	1.410%	6,233	62,993	33.6	24.4	12.5	31.2	5.9	-6.6	13,830
1950	100,224	1.494%	6,567	65,524	35.3	23.4	12.5	30.5	5.8	-7.4	13,968
1951	101,452		6,638	65,451	36.5	22.1	13.8	29.7	5.6	-7.8	13,072
1952	102,626		6,928	67,507	37.5	22.1	14.1	29.2	5.6	-8.3	15,403
1953	103,611	1.884%	7,101	68,539	39.0	22.6	13.5	28.5	5.6	-9.1	15,526
1954	104,623	1.861%	7,432	71,036	39.4	22.5	14.9	27.3	5.6	-9.7	15,604
1955	105,603		8,037	76,109	39.2	22.1	17.8	25.8	5.4	-10.4	15,542
1956	106,687	2.266%	8,483	79,514	39.5	22.1	19.2	24.9	5.3	-11.0	15,775
1957	107,748		8,522	79,090	40.5	22.5	18.4	24.9	5.3	-11.5	16,343
1958	108,710	2.611%	8,761	80,595	40.3	22.4	19.2	24.5	5.2	-11.7	16,784

Top Wealth Shares in the United States, 1916–2000

1959	110.223		9,303	84,398	39.4	22.3	21.6	23.6	5.1	-12.0	16,918
1960	111,314	2.950%	9,526	85,579	39.7	22.8	22.0	23.1	5.0	-12.7	17,189
1961	112,450		9,978	88,733	39.1	22.8	23.4	22.6	5.0	-13.0	17,361
1962	113,754	2.700%	10,382	91,268	38.7	23.0	24.2	22.4	5.0	-13.4	17,552
1963	115,096		10,614	92,215	39.0	23.8	24.2	22.2	5.0	-14.3	17,762
1964	116,796		11,108	95,103	38.5	24.2	25.7	21.5	4.9	-14.9	17,993
1965	118,275	2.923%	11,737	99,231	37.5	24.2	27.5	21.1	4.8	-15.2	18,299
1966	119,724		11,963	99,918	38.0	24.9	26.4	21.4	4.8	-15.6	18,830
1967	121,143		12,425	102,562	38.1	25.3	26.2	21.2	4.7	-15.6	19,376
1968	123,507		13,343	108,037	37.3	24.6	28.5	20.2	4.4	-15.0	20,190
1969	125,543	4.069%	13,447	107,108	38.6	25.0	26.9	20.4	4.4	-15.1	21,280
1970	127,674		13,026	102,028	40.3	26.2	23.7	20.9	4.4	-15.5	22,535
1971	130,774		13,420	102,619	40.2	26.4	23.5	21.0	4.2	-15.3	23,527
1972	133,502	5.343%	14,606	109,410	39.6	26.8	25.0	20.7	4.0	-15.1	24,280
1973	136,006		14,885	109,446	41.4	26.1	22.4	21.9	3.8	-15.6	25,785
1974	138,444		13,574	98,048	44.4	28.2	15.6	24.8	4.0	-17.0	28,621
1975	141,055		13,232	93,809	45.1	29.1	13.4	25.7	4.0	-17.3	31,226
1976	143,609		14,136	98,433	44.5	28.3	15.2	25.1	3.7	-16.8	33,037
1977	146,305	6.517%	14,686	100,378	46.0	28.1	14.2	25.5	3.5	-17.3	35,185
1978	149,142		15,125	101,413	48.2	28.0	12.1	26.4	3.4	-18.1	37,859
1979	152,105		15,518	102,022	49.1	27.5	11.8	26.8	3.1	-18.3	42,137
1980	155,268		15,701	101,122	48.8	26.8	12.8	26.5	2.9	-17.9	47,825
1981	158,033		15,739	99,594	49.2	26.9	12.3	26.7	2.7	-17.6	52,751
1982	160,665		15,803	98,360	49.6	27.8	11.5	25.9	2.6	-17.5	56,022
1983	163,135	1.800%	16,275	99,767	48.8	29.1	12.1	24.9	2.6	-17.5	57,814
1984	165,650	1.483%	16,737	101,040	49.5	30.7	11.8	23.5	2.5	-18.0	60,300
1985	168,205	1.178%	17,700	105,231	50.7	32.0	11.9	21.7	2.3	-18.7	62,471
1986	170,556	1.125%	17,700	112,570	50.8	32.7	13.2	20.4	2.2	-19.3	63,658
1987	172,552	1.147%	20,086	116,408	50.9	33.3	13.4	19.7	2.2	-19.5	65,950
1988	174,344	1.046%	20,902	119,890	50.9	33.7	13.5	19.2	2.2	-19.4	68,654
1989	176,060	1.192%	21,736	123,460	50.5	33.2	14.9	18.5	2.2	-19.3	71,949
1990	178,365	1.305%	21,588	121,034	50.7	33.6	15.1	18.3	2.3	-20.0	75,834
1991	180,978	1.312%	21,630	119,519	49.9	33.8	16.6	17.7	2.4	-20.4	79,019
1992	183,443	1.371%	22,186	120,942	49.0	32.8	16.5	16.6	2.4	-20.3	81,390
1993	185,685	1.504%	22,478	121,053	48.8	31.9	16.1	16.1	2.5	-20.6	83,832
1994	187,757	1.541%	22,619	120,472	48.7	31.7	22.0	16.2	2.6	-21.3	86,011
1995	189,911	1.598%	23,407	123,251	47.8	30.8	24.1	16.2	2.6	-21.5	88,419
1996	192,043	1.808%	24,908	129,698	45.7	29.2	27.9	15.6	2.6	-21.0	91,072
1997	194,426	1.930%	26,847	138,082	43.3	27.7	31.9	15.4	2.5	-20.4	93,167
1998	196,795	2.032%	29,306	148,916	41.6	26.2	35.1	14.4	2.5	-19.8	94,657
1999	201,255	2.206%	32,183	161,519	40.0	25.0	37.9	13.5	2.4	-19.2	96,740
2000	209,865	2.072%	32,936	163,161	41.2	24.8	38.3	13.5	2.4	-19.8	100,000
2001	204,323		31,510	154,217	45.6	26.5	33.0	14.2	2.6	-21.8	102,846
2002	206,811		30,194	146,000	50.8	28.8	26.9	14.9	2.9	-24.2	104,472

Notes: Population estimates based on census data from Historical Statistics of the United States and the U.S. Statistical Abstract.

Population covered by tax returns is defined by the population represented, using the multiplier technique, by estate tax returns with net worth above the filing threshold.

Total wealth is defined as net worth of the personal sector excluding all future social security benefits and human wealth but including life insurance reserves.

Only the cash surrender value of pension reserves is included (such as vested defined contribution and 401(k) accounts).

This series is estimated from the Flow of Funds Accounts since 1945 and from several other sources before 1945. The series estimate a average wealth during the corresponding year (and not end of year estimates). Wealth composition column reports the percent shares of tangible assets (owner occupied real estate and tenant occupied buildings with four units or less, consumer durables), fixed claim assets (cash and saving deposits, all bonds, mortgages), corporate equity, non-corporate equity (which includes tenant occupied net real estate for buildings with more than four units), and life insurance reserves. Liabilities include all debts (mortgages and consumer credit). Columns (5) to (10) add up to 100%. The Consumer Price Index (CPI) series is used to express all nominal values into real 2000 dollars.

tion tables to estimate the thresholds and average wealth levels for each of our top groups.¹⁰ For illustration purposes, Table 2 displays the thresholds, the average wealth level in each group, along with the number of individuals in each group, all for 2000, the latest year available.

We then estimate shares of wealth by dividing the wealth amounts accruing to each group by total net-worth of the household sector in the United States. The total net-worth denominator has been estimated from the Flow of Funds Accounts for the post-war period and from Goldsmith et al. (1956) and Wolff (1989) for the earlier period.¹¹ The total net-worth denominator includes all assets less liabilities corresponding to the items reported on estate tax returns so that the definitions of wealth in the numerator and the denominator are as close as possible. Thus, our denominator only includes defined contribution pension reserves, and excludes defined benefits pension reserves. Life insurance reserves, which reflect the cash surrender value of all policies held, are included in

our denominator. The total wealth and average wealth (per adult) series are reported in real 2000 dollars in Columns (3) and (4) of Table 1. The CPI deflator used to convert current incomes to real incomes is reported in Column (10). The average real wealth series per adult along with the CPI deflator is plotted in Figure 1. Average real wealth per adult has increased by a factor of three from 1916 to 2000 but the growth was very uneven during the period. There was virtually no growth in average real wealth from 1916 to the onset of World War II. Average wealth then grew steadily from World War II to the late 1960s. Since then, wealth growth has been slower, except in the 1994–2000 period.¹²

After we have analyzed the top share data, we will also analyze the composition of wealth and the age, gender, and marital status of top wealth holders, for all years where these data are available. We divide wealth into six categories: 1) real estate, 2) bonds (federal and local, corporate and foreign), 3) corporate stock, 4) deposits and saving accounts, cash, and

TABLE 2
THRESHOLDS AND AVERAGE WEALTH IN TOP GROUPS WITHIN THE TOP 2% IN 2000

Percentiles (1)	Wealth Threshold (2)	Upper Groups (3)	Number of Individuals (4)	Average Wealth (5)
		Full Population	201,865,000	\$163,161
2.00%	\$729,932	Top 2–1%	2,018,650	\$920,073
1.00%	\$1,172,896	Top 1–0.5%	1,009,325	\$1,472,456
0.50%	\$1,841,697	Top 0.5–0.25%	504,663	\$2,314,011
0.25%	\$3,067,676	Top 0.25–0.1%	302,798	\$3,989,132
0.10%	\$5,503,678	Top 0.1–0.05%	100,933	\$6,717,885
0.05%	\$8,219,720	Top 0.05–0.01%	80,746	\$12,675,629
0.01%	\$24,415,150	Top 0.01%	20,187	\$63,564,151

Notes: Computations based on estate tax return statistics (see Appendix Section D in Kopczuk and Saez (2004)).

Wealth defined as total assets less liabilities. It includes the estimated cash surrender value of life insurance.

It excludes annuitized wealth, and future pensions with no cash surrender value, future labor income and social security benefits. Amounts are expressed in 2000 dollars.

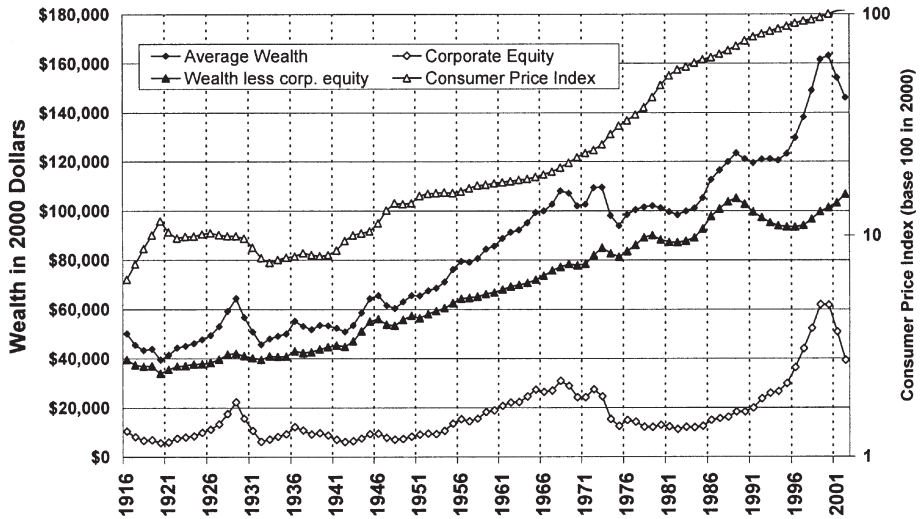
Source: Table 1 and Table B2, row 2000 in Kopczuk and Saez (2004)

¹⁰ We also use Pareto interpolations to impute values at the bottom of one or two percent of the wealth distribution for years where the coverage of our micro data is not broad enough.

¹¹ Unfortunately, no annual series exist before 1945. Therefore, we have built upon previous incomplete series to construct complete annual series for the 1916–1944 period.

¹² It is important to note that comparing real wealth over time is difficult because it requires the use of a price index and there is substantial controversy about how to construct such an index and account properly for the introduction of new goods. That is why most of the paper focuses on top wealth shares, which are independent of the price index.

Figure 1. Average Real Wealth and Consumers Price Index in the United States, 1916–2002



Source: Table 1, columns Average Wealth (in real 2000 dollars) and CPI (base 100 in 2000).

notes, 5) other assets (including mainly equity in non–corporate businesses), 6) all debts and liabilities. In order to compare the composition of wealth in the top groups with the composition of total net–worth in the U.S. economy, we display in columns (5) to (9) of Table 1 the fractions of real estate, fixed claim assets, corporate equity, unincorporated equity, and debts in total net worth of the household sector in the United States. We also present in Figure 1 the average real value of corporate equity and the average net worth excluding corporate equity. Those figures show that the sharp downturns and upturns in average net worth are primarily due to the dramatic changes in the stock market prices, and that the pattern of net worth excluding corporate equity has been much smoother.

THE EVOLUTION OF TOP WEALTH SHARES

Trends

The basic series of top wealth shares are presented in Table 3. Figure 2 displays

the wealth share of the top one percent from 1916 to 2000. The top one percent held close to 40 percent of total wealth up to the onset of the Great Depression. Between 1930 and 1932, the top one percent share fell by more than 10 percentage points, and continued to decline during the New Deal, World War II, and the late 1940s. By 1949, the top one percent share was around 22.5 percent. The top one percent share increased slightly to around 25 percent in the mid–1960s, and then fell to less than 20 percent in 1976 and 1982. The top one percent share increased significantly in the early 1980s (from 19 to 22 percent) and then stayed remarkably stable around 21–22 percent in the 1990s. This evidence shows that the concentration of wealth ownership in the United States decreased dramatically over the century. This phenomenon is illustrated in Figure 3, which displays the average real wealth of those in the top one percent (left–hand–side scale) and those in the bottom 99 percent (right–hand–side scale). In 1916, the top one percent wealth

TABLE 3
TOP WEALTH SHARES IN THE UNITED STATES, 1916-2000

	Top groups					Intermediate Groups							
	2% (1)	1% (2)	0.50% (3)	0.25% (4)	0.10% (5)	0.05% (6)	0.01% (7)	2-1% (8)	1-5% (9)	5-25% (10)	25-1% (11)	1-05% (12)	05-01% (13)
1916		38.12	32.67	27.44	21.03	16.90	9.69		5.45	5.23	6.40	4.13	7.21
1917		35.58	30.17	25.15	19.31	15.47	8.85		5.41	5.02	5.84	3.84	6.62
1918		36.80	31.17	25.97	20.02	16.11	9.49		5.63	5.19	5.96	3.91	6.63
1923		39.93	33.82	28.42	22.39	18.38	11.32		6.11	5.40	6.03	4.01	7.06
1920		37.61	31.65	26.29	20.36	16.61	10.07		5.96	5.35	5.93	3.75	6.54
1921		35.22	29.12	23.68	17.54	13.68	7.48		6.10	5.43	6.15	3.86	7.00
1922		36.02	29.81	24.11	17.55	13.39	6.38		6.21	5.70	6.55	4.17	7.20
1923		35.22	29.49	24.13	17.80	13.66	6.84		5.73	5.35	6.34	4.14	6.82
1924		30.85	25.39	20.00	14.95	8.23	5.85		5.85	5.46	6.39	3.90	6.72
1925		36.02	30.08	24.77	18.45	14.55	7.79		5.94	5.32	6.31	4.05	6.76
1926		35.15	29.75	24.46	18.41	14.59	8.26		5.82	5.29	6.05	3.82	6.33
1927		33.19	27.72	21.28	17.19	10.16	10.16		6.02	5.46	6.45	4.09	7.03
1928		36.50	31.03	25.93	19.70	15.62	8.87		5.47	5.10	6.23	4.08	6.75
1929		36.76	31.84	26.91	20.80	16.65	9.15		4.92	4.93	6.11	4.16	7.49
1930		40.29	34.47	29.17	18.71	10.77	10.77		5.82	5.31	6.31	4.15	7.94
1931		34.70	29.47	24.63	18.77	14.87	8.25		5.23	4.84	5.85	3.90	6.62
1932		28.40	24.04	19.75	14.68	11.50	6.03		4.36	4.28	5.07	3.18	5.47
1933		30.31	25.80	21.46	16.28	12.91	6.91		4.51	4.34	5.18	3.37	6.00
1934		28.09	23.84	19.76	14.94	11.89	6.57		4.24	4.08	4.83	3.04	5.32
1935		27.77	23.76	19.69	14.98	11.88	6.54		4.01	4.08	4.71	3.10	5.34
1936		29.70	25.51	21.47	16.63	13.30	7.25		4.19	4.04	4.83	3.33	6.05
1937		26.97	22.64	18.73	14.22	11.37	6.14		4.32	3.91	4.52	2.85	5.23
1938		27.06	22.70	18.70	14.13	11.21	6.11		4.36	4.00	4.57	2.93	5.10
1939		25.95	21.59	17.65	13.18	10.40	5.56		4.36	3.94	4.47	2.78	4.84
1940		25.27	20.83	16.87	12.42	9.67	4.96		4.44	3.96	4.45	2.75	4.71
1941		25.30	20.74	16.71	12.35	9.67	5.02		4.56	4.03	4.37	2.67	4.56
1942		23.74	19.34	15.48	11.31	8.69	4.13		4.40	3.85	4.17	2.63	4.65
1943		29.42	19.46	15.35	10.96	8.35	4.23		4.80	4.11	4.39	2.62	4.11
1944		25.49	20.35	16.00	11.40	8.64	4.31		5.14	4.35	4.60	2.76	4.33
1945		24.65	19.38	15.05	10.54	7.92	3.69		5.27	4.33	4.51	2.62	4.23
1946	30.90	24.49	19.06	14.70	10.28	7.61	3.84	6.41	5.43	4.36	4.42	2.67	3.78
1947	31.07	24.28	18.81	14.57	10.26	7.76	4.07	6.79	5.46	4.25	4.30	2.50	3.69
1948	29.67	23.04	17.69	13.54	9.45	7.04	3.65	6.63	5.35	4.15	4.09	2.41	3.39
1949	29.42	22.59	17.25	13.08	9.03	6.69	3.33	6.83	5.34	4.17	4.04	2.35	3.36
1950	29.53	22.78	17.49	13.34	9.24	6.96	3.33	6.75	5.28	4.15	4.10	2.27	3.48
1953	30.91	23.77	18.26	13.95	9.73	7.31	3.60	7.14	5.52	4.31	4.22	2.42	3.72
1954	29.99	23.18	17.89	13.71	9.60	7.31	3.74	6.81	5.29	4.18	4.11	2.29	3.56
1956	31.49	24.75	19.25	14.89	10.48	7.93	3.99	6.74	5.30	4.35	4.41	2.55	3.94
1958	31.19	24.18	18.64	14.35	10.06	7.69	3.99	7.01	5.55	4.29	4.28	2.38	3.54
1960	32.45	25.25	19.50	15.02	10.53	7.99	4.14	7.21	5.75	4.48	4.49	2.54	3.85
1962	31.01	24.39	19.06	14.74	10.36	7.88	4.03	6.61	5.33	4.32	4.38	2.47	3.86

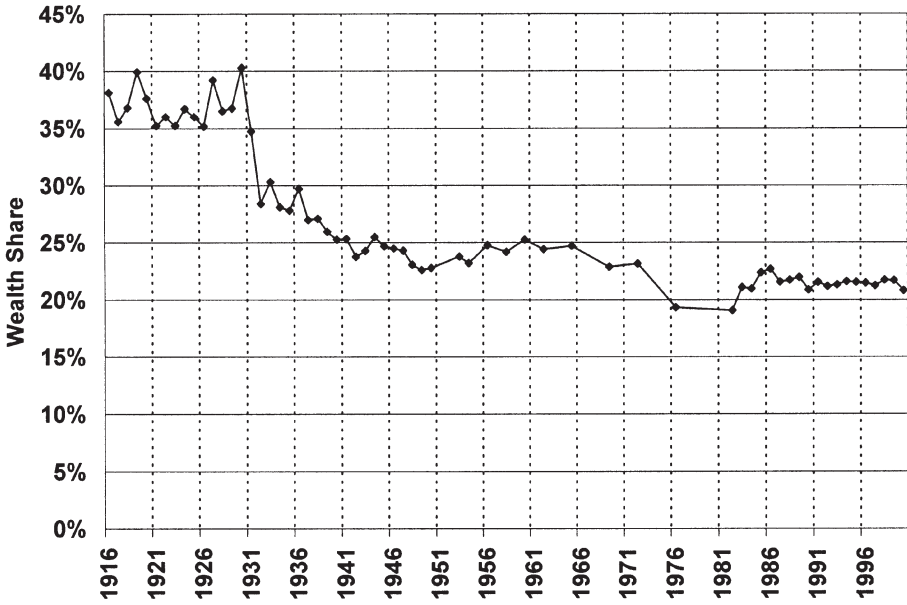
1965	30.75	24.70	19.59	15.35	10.85	8.27	4.41	6.05	5.10	4.25	4.50	2.58	3.86
1969	29.11	22.86	17.84	13.84	9.87	7.64	4.34	6.25	5.02	4.00	3.98	2.22	3.30
1972	29.52	23.13	18.06	14.03	9.89	7.47	3.99	6.39	5.07	4.02	4.14	2.42	3.48
1976	25.67	19.32	14.52	10.91	7.45	5.63	2.91	6.35	4.80	3.61	3.46	1.83	2.72
1982	25.17	19.06	14.36	10.79	7.33	5.40	2.53	6.11	4.70	3.56	3.47	1.93	2.87
1983	26.96	21.07	15.93	12.06	8.40	6.40	3.19	5.89	5.15	3.87	3.66	1.99	3.10
1984	26.57	20.95	16.23	12.23	8.60	6.62	3.51	5.62	4.72	4.00	3.63	1.99	3.10
1985	28.49	22.35	17.43	13.49	9.45	7.25	4.09	6.14	4.92	3.95	4.04	2.20	3.16
1986	28.80	22.66	17.62	13.63	9.61	7.37	3.91	6.14	5.03	4.00	4.02	2.23	3.46
1987	27.78	21.57	16.66	12.79	8.98	6.73	3.44	6.22	4.91	3.88	3.80	2.25	3.29
1988	27.77	21.70	16.85	12.92	8.95	6.80	3.60	6.07	4.86	3.93	3.97	2.15	3.21
1989	28.04	21.96	17.02	13.13	9.30	7.11	3.79	6.08	4.94	3.89	3.88	2.19	3.32
1990	27.39	20.86	15.95	12.21	8.73	6.78	3.63	6.53	4.91	3.74	3.48	1.95	3.15
1991	27.73	21.54	16.56	12.73	8.95	6.79	3.55	6.20	4.98	3.83	3.78	2.16	3.24
1992	27.23	21.18	16.34	12.66	8.99	6.88	3.72	6.06	4.84	3.68	3.67	2.12	3.16
1993	27.53	21.31	16.33	12.44	8.69	6.72	3.76	6.22	4.98	3.89	3.75	1.98	2.96
1994	28.08	21.58	16.63	12.84	9.00	6.96	3.86	6.50	4.96	3.79	3.84	2.04	3.11
1995	27.74	21.54	16.67	12.91	9.29	7.23	3.99	6.20	4.87	3.76	3.62	2.07	3.24
1996	27.68	21.45	16.51	12.71	9.08	6.98	3.84	6.23	4.94	3.80	3.63	2.10	3.15
1997	27.24	21.24	16.41	12.56	8.92	6.91	3.78	6.00	4.83	3.85	3.64	2.01	3.13
1998	27.67	21.70	16.86	13.08	9.38	7.31	3.99	5.97	4.83	3.78	3.70	2.08	3.32
1999	27.68	21.68	16.86	13.16	9.40	7.28	3.91	6.00	4.82	3.69	3.76	2.12	3.37
2000	26.43	20.79	16.27	12.73	9.06	7.00	3.90	5.64	4.51	3.55	3.67	2.06	3.11

Notes: Computations by authors based on estate tax return statistics. See Appendix Section D in Kopczuk and Saez (2004) for details.

Series display the top of total net-worth accruing to each upper wealth group.

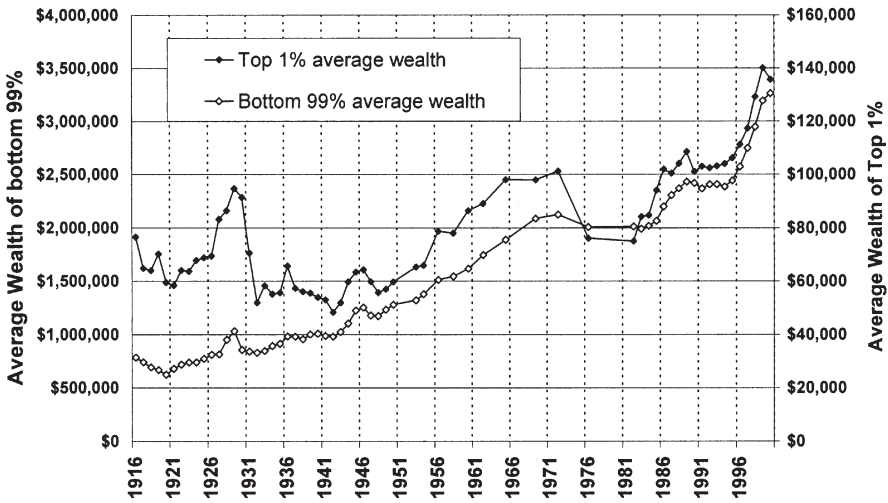
Series for Top 2–1% are estimated only for the 1946–2000 period because the tax return population does not cover that group in the pre-war period.

Figure 2. The Top 1% Wealth Share in the United States, 1916–2000



Source: Table 3, col. Top 1%.

Figure 3. Average Real Wealth of Bottom 99% and Top 1% in the United States, 1916–2000



Source: Table B2 in Kopczuk and Saez (2004), columns Top 1%, Bottom 99% computed from Average Wealth (Table 1, Col. (4)) and Average Top 1% wealth. Amounts are expressed in 2000 dollars.

holders were more than 60 times richer on average than the bottom 99 percent. The figure shows the sharp closing of the gap between the Great Depression and the post World War II years, as well as the subsequent parallel growth for the two groups (except for the 1970s). In 2000, the top one percent individuals are about 25 times richer than the rest of the population.

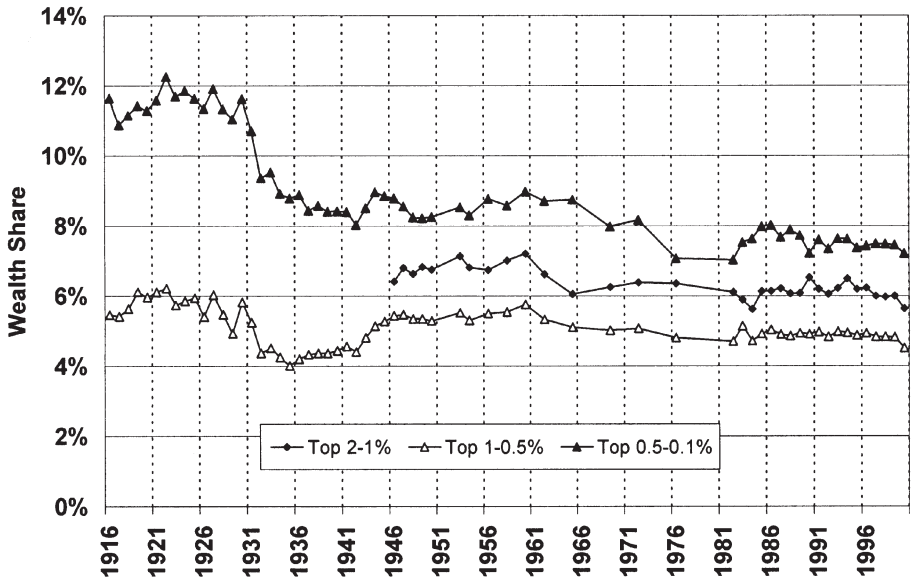
Therefore, the evidence suggests that the twentieth century’s decline in wealth concentration took place in a very specific and brief time interval, 1930–1949, which spans the Great Depression, the New Deal, and World War II. This suggests that the main factors influencing the concentration of wealth might be short-term events with long-lasting effects, rather than slow changes such as technological progress and economic development or demographic transitions.

In order to understand the overall pattern of top income shares, it is useful to

decompose the top percentile into smaller groups. Figure 4 displays the wealth shares of the top 1–.5 percent (the bottom half of the top one percent), and the top .5–.1 percent (the next .4 percentile of the distribution). Figure 4 also displays the share of the second percentile (Top 2–1 percent) for the 1946–2000 period. The figure shows that those groups of high but not super-high wealth holders experienced much smaller movements than the top one percent as a whole. The top 1–.5 percent has fluctuated between five and six percent except for a short-lived dip during the Great Depression. The top .5–.1 percent has experienced a more substantial and long-lasting drop from 12 to eight percent but this four percentage point drop constitutes a relatively small part of the 20 point loss of the top one percent. All three groups have been remarkably stable over the last 25 years.

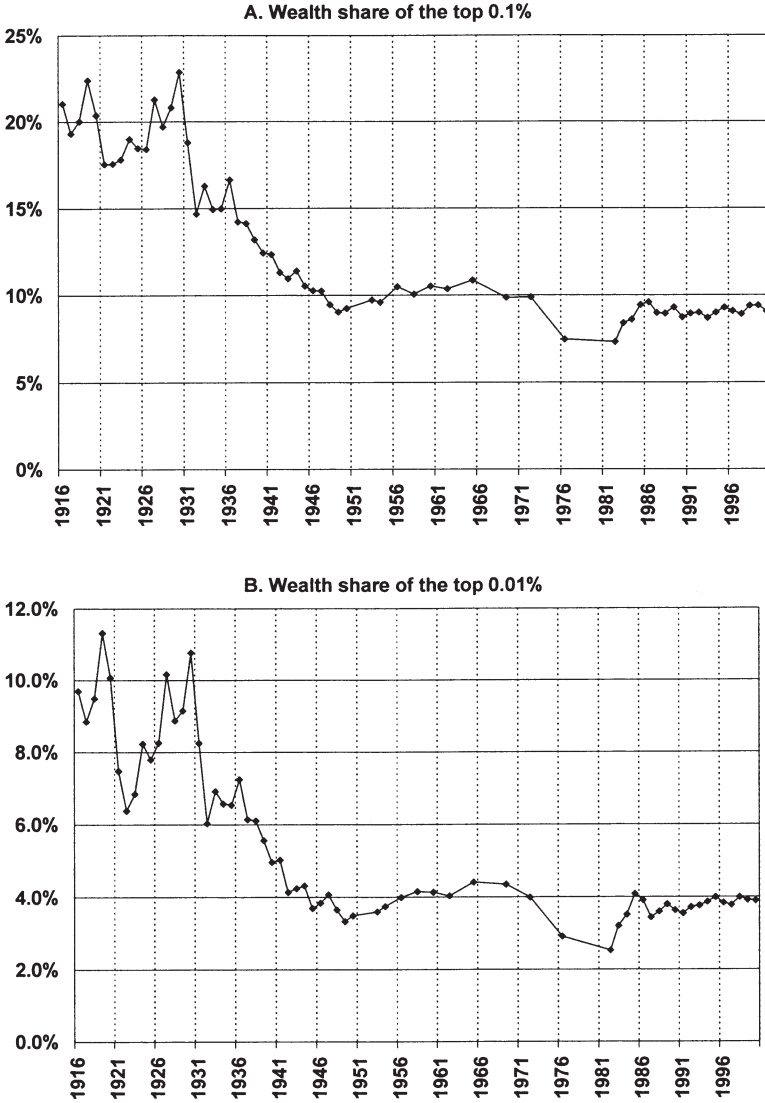
Examination of the very top groups in Figure 5 (the top .1 percent in Panel A and

Figure 4. The Wealth Shares of Top 2–1%, 1–0.5%, and 0.5–0.1%, 1916–2000



Source: Table 3, columns Top 2–1%, 1–0.5%, and 0.5–0.1%.
 Estimates for Top 2–1% are only available from 1946.

Figure 5. The Shares of the Top Wealth Groups in the United States, 1916–2002



Source: Table 3, Columns 0.1%, and 0.01%.

the top .01 percent in Panel B) provides a striking contrast to Figure 4. The top .1 percent declined dramatically from more than 20 percent to less than 10 percent after World War II. For the top .01 percent, the fall was even more dramatic from 10

percent to four percent: those wealthiest individuals, a group of 20,000 persons in 2000, had on average 1,000 times the average wealth in 1916, and had about 400 times the average wealth in 2000. It is interesting to note that, in contrast to the

groups below the very top on Figure 4, the fall for the very top groups continued during World War II. Since the end of World War II, those top groups have remained fairly stable up to the late 1960s. They experienced an additional drop in the 1970s, and a very significant increase in the early 1980s: from 1982 to 1985, the top .01 percent increased from 2.5 percent to four percent, a 60 percent increase. However, as all other groups, those top groups remained stable in the 1990s. Therefore, the evidence shows that the dramatic movements of the top one percent share are primarily due to changes taking place within the upper fractiles of the top one percent. The higher the group, the larger the decline. It is, thus, important to analyze separately each of the groups within the top one percent in order to understand the difference in the patterns.

Popular accounts (see the third part of the fifth section below) suggest that the computer technology in the recent decades has created many new rich individuals. Those newly rich individuals are likely to be much younger than the older rich. However, even if the new rich are younger and, hence, less likely to die than the old rich, our estimates based on estate tax data should not be biased downward. This is because the estate multiplier method corrects for changes in the age distribution of top wealth holders. Our estimates should, however, become noisier (as the sampling probability by death is reduced). This phenomenon should generate noisier series in the recent period but with no systematic bias as long as our multipliers correctly reflect the inverse probability of death of the wealthy in each age–gender cell.¹³ However, the series displayed in Figures 2, 4, and 5 are

very smooth in the 1990s, suggesting that the groups we consider are large enough so that sampling variability is small.¹⁴

Composition

Figure 6 displays the composition of wealth within the top one percent for 1929, a year when top wealth shares and stock prices were very high. Wealth is divided into four components: real estate, corporate stock (including both publicly traded and closely held stock), fixed claims assets (all bonds, cash and deposits, notes, etc.), and other assets (including primarily non–corporate business assets).¹⁵ Figure 6 shows that the share of corporate stock is increasing with wealth while the share of real estate is decreasing with wealth, with the share of fixed claims assets slightly decreasing (the share of bonds is slightly increasing and the share of cash and deposits slightly decreasing). In the bottom of the top 0.5 percent, each of those three component represents about one third of total wealth. At the very top, stocks represent almost two thirds of total wealth while real estate constitutes less than 10 percent. This broad pattern is evident for all the years of the 1916–2000 period for which we have data:¹⁶ the share of stocks increases with wealth and the share of real estate decreases. The levels, however, may vary over time due mainly to the sharp movements in the stock market.

Figure 7 displays the fraction of corporate stock in net worth over the period 1916–2000 for the top .5 percent, and for total net worth in the U.S. economy (from Tables 4 and 1, respectively). Consistent with Figure 6, the fraction of stock is much higher for the top .5 percent (around 50 percent on average) than for total net

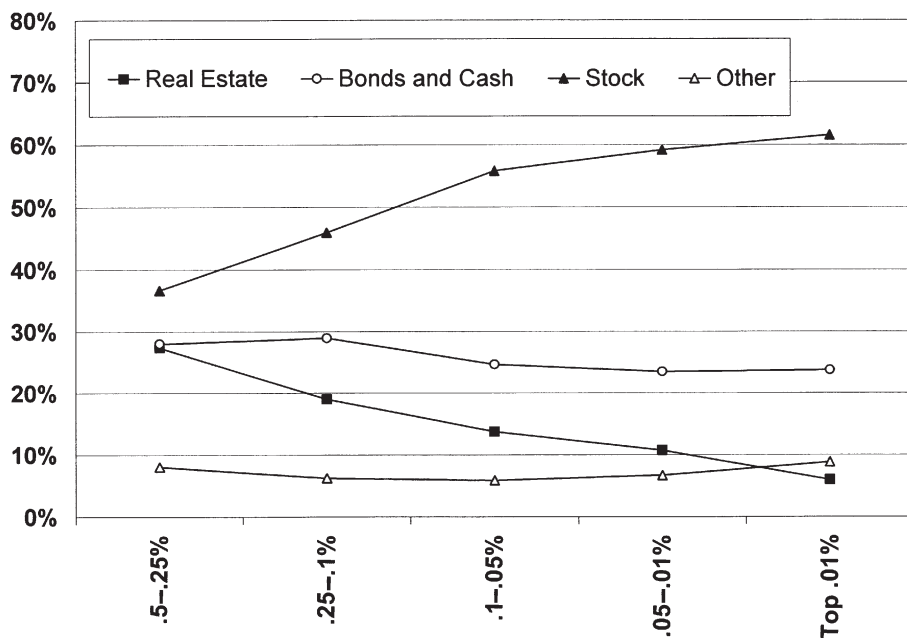
¹³ If fewer than expected of these young wealthy individuals die, the estimate is downward biased, but if more than expected die, the estimate is upward biased.

¹⁴ The estimates are independent across years as every person dies only once.

¹⁵ Debts have been excluded from the figure but they are reported in Table B3 of the NBER working paper version.

¹⁶ All these statistics are reported in Table B3 of the NBER working paper version.

Figure 6. Wealth Composition of Top Groups within the Top 0.5% in 1929



Source: Table 4, row 1929.

Sum of four categories is 100%. Category debt has been excluded.

worth (around 20 percent on average). Both series are closely parallel from the 1920s to the mid 1980s: they peak just before the Great Depression, plunge during the depression, stay low during the New Deal, World War II, up to the early 1950s, and peak again in the mid-1960s before plummeting in the early 1980s.

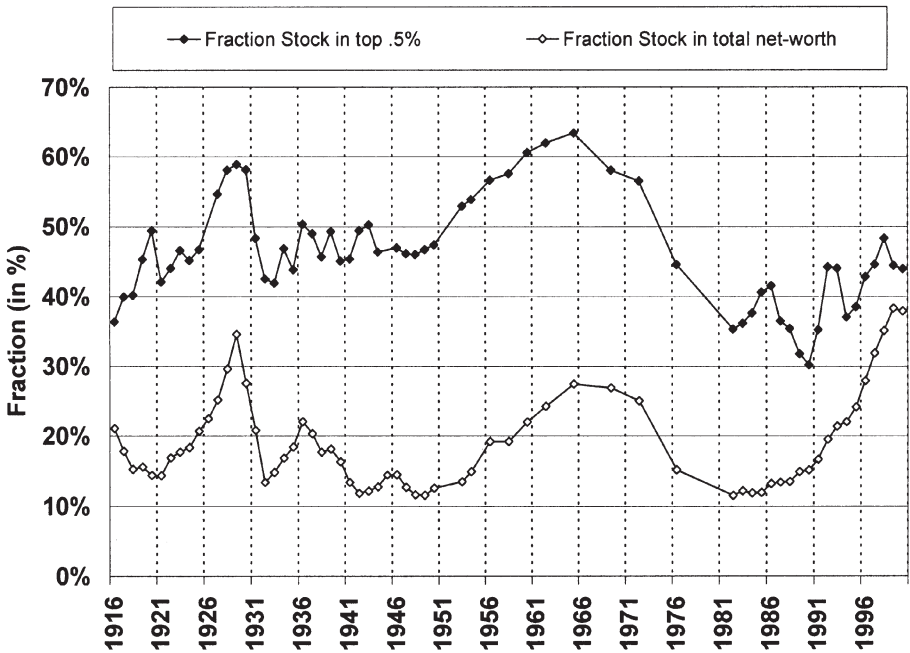
This parallel pattern can explain why the share of wealth held by the top groups dropped so much during the Great Depression. Real corporate equity held by households fell by 70 percent from 1929 to 1933 (Figure 1) and the top groups held a much greater fraction of their wealth in the form of corporate stock (Figure 7). Those two facts mechanically lead to a dramatic decrease in the share of wealth accruing to the top groups. The same phenomenon took place in the 1970s when stock prices plummeted and the shares of top groups declined substantially (the real

price of corporate stock fell by 60 percent and the top one percent fell by about 20 percent from 1965 to 1982).

Corporate profits increased dramatically during World War II, but in order to finance the war, corporate tax rates increased sharply from about 10 percent before the war to over 50 percent during the war and they stayed at high levels after the war. This fiscal shock in the corporate sector reduced substantially the share of profits accruing to stock-holders and explains why average real corporate equity per adult increased by less than 4 percent from 1941 to 1949 while the average net worth increased by about 23 percent (see Figure 1). Thus, top wealth holders, owning mostly stock, lost relative to the average during the 1940s, and the top shares declined significantly.

The central puzzle to understand is why this explanation does not work in reverse

Figure 7. Fraction of Corporate Stock within the Top .5% and total net-worth, 1916–2000



Source: Table 1, Column (7) and Table 4, Top .5%, column stock.

after 1949, that is, why top wealth shares did not increase significantly from 1949 to 1965 and from 1986 to 2000 when the stock market prices soared, and the fraction of corporate equity in total net worth of the household sector increased from just around 12 percent (in 1949 and 1986) to almost 30 percent in 1965 and almost 40 percent in 2000.

The series on wealth composition of top groups might explain the absence of growth in top wealth shares during the 1986–2000 episode. The fraction of corporate stock in the top groups did not increase significantly during the period (as can be seen on Figure 7, it actually dropped significantly up to 1990 and then recovered during the 1990s). Therefore, although the fraction of corporate equity

in total net worth triples (from 12 to 38 percent), the fraction of corporate equity held by the top groups is virtually the same in 1986 and 2000 (as displayed on Figure 7). Thus, the data imply that the share of all corporate stock from the household sector held by the top wealth holders fell sharply from 1986 to 2000.

Several factors may explain those striking results. First, the development of defined contribution pensions plans, and in particular 401(k) plans, and mutual funds certainly increased the number of stockholders in the American population,¹⁷ and, thus, contributed to the democratization of stock ownership among American families. The Survey of Consumer Finances shows that the fraction of families holding publicly traded stock (directly or

¹⁷ The Flow of Funds Accounts show that the fraction of corporate stock held indirectly through Defined Contribution plans and mutual funds doubled from 17 to 33 percent between 1986 and 2000.

Top Wealth Shares in the United States, 1916–2000

1969	23.6	25.9	48.7	2.3	12.4	-10.5	19.9	22.3	53.5	1.8	12.7	-10.2	17.1	21.2	58.0	1.4	12.5	-10.2	14.4	20.3	61.5	1.1	13.1	-10.4	10.8	18.8	65.6	0.8	13.8	-9.9		
1972	24.7	27.8	46.3	2.0	10.6	-9.4	21.3	24.3	51.3	1.6	10.6	-9.1	18.8	21.9	56.5	1.3	10.3	-8.7	16.2	20.5	60.3	1.0	10.4	-8.3	13.6	19.1	64.2	0.7	10.3	-7.8		
1976	31.7	30.8	35.8	2.3	12.2	-10.5	28.3	27.4	40.4	1.7	12.5	-10.3	24.4	27.4	44.5	1.4	12.3	-10.1	20.0	27.4	48.2	1.1	12.7	-9.5	16.1	26.7	52.9	0.8	13.1	-9.6		
1982							34.4	23.6	32.1	2.1	18.8	-11.0	31.2	22.4	35.3	1.8	19.3	-10.1	28.4	21.2	38.4	1.5	20.2	-9.7	25.0	19.9	41.7	1.2	21.2	-9.1		
1983							32.0	23.6	33.0	2.5	18.6	-9.7	28.6	23.1	36.1	2.1	19.1	-9.1	25.1	22.9	41.3	1.3	18.4	-9.0	23.4	19.9	45.4	1.0	20.7	-10.4		
1984							33.1	25.1	33.5	2.1	18.3	-12.1	31.7	23.8	37.6	1.7	17.8	-12.6	27.7	23.5	40.8	1.1	18.6	-11.8	24.0	19.5	45.1	1.0	20.1	-11.8		
1985							27.2	24.9	37.2	2.2	17.8	-9.3	25.6	23.5	40.6	1.7	17.7	-9.1	23.3	22.4	44.2	1.4	17.3	-8.7	18.3	21.1	50.5	0.9	16.8	-7.5		
1986							27.1	24.1	37.5	1.9	19.0	-9.6	24.4	22.8	41.5	1.6	19.0	-9.2	22.6	20.6	45.6	1.3	19.3	-9.4	19.2	18.7	52.1	1.1	18.3	-9.4		
1987							27.8	24.9	33.5	2.3	20.5	-8.9	25.3	23.4	36.5	2.0	21.4	-8.6	23.0	21.8	40.3	1.5	22.2	-8.9	21.0	20.8	42.7	1.2	23.5	-9.2		
1988							30.3	26.4	31.9	2.7	17.4	-8.7	28.0	24.9	38.4	2.6	17.6	-8.5	25.2	24.6	38.7	2.3	17.3	-8.1	23.1	22.7	42.6	2.2	17.2	-7.9		
1989							30.2	25.1	29.0	2.1	22.1	-8.5	28.1	23.7	31.8	1.8	22.9	-8.3	26.2	22.2	34.1	1.4	24.0	-7.9	22.2	21.2	36.6	1.0	25.7	-6.6		
1990							28.5	28.9	27.8	2.0	21.0	-8.3	26.2	28.2	30.2	1.6	21.9	-8.1	24.5	27.8	32.7	1.2	21.8	-8.1	20.7	27.1	35.4	1.0	23.7	-7.9		
1991							25.8	28.5	31.8	2.1	20.1	-8.3	24.0	27.4	35.2	1.7	19.8	-8.1	21.7	26.5	38.6	1.4	19.9	-8.1	18.4	24.5	43.4	1.1	20.3	-7.8		
1992							23.3	25.5	39.7	1.9	16.7	-7.1	21.4	24.3	44.2	1.5	15.7	-7.0	19.1	23.3	47.9	1.2	15.1	-6.6	15.9	22.0	52.8	0.9	13.6	-5.3		
1993							20.3	26.9	39.7	2.0	17.2	-6.2	17.9	26.3	44.0	1.6	15.9	-5.8	16.0	25.9	47.5	1.4	14.6	-5.4	14.2	22.4	53.9	1.0	13.5	-5.1		
1994							23.8	29.1	33.5	2.1	18.5	-7.0	21.3	29.2	37.1	1.7	17.7	-6.9	19.2	28.7	40.4	1.4	16.9	-6.5	16.9	27.9	42.7	1.2	14.9	-6.6		
1995							25.7	25.4	34.6	2.0	19.0	-6.7	23.9	24.6	38.5	1.5	17.9	-6.5	22.7	23.0	42.4	1.1	16.9	-6.2	21.3	21.3	46.5	0.8	15.8	-5.7		
1996							24.1	27.5	34.6	2.6	20.9	-7.2	21.9	24.5	38.6	2.0	19.6	-6.6	18.4	22.9	46.5	1.3	17.3	-6.5	17.0	21.2	51.7	0.9	15.8	-6.7		
1997							23.2	26.5	36.8	2.1	20.4	-6.8	20.9	23.8	40.5	1.8	19.4	-6.4	17.7	22.5	44.6	1.4	18.0	-6.1	17.7	22.5	46.2	20.7	52.7	0.9	15.6	-6.0
1998							22.5	27.3	40.6	2.3	16.1	-6.4	20.3	24.6	44.5	1.9	14.9	-6.2	16.9	22.8	51.3	1.1	13.9	-5.9	15.1	21.3	56.1	0.7	12.8	-5.9		
1999							22.1	25.3	37.7	2.0	21.0	-6.2	20.0	22.9	41.5	1.4	20.1	-5.6	17.2	22.8	47.5	0.9	17.2	-5.5	15.1	22.5	51.6	0.6	15.8	-5.6		
2000	23.9	23.3	36.9	2.1	22.7	-6.8	22.5	20.8	39.9	1.6	22.0	-6.8	21.0	19.6	43.9	1.2	20.8	-6.6	19.5	20.0	46.2	0.9	20.0	-6.7	17.4	19.8	47.8	0.8	21.0	-6.8		

Notes: Wealth is defined as all sources of (non-human) wealth net of debts and liabilities but excludes annuities, and claims on future pensions.

Real is defined as real estate. Bonds is the sum of federal, local, foreign, and corporate bonds. Stock is corporate stock.

Cash is currency, deposits, and notes. Other is equity in unincorporated business, and miscellaneous assets.

The sums of all sources less debts add up to 100%.

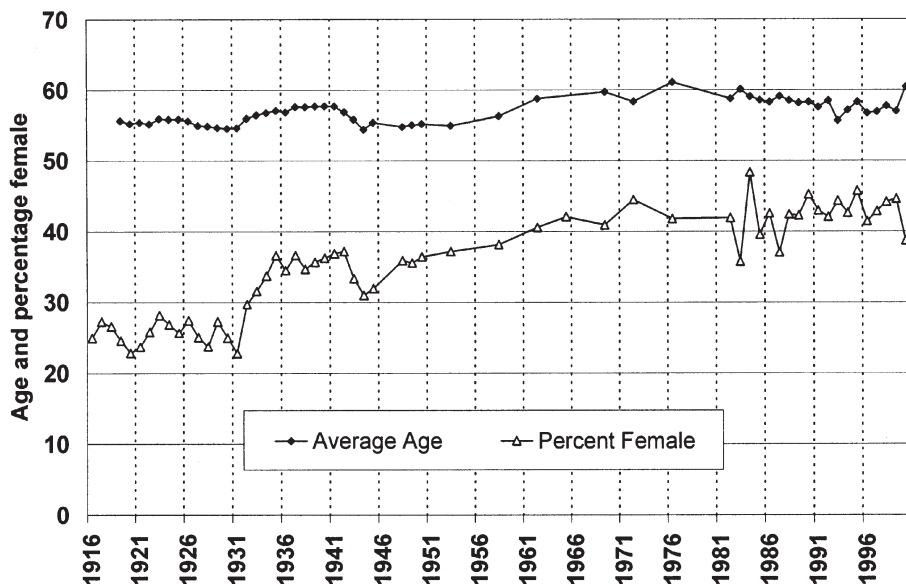
indirectly through mutual funds and pension plans) has increased significantly in the last two decades, and was just above 50 percent in 2001.¹⁸ Second, the wealthy may have re-balanced their portfolios as gains from the stock-market were accruing in the late 1980s and the 1990s, and, thus, reduced their holdings of equity relative to more modest families. In any case, the data strikingly suggest that top wealth holders did not benefit disproportionately from the bull stock market relative to the average wealth holder.¹⁹ This might explain in part why top wealth shares did not increase in that period when top income shares

were dramatically increasing (see the fifth section). By the year 2000, the fraction of wealth held in stock by the top one percent is just slightly above the fraction of wealth held in stock by the U.S. household sector (40 percent versus 38 percent). Therefore, in the current period, sharp movements of the stock market are no longer expected to produce sharp movements in top wealth shares as was the case in the past.²⁰

Age, Gender, and Marital Status

Figure 8 displays the average age and the percent female within the top .5 per-

Figure 8. Average Age and Fraction Female in Top 0.5%, 1916–2000



Source: Table B4 in Kopczuk and Saez (2004), columns age and fraction female.

¹⁸ In 1989, only 31.7 percent of American households owned stock, either directly or indirectly through pension and mutual funds, while 48.9 and 51.9 percent did in 1998 and 2001, respectively. See Kennickell et al. (1997) and Aizcorbe et al. (2003).

¹⁹ It is important to keep in mind that, because the wealth distribution is very skewed, the average wealth is much larger than median wealth. Obviously, the stock market surge of the 1990s did not benefit the bottom half of American families who do not hold any stock.

²⁰ It should be emphasized, though, that the wealthy may not hold the same stocks as the general population. In particular, the wealthy hold a disproportionate share of closely held stock, while the general population holds in general only publicly traded stocks through mutual and pension funds (see e.g., Kennickell (2003)). Estate tax returns statistics separate closely held from publicly traded stock only since 1986.

cent group since 1916.²¹ The average age displays a remarkable stability over time fluctuating between 55 and 60. Since the early 1980s, the average age has declined very slightly from 60 to around 57. Thus, the evidence suggests that there have been no dramatic changes in the age composition of top wealth holders over time.²² In contrast, the fraction of females among top wealth holders has almost doubled from around 25 percent in the early part of the century to around 45 percent in the 1990s. The increase started during the Great Depression and continued throughout the 1950s and 1960s, and has been fairly stable since the 1970s. Therefore, there has been substantial gender equalization in the holding of wealth over the century in the United States, and today, almost 50 percent of top wealth holders are female. It is striking, comparing Figure 2 and Figure 8, to note the negative correlation between the top wealth shares and the fraction of women in the top wealth groups. This suggests that the gender equalization at the top might have contributed to the decline in top wealth shares measured at the individual level. It is conceivable that wealth concentration measured at the family level has not declined as much as wealth concentration measured at the individual level.²³

Estate tax law regarding bequests to spouses has changed over time and this might have affected the gender composition at the top through behavioral responses to estate taxation. Before 1948, bequests to spouses were not deductible from taxable estates with an exception of couples located

in the so-called community property states where each spouse owned half of all assets acquired during marriage. Starting in 1948, spousal bequests became deductible up to 50 percent of the net estate. In 1981, spousal bequests became fully deductible.²⁴ Those changes might have increased the amount of spousal bequests made by wealthy individuals and, hence, potentially increased the fraction of women in the top wealth groups.²⁵ Two points should be noted.

First, Figure 8 shows that most of the increase in the female fraction in the top wealth groups happened before the changes in estate tax law regarding spousal bequests (in 1948 and 1981) implying that those tax law changes can explain at best a fraction of the trend. As we discuss below, estate tax rates at the top became very high in the 1930s.²⁶ As a result, in order to avoid “double estate taxation”, wealthy husbands had an incentive to pass their wealth directly to the next generations instead of passing it to their widowed spouses. Such a phenomenon should have decreased the number of wealthy widows, which should have *reduced* the number of wealthy widows at the top. Splitting wealth between spouses using gifts before death was not a better tax strategy as it would have triggered substantial gift taxes (following the introduction of the gift tax in 1932) before the marital deduction (for estates and gifts) was introduced in 1948. The main reason why the number of women in the top groups increased so much during the Great Depression seems to be due to dif-

²¹ Those series are reported in Table 4. Series for all other top wealth groups are reported in Table B4 of the NBER working paper version.

²² Although, due to significant decreases in mortality over the course of the 20th century, top wealth holders nowadays have more years of potential lifespan ahead of them and are, therefore, younger relative to the average population than in the early part of the century.

²³ We come back to this point in the third part of the fifth section when we compare our estimates with wealth concentration measures at the family level obtained with the Survey of Consumer Finances for the recent period.

²⁴ Similarly, 50 and 100 percent of spousal gifts became deductible in 1948 and 1981, respectively. In 1976, the marital deduction was modified to allow for the greater of 50 percent of estate or \$250,000 to be deductible.

²⁵ See Kopczuk and Slemrod (2003) for a detailed discussion of this point.

²⁶ The top estate rate increased from 20 to 45 percent in 1932, and then to 60 percent in 1935, to 70 percent in 1936, and to 77 percent in 1941.

ferences in wealth composition between genders. In the late 1920s, wealthy women held a smaller fraction of their wealth in the form of stock than wealthy men. As a result, wealthy men lost a larger fraction of their wealth following the stock market crash of 1929 than wealthy women, thereby contributing to the increase in the fraction of women at the top.

Second, even tax law induced changes in spousal bequests have a real impact on the distribution of wealth across gender lines, and, thus, should not necessarily be regarded as unimportant.

The marital status of top wealth holders has experienced relatively modest secular changes. For males, the fraction of married men has always been high (around 75 percent), the fraction widowed has declined slightly (from 10 to 5 percent) and the fraction single has increased (from 10 to 15 percent). For females, the fraction widowed is much higher, although it has declined over the period from about 40 to 30 percent. The fraction married has increased from about 40 to 50 percent for females and, thus, the fraction single has been stable around 10 percent. This reinforces our previous interpretation that the increase in the fraction female at the top of the wealth distribution has not been due solely to an increase in the number of wealthy widows following increased spousal bequests, but might reflect increases in female empowerment in the family (fairer distribution of assets between spouses) and in the labor market (reduction of the income gender gap over time).

UNDERSTANDING THE PATTERNS

Are the Results Consistent with Income Inequality Series?

One of the most striking and debated findings of the literature on inequality

has been the sharp increase in income and wage inequality over the last 25 years in the United States (see Katz and Autor (1999) for a recent survey). As evidenced from income tax returns, changes have been especially dramatic at the top end, with large gains accruing to the top income groups (Feenberg and Poterba, 1993; Feenberg and Poterba, 2000; Piketty and Saez, 2003). For example, Piketty and Saez (2003) show that the top one percent income share doubled from eight percent in the 1970s to over 16 percent in 2000.²⁷ How can we reconcile the dramatic surge in top income shares with the relative stability of top wealth shares estimated from estate tax data since the 1980s?

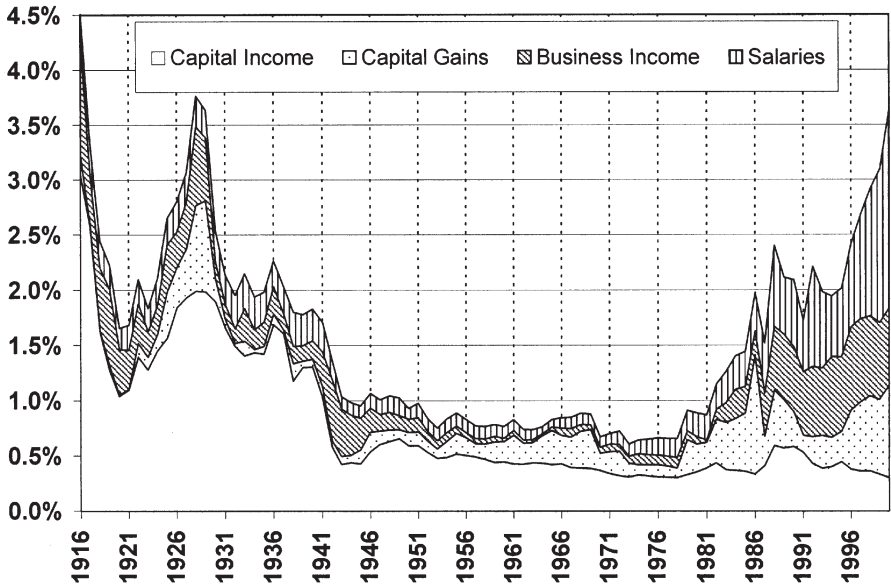
Figure 9 casts light on this issue. It displays the top .01 percent *income* share from Piketty and Saez (2003), along with the composition of these top incomes²⁸ into capital income (dividends, rents, interest income, but excluding capital gains), realized capital gains, business income, and wages and salaries. Up to the 1980s (and except during World War II), capital income and capital gains formed the vast majority of the top .01 percent incomes. Consistently with our top .01 percent wealth share series presented in Figure 5B, the top .01 percent income share was very high in the late 1920s, and dropped precipitously during the Great Depression and World War II, and remained low until the late 1970s. Thus, both the income and the estate tax data suggests the top wealth holders were hit by the shocks of the Great Depression and World War II and that those shocks persisted a long time after the war.

Over the last two decades, as can be seen in Figure 9, the top .01 percent income share has indeed increased dra-

²⁷ See the series of Piketty and Saez (2003) updated to year 2000.

²⁸ This group represents the top 13,400 taxpayers in 2000, ranked by income excluding realized capital gains although capital gains are added back to compute income shares.

Figure 9. The Top 0.01% Income Share and Composition, 1916–2000



Notes: The Figure displays the top 0.01% income share (top curve). Estimates are based on families and not individuals. Taxpayers are ranked by income excluding capital gains but capital gains included in the share (Interest, Rents, Trusts, etc.). The Figure displays the composition of those top incomes into Capital Income (Dividends, Realized Capital Gains), Business Income (Sole Proprietorships, Partnerships, S–Corporations), and Salaries (Wages and Salaries, Pensions). Source: Piketty and Saez (2003), series updated to year 2000.

matically from 0.9 percent in 1980 to 3.6 percent in 2000. However, the important point to note is that this recent surge is primarily a wage income phenomenon and to a lesser extent a business income phenomenon.²⁹ Figure 9 shows that capital income earned by the top .01 percent relative to total personal income is not higher in 2000 than it was in the 1970s (around 0.4 percent). Adding realized capital gains does not alter this broad picture: capital income including capital gains earned by the top .01 percent represents about one percent of total personal income in 2000 versus about 0.75 percent in the late 1960s, a modest

increase relative to the quadrupling of the top .01 percent income share during the same period.

Therefore, the income tax data suggest that the dramatic increase in top incomes is a labor income phenomenon that has not translated yet into an increased concentration of capital income. Therefore, in the recent period as well, the income tax data paints a story that is consistent with our estate tax data findings of stability of the top wealth shares since the mid–1980s. The pattern of capital income including realized capital gains displayed in Figure 9 is strikingly parallel to the pattern of the top .01 percent wealth share of Figure 5B: a

²⁹ Gains from exercised stock options are reported as wage income on income tax returns. There is no doubt that the recent explosion in the use of stock options to compensate executives has contributed to the surge in top wage incomes in the United States.

mild peak in the late 1960s, a decline during the bear stock market of the 1970s, a recovery in the early 1980s, and no growth from 1990 to 2000.

Three elements might explain why the surge in top wages since the 1970s did not lead to a significant increase in top wealth holdings. First, it takes time to accumulate a large fortune out of earnings.³⁰ The top .01 percent average income in the late 1990s is around 10 million dollars while the top .01 percent wealth holding is around 60 million dollars. Thus, even with substantial saving rates, it would take at least a decade to the average top .01 percent income earner starting with no fortune to become an average top .01 percent wealth holder. Second, it is possible that the savings rates of the recent “working rich” who now form the majority of top income earners are substantially lower than the savings rates of the “coupon-clippers” of the early part of the century. Finally, certain groups of individuals report high incomes on their tax return only temporarily (e.g., executives who exercise stock-options irregularly, careers of sport or show-business stars usually last for just a few years). To the extent that such cases became more prevalent in recent years (as seems possible based on popular accounts), the sharp increase in the concentration of annual incomes documented by Piketty and Saez (2003) may translate into a smaller increase in the concentration of lifetime incomes and accumulated wealth.

The very rough comparison between income and estate data that we have presented suggests that it would be interesting to try and estimate wealth concentra-

tion from income tax return data using the capitalization of income method. In spite of the existence of extremely detailed and consistent income tax return annual data in the United States since 1913, this method has very rarely been used, and the only existing studies have applied the method for isolated years.³¹ The explanation for the lack of systematic studies is that the methodology faces serious challenges: income data provides information only on assets yielding reported income (for example, owner-occupied real estate or defined contribution pension plans could not be observed), and there is substantial and unobservable heterogeneity in the returns of many assets, especially corporate stock (for example, some corporations rarely pay dividends and capital gains are only observed when realized on income tax returns).³² More recently, Kennickell (2001a,b) has analyzed in detail the link between income and wealth in order to calibrate sample weights for the Survey of Consumer Finances. His analysis shows that the relation between capital income reported on tax returns and wealth from the survey is extremely noisy at the individual level. Nevertheless, it would certainly be interesting to use income tax return data to provide a tighter comparison with our wealth concentration results from estates. We leave this important and ambitious project for future research.

Possible Explanations for the Decline in Top Wealth Shares

We have described in the previous section the dramatic fall in the top wealth

³⁰ Even in recent years after the explosion of executive compensation, few of the richest Americans listed on the annual Forbes 400 survey are salaried executives. Most of them are still either family heirs or successful entrepreneurs (see the third part of the fifth section below).

³¹ King (1927) and Stewart (1939) used this method for years 1921 and 1922–1936, respectively. More recently, Greenwood (1983) has constructed wealth distributions for 1973 using simultaneously income tax return data and other sources.

³² See Atkinson and Harrison (1978) for a detailed comparison of the income capitalization and the estate multiplier methods for the United Kingdom.

shares (concentrated within the very top groups) that has taken place from the onset of the Great Depression to the late 1940s. Our previous analysis has shown that stock market effects might explain the sharp drop in top wealth shares during the 1930s but cannot explain the absence of recovery in top wealth shares in the 1950s and 1960s once stock prices recovered by the end of the 1960s. At that time, the wealth composition in top groups was again very similar to what it had been in the late 1920s, and yet top wealth shares hardly recovered in the 1950s and 1960s and were still much lower in the 1960s than before the Great Depression. There are several possible elements that might explain the absence of recovery of top wealth shares.

The first and perhaps most obvious factor is the creation and the development of the progressive income and estate tax. The very large fortunes (such as the top .01 percent) observed at the beginning of the 20th century were accumulated during the 19th century, at a time where progressive taxes hardly existed and capitalists could dispose of almost 100 percent of their income to consume, accumulate, and transmit wealth across generations. The conditions faced by 20th century fortunes after the shock of the Great Depression were substantially different. Starting in 1933 with the new Roosevelt administration, and continuously until the Reagan administrations of 1980s, top tax rates on both income and estates were set at very high levels.

These very high marginal rates applied only to a very small fraction of taxpayers and estates, but the point is that they were to a large extent designed to hit incomes and estates of the top 0.1 and 0.01 percent of the distribution. In the presence of progressive capital income taxation, individuals with large wealth

levels need to increase their savings rates out of after tax income much more than lower wealth holders to maintain their relative wealth position. Moreover, reduced after-tax rate of return might have affected savings rates of high wealth holders through standard incentive effects. In the presence of high income and estate taxes, wealthy individuals also have incentives to give more to charities during their lifetime, further reducing top wealth shares.³³

Second, starting with Sherman and Clayton Acts enacted in 1890 and 1914, respectively, the U.S. federal government has taken important steps to limit monopoly power using antitrust regulation. However, the degree of enforcement remained weak until the New Deal (see, e.g., Thorelli (1955)). By curbing the power of monopolies, it is conceivable that such legislation contributed to reduced wealth concentration at the very top. Perhaps more importantly, the Roosevelt administration also introduced legislation to sever the link between finance and management of corporations. The Depression's financial market reforms act broke the links between board membership, investment banking, and commercial banking. As a result, the model of great financiers-industrialists which had created the very large fortunes of the Robber Barons of the late nineteenth and early twentieth century was no longer a possibility after the 1930s. DeLong (2002) discusses those aspects in more detail and suggests that such regulations severely prevented the creation of new billionaires during the very prosperous post-World War II decades.

Finally, the post World War II decades were characterized by a large democratization of higher education. Following the G.I. bill, the number of college educated men increased very quickly after World

³³ Lampman (1962) also favored progressive taxation as one important factor explaining the reduction in top wealth shares in his seminal study (see below).

War II.³⁴ This undoubtedly contributed to the emergence of a large middle and upper middle income class in America which was able to accumulate wealth and, hence, perhaps reduce the share of total wealth accruing to the groups in the top percentile.³⁵

Although we cannot observe the counterfactual world without progressive taxation or antitrust regulations, we note that economic growth, in net worth and incomes, has been much stronger starting with World War II, than in the earlier period. Thus, the macro-economic evidence does not suggest that progressive taxation prevented the American capital stock from recovering from the shock of the Great Depression. This is consistent with Piketty (2003), who shows that, in the purest neo-classical model without any uncertainty, a capital income tax affecting only the rich does not affect negatively the capital stock in the long-run. If credit constraints due to asymmetric information are present in the business sector of the economy, it is even conceivable that redistribution of wealth from large and passive wealth holders to entrepreneurs with little capital can actually improve economic performance (see, e.g., Aghion and Bolton (1997) for such a theoretical analysis). Gordon (1998) argues that high personal income tax rates can result in a tax advantage to entrepreneurial activity, thereby leading to economic growth. A more thorough investigation of the effects of income and estate taxation on the concentration of wealth is left for future work.

ARE ESTIMATES FROM ESTATES RELIABLE?

In this section, we explore the issue of the reliability of our estimates. Our top

wealth share estimates depend crucially on the validity of the estate multiplier method that we use. Thus, we first discuss the potential sources of bias and how they can affect the results we have described. Second, we compare our results with previous findings using estate data as well as other data sources such as the Survey of Consumer Finances (SCF), and the Forbes 400 Wealthiest Americans. We focus on whether biases introduced by the estate multiplier methodology can affect our two central results: the dramatic drop in top shares since 1929 and the absence of increase in top shares since the mid-1980s.

Potential Sources of Bias

The most obvious source of bias would be estate tax evasion. Three studies of evasion—Harris (1949), McCubbin (1994), and Eller et al. (2001)—have used results from Internal Revenue Service audits of estate tax returns for years 1940–41, 1982, and 1992, respectively. Harris (1949) reports under-reporting of net worth of about 10 percent on average with no definite variation by size of estate, while McCubbin (1994) and Eller et al. (2001) report smaller evasion of about two to four percent for audited returns.³⁶ Those numbers are small relative to the size of the changes we have presented. Thus, it sounds unlikely that direct tax evasion can have any substantial effects on the trends we have documented and can certainly not explain the dramatic drop in top wealth shares. It seems also quite unlikely that evasion could have hidden a substantial growth in top wealth shares in the recent period. From 1982 to 2000 in particular, the estate tax law has changed very little and, hence, the extent of under-reporting should have remained stable over

³⁴ The number of Bachelor's degrees awarded relative to the size of the 23 year old cohort tripled from about five percent in the 1920s to over 15 percent after World War II (see U.S. Bureau of the Census 1975, series H 755).

³⁵ For example, home ownership increased from 41 percent in 1920 to 62 percent in 1960 (see U.S. Bureau of the Census (1975, series N 243)).

³⁶ Those studies underestimate estate tax evasion to the extent that audits fail to uncover all the evaded wealth.

time as well. A closely related problem is undervaluation of assets reported on estate tax returns. We describe the issue of undervaluation in detail in appendix C of the NBER working paper version of the paper, Kopczuk and Saez (2004), and we conclude that those adjustments appear to be too small to produce a significant effect on estimated top wealth shares.

As we have discussed briefly in the second section of this paper, the estate multiplier method requires precise assumptions in order to generate unbiased estimates of the wealth distribution for the living. We use the same multiplier within age, gender, and year cells for all estate tax filers, independent of wealth. We apply the same social differential mortality rates for all years based on the Brown et al. (2002) differential between college educated whites relative to the average population. This is not fully satisfactory for two reasons. First, wealthy individuals (those who file estate tax returns upon death) may not have exactly the same mortality rate as college educated whites from Brown et al. (2002). The bias introduced, however, may be small, because the social mortality gradient is steeper at the lower end of the wealth distribution than at the high end. Second, we use the same social differential rates for the full 1916–2000 period although those rates might have changed over time. In appendix B of the NBER working paper version of the paper (Kopczuk and Saez, 2004), we analyze in detail life insurance and annuities data compiled by the Society of Actuaries. Perhaps surprisingly, the data does not point to a significant narrowing over time between mortality rates of the general population and life insurance policy holders. Therefore, our assumption of constant social mortality differential rates might be acceptable.

Assuming that our multipliers are right on average, the key additional assumption required to obtain unbiased wealth shares is that, within age and gender cells and for estate tax filers, mortality is not correlated with wealth. A negative correlation would generate a downward bias in top wealth shares as our multiplier would be too low for the richest decedents. For example, if those with very large estates are less likely to die than those with moderately large estates, then the estate multiplier will underestimate the very wealthy relative to the moderately wealthy.

There are two direct reasons why such a negative correlation might arise. First, extraordinary expenses such as medical expenses and loss of labor income or of the ability to manage assets efficiently may occur and reduce wealth in the years preceding death, producing a negative correlation between death probability and wealth. Smith (1999) argues that out-of-pocket health expenses are moderate and, therefore, are not a major factor driving the correlation of wealth and mortality. However, his evidence is based on expenditures for the general population and it is the end-of-life health expenditures that are most significant. It seems unlikely, though, that health-related expenses create a significant dent in the fortunes of the super-rich but we were unable to assess the importance of lost earnings due to health deterioration at the end of life.³⁷

Second, even within the small group of estate tax filers, the top one or two percent wealth holders, it might be the case that the most able and successful individuals, of a given age and gender, have lower mortality rates. Although we cannot measure with any precision the quantitative bias introduced by those effects, there is no reason to believe that such biases could have changed dramatically over the

³⁷ For some years, our data set contains information about the length of terminal illness. A simple regression of net worth on the dummy variable indicating a prolonged illness and demographic controls produced a significant negative coefficient, suggesting that this effect may play a role.

period we study. In particular, they cannot have evolved so quickly in the recent period so as to mask a significant increase in top wealth shares and, for the same reason, they are unlikely to explain the sharp decrease in top wealth shares following the onset of the Great Depression.

More importantly, however, for estate tax avoidance and other reasons, individuals may start to give away their wealth to relatives and heirs as they feel that their health deteriorates. Indeed, all estate tax planners recommend giving away wealth before death as the best strategy to reduce transfer tax liability. Gifts, however, create a downward bias only to the extent that they are made by individuals with higher mortality probability within their age and gender cell. If gifts are unrelated to mortality within age and gender cells, then they certainly affect the wealth distribution of the living, but the estate multiplier will take into account this effect without bias. Three important reasons suggest that gifts may not bias our results. First and since the beginning of the estate tax, gifts made in contemplation of death (within two to three years of death; see appendix C of Kopczuk and Saez (2004) for details) must be included in gross estate and, thus, are not considered as having been given in our wealth estimates. We expect that a large fraction of gifts correlated with mortality falls into this category. Second, a well known advice of estate tax planners is to start giving as early as possible. Thus, those most interested in tax avoidance will start giving much before contemplation of death; in that case, gifts and mortality have no reason to be correlated.³⁸ Last, since 1976, the estate and gift tax have been unified and the published IRS tabulations show that taxable gifts (all gifts above the annual exemption of \$10,000

per donee) represents only about two to three percent of gross estate, even at the top. Thus, lifetime gifts do not seem to be large enough to produce a significant bias in our estimates for the recent period.

A more subtle possibility of bias comes from a related tax avoidance practice which consists in giving assets to heirs without relinquishing control of those assets. This is mostly realized through trusts whose remainder is given to the heir but whose income stream is in full control of the creator while he is alive. Like an annuity, the value of such a trust for the creator disappears at death and, thus, does not appear on estate tax returns. This type of device falls in between the category of tax avoidance through gifts and under-valuation of the assets effectively transferred. The popular literature (see, e.g., Cooper (1979) or Zabel (1995)) has suggested that many such devices can be used to effectively avoid the estate tax but careful interviews of practitioners (Schmalbeck, 2001) suggest that this is a clear exaggeration and that reducing significantly the estate tax payments requires actually giving away (either to charities or heirs) a substantial fraction of wealth. Again, such a source of reduction in wealth holdings reflects a real de-concentration of individual wealth (though not necessarily welfare).

The key question we need to address is whether the wealthy derive substantial annuity income from trusts which the estate multiplier method fails to capture because it disappears at death. There are two indirect sources of data to cast light on the importance of trusts. First, trusts are required to file income tax returns and pay annual income taxes on the income generated by the assets in the trust which is not distributed to beneficiaries.³⁹ Second, income from trusts distributed to

³⁸ Gifts will have a real impact on the individual distribution of wealth although it might not change the dynastic distribution of resources.

³⁹ Beneficiaries could be individuals or charitable organizations. Trusts face the top individual income tax rate (above a very low exemption level) on undistributed income in order to prevent (untaxed) accumulation of wealth within trusts.

individuals has to be reported on those individuals' income tax returns. Therefore, statistics on individual and trust income tax returns published regularly by the IRS (U.S. Treasury Department, Internal Revenue Service, various years b) can be used to assess the total value of income generated and distributed by trusts. The total income distributed by trusts to individuals can then be capitalized to get an approximation of total individual wealth in the form of trusts. This total wealth should be an upper bound of the annuitized trust wealth that the estate multiplier method fails to capture. Using a 7.5 percent nominal rate of return on trust assets (trust income includes both ordinary income and realized capital gains), total wealth in trusts is only around 1.4 percent of our total wealth denominator in 1997, the last year for which statistics on trust income are available.⁴⁰ Thus, trust wealth is modest relative to the 21 percent share of total wealth going to the top one percent or even relative to the nine percent share going to the top 0.1 percent in 1997.⁴¹

Therefore, the popular view that the wealthy hold most of their wealth through trusts which escape estate taxation appears inconsistent with tax statistics. More importantly, estimated trust wealth has declined overtime from around 3.5 percent of total wealth in the 1936, to around two percent in 1965, to about 1.5 percent in 1997. Hence, including annuitized trust wealth to our estimates would not modify much our results and would likely reinforce our main finding of a secular decline of top wealth shares over the century.

Changes in Bias Over Time

It is important to emphasize that *real* responses to estate taxation, such as

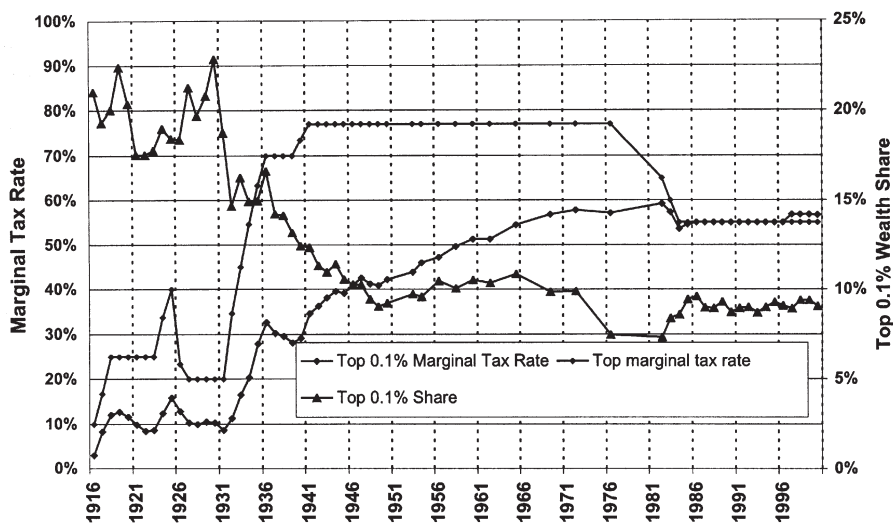
potential reductions in entrepreneurship incentives, savings, or increases in gifts to charities or relatives, do not bias our estimates in general because they do have real effects on the distribution of wealth. Only outright evasion or avoidance of the type we described in the previous section can bias our results, and those effects need to evolve over time in order to counteract the trends we have described. We would expect that changes in the levels of estate taxation would be the main element affecting avoidance or evasion incentives over time.

It is, therefore, important to consider the main changes in the level of estate taxation over the period (see Appendix C of Kopczuk and Saez (2004) and Luckey (1995) for further details). Since the beginning of the U.S. federal estate tax, the rate schedule was progressive and subject to an initial exemption. The 1916 marginal estate tax rates ranged from 0 to 10 percent. The top rate increased to 40 percent by 1924, a change that was repealed by the 1926 Act that reduced top rates to 20 percent. Starting in 1932, a sequence of tax schedule changes increased the top rates to 77 percent by 1942, subject to a \$60,000 nominal exemption. The marginal tax rate schedule remained unchanged until 1976, resulting in a fairly continuous increase of the estate tax burden due to "bracket creep." Following the 1976 tax reform, the exemption was increased every year. The top marginal tax rates were reduced to 70 percent in 1977 and 55 percent by 1984. There were no major changes until 2001 (the nominal filing threshold stayed constant at \$600,000 between 1988 and 1997). Figure 10 reports the average marginal tax rate in the top 0.1 percent

⁴⁰ In 1997, trusts distributed \$26.3 billion to beneficiaries (see Mikow (2000–01)), representing a total annuitized wealth of \$350 billion, or 1.4 percent of the \$25 trillion total personal wealth in 1997.

⁴¹ Income tax statistics show that about 75 percent of total trust income goes to top one percent income earners and about 40 percent goes to the top 0.1 percent income earners. Thus, it seems reasonable to think that about 40 percent of trust wealth, or about 0.6 percent of total individual wealth, is held by the top 0.1 percent, a small amount relative to the nine percent share of wealth held by that group in 1997.

Figure 10. Marginal Tax Rate and Wealth Share for the Top 0.1%, 1916–2000



Notes: Marginal Tax Rate computations are made assuming no deductions beyond the basic exemption. Effective marginal tax rates are lower due to additional deductions (funeral expenses, spousal bequest deductions, charitable bequests, etc.).

group⁴² and the statutory marginal tax rate applying to the largest estates⁴³ (left y-axis), along with the top 0.1 percent wealth share (right y-axis). It is evident from this picture that the burden of estate taxation increased significantly over time. Somewhat surprisingly, the most significant increases in the marginal estate tax burden were brought about by holding brackets constant in nominal terms rather than by tax schedule changes.

There are very few attempts to measure the response of wealth to estate taxation.⁴⁴ Kopczuk and Slemrod (2001) used the same micro-data that we do to estimate the impact of the marginal estate tax rates on reported estates. They relied on both time-series variation and cross-sectional

age variation that corresponds to having lived through different estate tax regimes. They found some evidence of an effect, with estate tax rates at age of 45 or 10 years before death more strongly correlated with estates than the actual realized marginal tax rates. Because the source of their data are tax returns, they were unable to distinguish between tax avoidance and the real response. Holtz-Eakin and Marples (2001) relied on the cross-sectional variation in state estate and inheritance taxes to estimate the effect on wealth of the living. They found that estate taxation has a significant effect on wealth accumulation. It should be pointed out, though, that their data contained very few wealthy individuals. Taken at

⁴² These tax rates are computed by first evaluating the marginal tax rates at the mean net worth in Top .01 percent, .05–.01 percent and .1–.05 percent and then weighting the results by net worth in each category. These are “first-dollar” marginal tax rates that do not take into account deductions but just the initial exemption.

⁴³ After 1987, there is an interval of a five percent surtax intended to phase out the initial exemption in which the marginal tax rate (60 percent) exceeds the marginal tax rate at the top (55 percent).

⁴⁴ There is a larger literature that concentrates on gifts. See for example, McGarry (1999), Bernheim et al. (2001), Poterba (2001), Joulfaian (2003).

face value, both of these studies find very similar magnitudes of response (see the discussion in Holtz–Eakin and Marples (2001) suggesting little role for outright tax evasion: the Holtz–Eakin and Marples (2001) data is not skewed by tax evasion and avoidance while the effect estimated by Kopczuk and Slemrod (2001) reflects such potential responses. This would imply that trends in concentration due to tax evasion and avoidance are not a major issue.

Regardless of these findings, given that between 1982 and 2000 the estate tax system has changed very little, we would expect that the extent of tax avoidance and evasion has also remained fairly stable. Therefore, the absence of increase in top shares since in the 1990s is probably not due to a sudden increase in estate tax evasion or avoidance.⁴⁵

Comparison with Previous Studies and Other Sources

Another important way to check the validity of our estimates from estates is to compare them to findings from other sources. We have presented a brief comparison above with findings from income tax returns. After reviewing previous estate tax studies, we turn to comparisons with wealth concentration estimations using other data sources.

Previous Estate Studies

Lampman (1962) was the first to use in a comprehensive way the U.S. estate tax statistics published by the IRS to construct

top wealth shares. He reported the top one percent wealth shares for the adult population for a number of years between 1922 and 1956.⁴⁶ His estimates are reproduced in Figure 11, along with our series for the top one percent.⁴⁷ Although the method, adjustments, and total net worth denominators are different (see appendix E of the working paper version), his estimates are generally similar to ours and in particular display the same downward trend after 1929.

Smith (1984) used estate tax data to produce additional estimates for the top 0.5 percent and top one percent wealth shares for some years in the 1958–1976 period. In contrast to Lampman (1962) and our series, the top one percent is defined relative to the full population (not only adults) and individuals are ranked by gross worth (instead of net worth).⁴⁸ We reproduce his top one percent wealth share, which looks broadly similar to our estimates and displays a downward trend which accelerates in the 1970s. No study has used post 1976 estate data to compute top wealth shares series for the recent period. A number of studies by the Statistics of Income Division of the IRS have estimated wealth distributions from estate tax data for various years, but those studies only produce distributions and composition by brackets and do not try in general to estimate top shares.⁴⁹ An exception is Johnson and Schreiber (2002–03) who present graphically the top one percent and .5 percent wealth share for 1989, 1992, 1995, and 1998. Their estimates are very close to ours, and display very little variation over the period.

⁴⁵ Of course, technological advances in estate tax avoidance remains a possibility, especially given that many changes relating to valuation issues are driven by judicial rather than legislative activity. It is striking to note, however, that the many books on estate tax avoidance published over time seem to always propose the same type of methods (see again Cooper (1979) and Zabel (1995)).

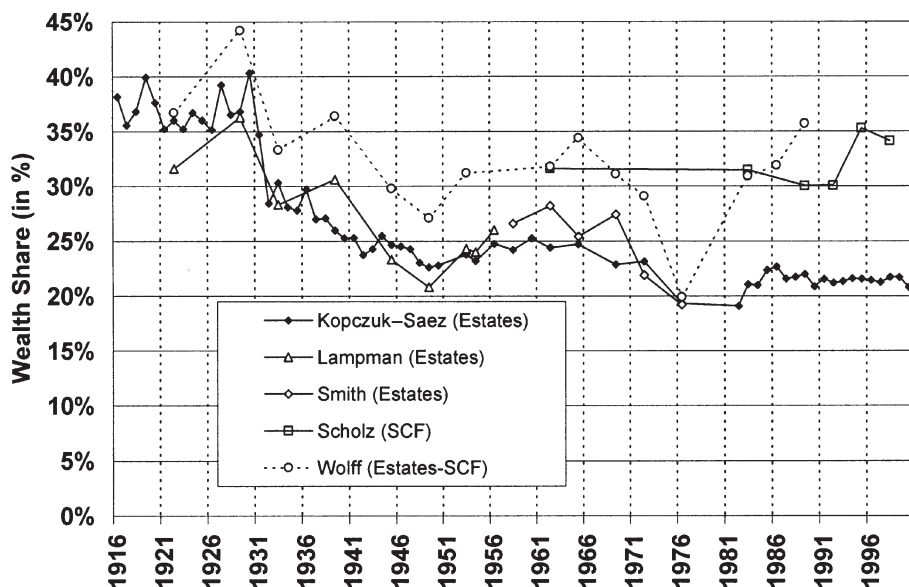
⁴⁶ Lampman (1962) does not analyze smaller groups within the top one percent adults.

⁴⁷ Those statistics are also reported in Table 5.

⁴⁸ See Smith and Franklin (1974) for an attempt to patch the Lampman series with estimates for 1958, 1962, 1965, and 1969.

⁴⁹ See Schwartz (1994) for year 1982, Schwartz and Johnson (1994) for year 1986 and Johnson and Schwartz (1994) for year 1989, Johnson (1997–1998) for years 1992 and 1995, and Johnson and Schreiber (2002–03) for year 1998.

Figure 11. The Top 1% Wealth Share: Comparing Various Estimates



Source: Table 5

Survey of Consumer Finances

The Survey of Consumer Finances (SCF) is the only other data that can be used to estimate adequately top wealth shares in the United States because it oversamples the wealthy and asks detailed questions about wealth ownership. However, the survey covers only years 1962, 1983, 1989, 1992, 1995, 1998, 2001 and cannot be used to compute reliably top shares for groups smaller than the top 0.5 percent because of small sample size.⁵⁰ It should also be noted that all the information in the SCF is at the family level and not the individual level. Top shares estimated at the individual level might be different from top shares estimated at the family level, and the difference depends on how wealth is distributed among spouses within families. Atkinson (2003)

discusses this issue formally. He shows that for realistic parameters (on the Pareto distribution and the number of married individuals relative to singles), for a given top share estimated at the family level, the corresponding top share at the individual level will be about 20 percent higher if all the rich are unmarried or have spouses with no wealth, and will be about 20 percent lower if all the rich are couples with wealth equally split between spouses. Thus, changes of wealth distribution *within* families, which leave unchanged family based wealth shares, can have relatively large effects on individually based wealth shares. However, the magnitude is not large enough to explain the dramatic decline of the very top shares over the century solely by equalization of wealth between spouses within families.⁵¹

⁵⁰ The 1962 survey is called the Survey of Financial Characteristics of Consumers and is the predecessor of the modern Surveys of Consumer Finances.

⁵¹ The negative correlation, however, between the pattern of the top one percent wealth share in Figure 2 and the fraction female in the top .5 percent in Figure 8 suggests that equalization of wealth between spouses might have played a role in reducing individually based wealth concentration.

TABLE 5
COMPARING TOP 1% WEALTH SHARE WITH PREVIOUS ESTIMATES

Author Unit Data Wealth	Kopczuk-Saez Adults Estates Net Worth (1)	Lampman (1962) Adults Estates Net Worth (2)	Smith (1984) Individuals Estates Net Worth (3)	Wolff-Marley (1989) Individuals Patched Estates Total Assets (4)	Wolff (1995) Households Patched SCF-Estates Net Worth (5)	Scholz (2003) Households SCF Net Worth (6)
1922	36.02	31.6		34.0	36.7	
1929	36.76	36.3		37.2	44.2	
1933	30.31	28.3		31.3	33.3	
1939	25.95	30.6		38.1	36.4	
1945	24.65	23.3		28.9	29.8	
1949	22.59	20.8		25.7	27.1	
1953	23.77	24.3		28.1	31.2	
1954	23.18	24.0				
1956	24.75	26.0				
1958	24.18		26.6	27.0		
1962	24.39		28.2	30.1	31.8	31.6
1965	24.70		25.4	31.9	34.4	
1969	22.86		27.4	29.0	31.1	
1972	23.13		21.9	28.6	29.1	
1976	19.32		19.2	18.9	19.9	
1983	21.07				30.9	31.5
1986	22.66				31.9	
1989	21.96				35.7	
1992	21.18					30.0
1995	21.54					30.0
1998	21.70					35.3
2000	20.79					34.1

Notes: Lampman (1962, Table 94, p. 204) estimates are based on all estate tax returns filers and Pareto interpolation to obtain top 1% share. Smith (1984, Table 1, p. 422) ranks individuals by total assets (not net worth) and defines top 1% group relative to total population (not only adults), and reports share of net worth for this group. Wolff and Marley (1989, Table 6, p. 786, row W2) completed and corrected in Wolff (1995, Table A1, pp. 78-79, col. (1)) "Wolff-Marley series." Top 1% defined relative to total population (not only adults). Estimates based on previous estimates by Lampman (1962) and Smith (1984). Wolff (1995, Table A1, pp. 78-79, col. (6)) "New Household Series" based on previous "Wolff-Marley" series and SCF estimations. Scholz (2003) based on SCF data.

Kennickell (2003) provides detailed shares and composition results for the 1989–2001 period, and Scholz (2003) provides top share estimates for all the years available from the SCF. Kennickell and Scholz results are very close. We reproduce the top one percent wealth share from Scholz (2003) in Figure 11. The SCF produces estimates of top wealth shares larger than estimates from estates: the top one percent share from estates is between 20 and 25 percent while to the top one percent share from the SCF is slightly above 30 percent. We discuss below the reasons that have been put forward to explain this difference by various studies. However, the important point to note is that, as our estate estimates, those of the SCF do not display a significant increase in top wealth shares between 1962 and 2001. There is an increase from 1992 to 1995, but this increase has in large part disappeared by 2001. As a result, the top one percent shares from the SCF in 1983 and 2001 are almost identical.⁵² In particular, it is striking to note that the top one percent share did not increase at all during the bull stock market in the second half of the 1990s. Therefore, two independent sources, the estate tax returns and the SCF, arguably the best data sources available to study wealth concentration in the United States, suggest that wealth concentration has not increased significantly since the mid-1980s, in spite of the surge in stock market prices.

A few studies have compared the estate tax data with the SCF data in order to check the validity of each dataset and potentially estimate the extent of tax avoidance. Scheuren and McCubbin (1994) and Johnson and Woodburn (1994) present such a comparison for years 1983 and 1989 respectively. They find a substantial

gap in top shares estimates based on the two datasets, of similar magnitude than the one between our estimates and Scholz (2003) estimates.⁵³ As discussed above, an important source of discrepancy comes from the fact that the SCF is based on families while estate estimates are individually based. Johnson and Woodburn (1994) try to correct for this and find a reduced gap, although, in absence of good information on the distribution of wealth within rich families, the correction method might be very sensitive to assumptions (see below).

Scheuren and McCubbin (1994) describe other potential sources creating biases. In addition to the tax avoidance and under-valuation issues that we describe above, they show that SCF wealth might be higher than estate wealth because the value of closely held businesses might drop substantially when the owner-manager dies. Thus, the SCF wealth measure of businesses incorporates human wealth that is by definition excluded from estates. Therefore, the SCF and estates may not measure the same wealth concept even though both measures are interesting. The estate represents wealth that can be transferred while the SCF includes in part human wealth that is destroyed at death.

The composition data reported in Kennickell (2003) do not report total stock ownership separately. However, we can add together the categories of publicly traded stock directly held, mutual and other investment funds, and cashable pension funds. In 2001, both the top one percent wealthiest families and the average family held about 35 percent of their wealth in that form. This suggests, consistently with our composition results, that the development of retirement pension

⁵² Kennickell (2003) reports standard errors of around 1.5 percentage points around the top one percent share estimates. Thus, the small movements in the SCF top one percent share might be due in large part to sampling variation.

⁵³ The statistics they report do not allow a precise comparison of the gap in the top one percent wealth share.

funds and mutual funds has contributed to the equalization of publicly held stock ownership in the United States. We note, however, that the SCF data for 2001 show that the top one percent hold a much larger fraction than the average (34 percent versus 19 percent) in the form of business assets (which include sole proprietorships, partnerships, as well as closely held corporations). Further systematic comparisons, asset by asset narrowly defined, of the SCF and estate tax returns would be very useful to understand better the quantitative importance of each of the sources of discrepancy we have mentioned.

More recently, Wolff (1996) uses the SCF 1992 data to estimate how much estate tax would be collected by applying average mortality rates to the SCF population. He finds that expected collections estimated from the SCF should be about four times larger than actual estate tax collections for those who died in 1992, suggesting massive tax evasion and avoidance. Poterba (2000), however, repeats, the Wolff (1996) study for 1995 and finds that estate taxes estimated from the SCF are just 10 percent higher than what was actually collected. Eller et al. (2001) tries to reconcile this discrepancy and shows that the results are quite sensitive to assumptions made about mortality rates, as well as marital and charitable bequests, but find a range of estimates much closer to Poterba (2000) than to Wolff (1996). Our top wealth share estimates are about 25 percent lower than the SCF top wealth shares, suggesting that there might be some under-reporting of estates, but that the difference is actually much closer to the small gap found by Poterba (2000) than the very large gap found by Wolff (1996).

Finally, Wolff (1994) has produced series of top one percent wealth shares by past-

ing together the earlier estate series by Lampman (1962) and Smith (1984) and the modern SCF estimates.⁵⁴ These series represent the top one percent households (not individuals) and are reproduced in Figure 11. A close examination reveals that patching together data from different sources is a perilous exercise. The Wolff (1994) series suggest that there has been a tremendous decline in wealth concentration in the 1960s and 1970s from 34 to 20 percent, followed by an equally large surge in concentration to above 35 percent in 1989. Our series based on an homogeneous estate tax data show that the evolution of concentration has actually been much less dramatic during that period. As can be seen from Figure 11, Wolff–Marley’s estimate for 1976 is based on estate tax data while the 1962 and 1983 estimates are based on the SCF. Thus, the failure to account for the large gap between the SCF and estate estimates that exists in any given year generates a dramatic distortion in the time pattern of the Wolff–Marley series.

Forbes 400 Richest Americans

The popular view is that the personal computer revolution of the 1980s, and the development of the Internet in the 1990s, created many new business opportunities and the extremely quick creation of new fortunes (the so called dot-comers). From this perspective, our finding of no increase in wealth concentration during the 1990s seems surprising indeed. To pursue this question further, we use the Forbes magazine annual survey of the top 400 richest Americans, available since 1982.⁵⁵ This systematic source has certainly been highly influential in creating the feeling that the last two decades

⁵⁴ These series are a revised and extended version of the earlier Wolff–Marley series constructed in the same way and presented in Wolff and Marley (1989).

⁵⁵ Kennickell (2003) also examines the Forbes 400 data for the years corresponding to the SCF surveys between 1989 and 2001.

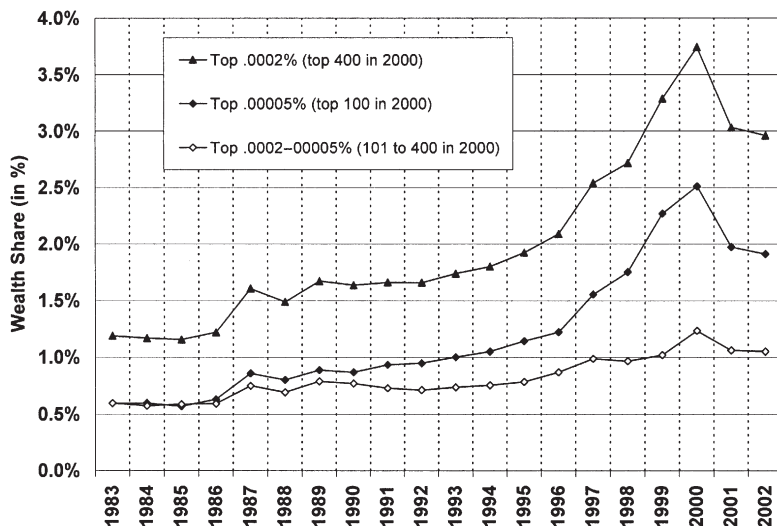
had been extraordinary favorable to the creation of new fortunes.

The Forbes 400 represents an extremely small fraction of the U.S. adult population—about the top .0002 percent in 2000, that is, a group 50 times smaller than our top .01 percent group. We have used the Forbes 400 survey to estimate the top .0002 percent (corresponding almost exactly to the top 400 individuals in 2000) wealth share. This share is displayed in Figure 12.⁵⁶ It shows that the fraction of wealth controlled by the top fortunes tripled from just above one percent in the early 1980s to above 3.5 percent at the peak in 2000. From 2000 to 2002, the share came down to just below three percent in 2002. Thus, the Forbes data are indeed consistent with the

popular view that the richest individuals in the United States control a sizeable share of total wealth and, more importantly, that this share has increased significantly over the last two decades. The top .01 percent share we estimated has been around four percent since the mid-1980s. This is compatible with a top .0002 percent share slightly above one percent as in the early 1980s but not with a top .0002 percent share equal to 3.5 percent as in the peak of 2000.⁵⁷ Therefore, it appears that our top wealth share series from estates have failed to capture the increase due to the surge in the Forbes 400 top fortunes.⁵⁸

For the early 1980s, McCubbin (1994) analyzed estate tax returns of Forbes 400 decedents and found that wealth reported

Figure 12. Very Top Shares from Forbes 400 Richest Americans, 1983–2002



Source: Table 6, col. (3), (4), (5), and (9).

Year 1982 has been excluded because, as the first survey year, the Forbes list missed a number of fortunes.

⁵⁶ Those statistics are also reported in Table 6.

⁵⁷ More precisely, if wealth is Pareto distributed with parameter a , then the ratio of the top .01 percent wealth share to the top .0002 percent wealth share is $(.01/.0002)^{1-1/a} = 3.7$ for $a = 1.5$, which is about the Pareto parameter that can be obtained for the wealth distribution in 2000 from Table 2.

⁵⁸ If just a few billionaires are responsible for the surge, it is possible that they were simply not sampled (by death). Given that these types of fortunes accrued to relatively young individuals and that death probability (adjusted by the socioeconomic status) does not even reach one percent by the age of 60, it seems possible that a few-year long surge of wealth of a few individuals can remain unnoticed.

TABLE 6
VERY TOP SHARES FROM FORBES 400 RICHEST AMERICANS

(1) Forbes 400 Total Wealth (billions 2000 \$)	(2) Forbes 400 Average Wealth (millions 2000 \$)	Very Top Wealth Shares			Ratio to Average Wealth			Top Estate Share
		(3) Top .0002% (top 404 in 2000)	(4) Top .00005% (top 101 in 2000)	(5) Top .0002–.00005% (rank 102 to 404 in 2000)	(6) Top .0002% (top 404 in 2000)	(7) Top .00005% (top 101 in 2000)	(8) Top .0002–.00005% (rank 102 to 404 in 2000)	(9) Top .01% Share (top 20,000 in 2000)
1982	164.2	0.984	0.521	0.510	4.922	10.414	3.400	2.525
1983	204.1	1.187	0.593	0.593	5.933	11.864	3.957	3.194
1984	207.3	1.165	0.595	0.570	5.826	11.909	3.799	3.514
1985	214.5	1.153	0.567	0.586	5.763	11.335	3.905	4.085
1986	245.1	1.217	0.628	0.589	6.084	12.560	3.926	3.913
1987	333.6	1.603	0.856	0.747	8.017	17.129	4.979	3.438
1988	320.4	1.486	0.797	0.689	7.430	15.946	4.592	3.596
1989	373.1	1.670	0.885	0.785	8.349	17.702	5.232	3.791
1990	359.5	1.635	0.868	0.767	8.173	17.360	5.110	3.631
1991	363.4	1.658	0.932	0.726	8.291	18.649	4.839	3.549
1992	369.3	1.655	0.946	0.709	8.277	18.930	4.726	3.715
1993	390.6	1.735	1.000	0.735	8.676	20.001	4.901	3.761
1994	405.2	1.799	1.049	0.750	8.994	20.976	5.001	3.857
1995	446.0	1.923	1.142	0.781	9.614	22.841	5.205	3.988
1996	514.0	2.089	1.221	0.868	10.444	24.424	5.785	3.836
1997	669.5	2.537	1.552	0.985	12.687	31.042	6.569	3.778
1998	779.3	2.715	1.751	0.965	13.577	35.017	6.431	3.987
1999	1033.0	3.286	2.268	1.018	16.429	45.355	6.787	3.910
2000	1200.1	3.743	2.510	1.233	18.715	50.202	8.219	3.896
2001	925.1	2.313	1.971	1.060	15.157	39.428	7.066	
2002	860.0	2.958	1.909	1.049	14.791	38.184	6.993	

Notes: Data source is the Forbes 400 Richest American list published annually in October by Forbes Magazine since 1982. Columns (1) and (2) report the total wealth and average wealth of the Forbes 400 richest (in 2000 dollars, CPI from Table 1). Columns (3) to (5) report the share of total wealth (reported in Table 1, col. (3)) for the top .0002%, the top .00005%, and the top .0002–.00005% estimated using the Forbes list. The top .0002% corresponds to the 404 richest Americans in 2000. The top .00005% corresponds to the 101 richest Americans in 2000. The top .0002–.00005% corresponds to the Americans with wealth rank 102 to 404 in 2000. Columns (6) to (8) report the ratio of the average wealth in the top .0002%, the top .00005%, and the top .0002–.00005% to the average wealth in the United States (from col. (4) in Table 1). Column (9) report the top .01% wealth share estimated from tax returns (from Table 3, col. (7)).

on estate tax returns was on average 35 percent lower than on the Forbes list. The discrepancy was attributed mostly to the fact that the estate tax returns include only the assets and property owned by the individual decedent while the Forbes survey also includes wealth distributed to the spouse, and the full value of trusts set up to distribute wealth to family relatives but whose creator retains control. It would be extremely useful to repeat this study for the full period 1982–2002 in order to understand the reasons for the growing discrepancy that has taken place since the mid–1980s between top estates and the Forbes 400.⁵⁹

It is interesting to divide further the group of the Forbes 400 into the top 100 and the next 300 richest (for year 2000). Those top groups correspond to the top .00005 percent and top .0002–.00005 percent, using our usual notation. The share of wealth accruing to those two groups is reported in Figure 12. It displays a striking contrast: the share of wealth of the top 100 has been multiplied by a factor 4.3 from 1983 to 2000 while the share of wealth of the next 300 richest individuals has only been multiplied by a factor 2.1 during the same period.⁶⁰ It is also important to note that the share of the two groups is closely parallel during the 1980s, a decade of relatively modest growth for the Forbes shares, and that the bulk of the divergence between the two Forbes groups is concentrated in just 3 years, 1996 to 1999, which are the years of the fastest growth of the stock market (see Figure 1). It would be interesting to use the Forbes data to analyze to what extent the new technology stock market “bubble” can account for this phenomenon. In sum, three quarters of all the gains to the Forbes 400 from 1983 to 2000 have actu-

ally accrued to the top quarter of the list, and most of those gains happened in the second half of the 1990s. Therefore, taken at face value, the Forbes data, combined with the absence of a significant increase in top wealth shares in the estate tax data and the SCF, suggest that among the top fractiles of the wealth distribution, only the very top (perhaps a group limited to just the hundred richest individuals in the country) has experienced sizeable gains since the mid–1980s, while the other groups of high wealth holders actually did not experience much gains relative to the average wealth holder in the U.S. population.

The number of fortunes created by the development and expansion of new technology sector is certainly greater than a few hundred. This fact can be consistent with our findings only if, at the same time those new fortunes were created, fortunes of similar magnitude were being destroyed. Analyzing in more detail the rise and fall of the new technology companies over the last two decades could be an interesting way to cast light on this issue, and understand why the results from estate tax returns or the SCF seem so much at odds with the popular perception of the 1990s decade and the Forbes 400 data.

Our top wealth shares series from estates show a sharp drop in the very top wealth shares from 1916 to 2000, although the Forbes data suggest that our estimates have missed the surge in wealth of the very wealthiest richest Americans. How do the very richest Americans of today compare with the richest individuals from the beginning of the twentieth century? Forbes proposed a list in 1918 of the 30 richest Americans. The richest person at the time was John Rockefeller, who held

⁵⁹ It should also be noted that the Forbes 400 estimates are often educated guesses with potentially large errors. The Forbes 400 survey might also miss some wealthy individuals. The SCF survey does include a few individuals missed by Forbes with wealth above the Forbes 400 lower bound.

⁶⁰ The threshold corresponding to the bottom of the top 400 has actually increased “only” by 75 percent from 1983 to 2000.

an estimated fortune of \$1.2 billion (current dollars), and, thus, held 0.54 percent of total net worth. How does this compare with the wealth of the richest Americans in 2000, the very peak of the stock–market? As population has grown by a factor 3.33 from 1918 to 2000, to provide a meaningful comparison, we need to add the fortunes of Bill Gates, Lawrence Ellison, Paul Allen, and one third of Warren Buffet—the four richest Americans in 2000. They total \$166.33 billion, which is 0.52 percent of total net worth, almost exactly the same as John Rockefeller in 1918. Thus, even the peak of the stock market bubble did not produce top fortunes larger relative to the average than the one accumulated by John Rockefeller by 1918, and our top shares results suggest that there were many more wealthy individuals below him than there are today below Bill Gates.

CONCLUSION

This paper has presented new homogeneous series on top wealth shares from 1916 to 2000 using estate tax return data. Although many studies have analyzed wealth inequality in the United States, none had presented consistent concentration estimates over such a long period on an almost annual basis. We have found that the shocks of the Great Depression, the New Deal, and World War II have produced a dramatic decrease in the top wealth shares. This decrease has been concentrated within the upper part of the top percentile, the top .1 percent of the wealth distribution, with much more modest changes for lower wealth groups within the top one percent. This evidence is consistent with the dramatic decline in top capital incomes documented in Piketty and Saez (2003). The large shocks that large wealth holders experienced in the first part of the century seem to have had a permanent effect: top wealth shares increased very modestly during the stock market booms of the 1960s and 1990s,

and are much lower today than in the pre–Great Depression era. We have tentatively suggested that steep progressive income and estate taxation, by reducing the rate of wealth accumulation, may have been the most important factor preventing large fortunes from being reconstituted. Many other factors such as business and finance regulations, the emergence of a large middle class in the post World War II period, and the equalization of wealth across genders might have also contributed to reducing individual wealth concentration.

Surprisingly, our top wealth shares series do not increase during the 1990s, a time of extra–ordinary stock price growth and perceived as having been extremely favorable to the creation of new fortunes. Our results are consistent with findings from the Survey of Consumer Finances (Kennickell, 2003; Scholz, 2003) which also display hardly any significant growth in wealth concentration since 1995. This absence of growth in top wealth shares is also consistent with the top income shares results from Piketty and Saez (2003) because the recent dramatic growth in top income shares has been primarily due to a surge in top labor incomes, with little growth of top capital incomes. Examination of the widely known Forbes 400 richest Americans survey shows a dramatic gain for those wealthy individuals but most of the gains are concentrated within the top 100 and in the few years of the stock market “bubble” of the late 1990s. Our composition series suggest that by 2000, the top one percent wealth holders do not hold a significantly larger fraction of their wealth in the form of stocks than the average person in the U.S. economy, explaining in part why the bull stock market of the late 1990s has not disproportionately benefited the rich.

It is striking that top wealth shares have increased so little in spite of a surge in top income shares. Such a pattern might not last for very long as top wage earn-

ers will start to accumulate substantial wealth holdings. Our proposed interpretation also suggests that the decline of progressive taxation observed since the early 1980s in the United States⁶¹ could very well spur a revival of high wealth concentration during the next few decades. Analyzing savings behavior of the rich would be an important step to cast additional light on the links between income and wealth inequality.

Acknowledgments

We are extremely grateful to Barry Johnson for facilitating our use of the micro estate tax returns data and for his enormous help and patience explaining it. We thank Ed Wolff for providing us with additional and unpublished data from Wolff (1989). We thank two anonymous referees, Tony Atkinson, Alan Auerbach, David Joulfaian, Arthur Kennickell, Thomas Piketty, Karl Scholz, James Poterba, Joel Slemrod, Scott Weisbenner, and numerous seminar participants for very helpful comments and discussions. Jeff Liebman and Jeff Brown kindly shared their socioeconomic mortality differential measures. Financial support from NSF Grant SES-0134946, the Sloan Foundation and from the Social Sciences and Humanities Research Council of Canada is gratefully acknowledged.

REFERENCES

- Aghion, Philippe, and Patrick Bolton.
 "A Theory of Trickle-Down Growth and Development." *Review of Economic Studies* 64 No. 2 (April, 1997): 151-72.
- Aizcorbe, Ana M., Arthur B. Kennickell, and Kevin B. Moore.
 "Recent Changes in U.S. Family Finances: Evidence from the 1998 and 2001 Survey of Consumer Finances." *Federal Reserve Board Bulletin* (January, 2003): 1-32.
- Atkinson, Anthony B.
 "Measuring Top Incomes: Methodological Issues." Oxford Nuffield College. Mimeo, 2003.
- Atkinson, Anthony B., and Allan J. Harrison.
Distribution of Personal Wealth in Britain. Cambridge: Cambridge University Press, 1978.
- Bernheim, B., Douglas, Robert J. Lemke, and John Karl Scholz.
 "Do Estate and Gift Taxes Affect the Timing of Private Transfers?" NBER Working Paper No. 8333. Cambridge, MA: National Bureau of Economic Research, 2001.
- Brown, Jeffrey R., Jeffrey B. Liebman, and Joshua Pollet.
 "Estimating Life Tables That Reflect Socioeconomic Differences in Mortality." In *The Distributional Aspects of Social Security and Social Security Reform*, edited by Martin Feldstein and Jeffrey B. Liebman, 447-57. Chicago and London: The University of Chicago Press, 2002.
- Cooper, George.
A Voluntary Tax? New Perspectives on Sophisticated Tax Avoidance. Studies of Government Finance. Washington D.C.: The Brookings Institution, 1979.
- DeLong, J. Bradford.
 "Robber Barons." In *Series of Lectures on Economics: Leading World Experts at the Carnegie Moscow Center*, edited by Tatyana Maleva and Anders Aslund. Moscow: Carnegie Endowment for International Peace, 2002.
- Eller, Martha, Brian Erard, and Chih-Chin Ho.
 "The Magnitude and Determinants of Federal Estate Tax Noncompliance." In *Rethinking Estate and Gift Taxation*, edited by William G. Gale, James R. Hines Jr., and Joel Slemrod, 375-410. Washington, D.C.: Brookings Institution Press, 2001.
- Feenberg, Daniel R., and James M. Poterba.
 "Income Inequality and the Incomes of Very High Income Taxpayers: Evidence from Tax Returns." In *Tax Policy and the Economy* vol. 7, edited by James M. Poterba, 145-77. Cambridge, MA: National Bureau of Economic Research and MIT Press, 1993.

⁶¹ Top income tax rates have gone down dramatically from 70 to 35 percent since 1981 and the U.S. estate tax is scheduled to be phased-out by 2011.

- Feenberg, Daniel R., and James M. Poterba. "The Income and Tax Share of Very High Income Households, 1960–1995." *American Economic Review* 90 No. 2 (May, 2000): 264–70.
- Goldsmith, Raymond, Dorothy Brady, and Horst Mendershausen. *A Study of Saving in the United States*, Vol. III. Princeton, NJ: Princeton University Press, 1956.
- Gordon, Roger H. "Can High Personal Tax Rates Encourage Entrepreneurial Activity?" *IMF Staff Papers* 45 No. 1 (March, 1998): 49–80.
- Greenwood, Daphne. "An Estimation of U.S. Family Wealth and its Distribution from Microdata, 1973." *Review of Income and Wealth* 29 No. 1 (March, 1983): 23–43.
- Harris, C. Lowell. "Wealth Estimates as Affected by Audit of Estate Tax Returns." *National Tax Journal* 2 No. 4 (December, 1949): 316–33.
- Holtz–Eakin, Douglas, and Donald Marples. "Distortion Costs of Taxing Wealth Accumulation: Income Versus Estate Taxes." NBER Working Paper No. 8261. Cambridge, MA: National Bureau of Economic Research, 2001.
- Johnson, Barry W. "Personal Wealth, 1992–1995." *Statistics of Income Bulletin* (Winter, 1997–98): 70–95.
- Johnson, Barry W., and Lisa M. Schreiber. "Personal Wealth, 1998." *Statistics of Income Bulletin* (Winter, 2002–03): 87–115.
- Johnson, Barry W., and Marvin Schwartz. "Estimates of Personal Wealth, 1989." In *Compendium of Federal Estate Tax and Personal Wealth Studies*, edited by Barry W. Johnson, 287–304. Washington, D.C.: Department of Treasury, Internal Revenue Service, Pub. 1773 (4–94), 1994.
- Johnson, Barry W., and R. Louise Woodburn. "The Estate Multiplier Technique: Recent Improvements for 1989." In *Compendium of Federal Estate Tax and Personal Wealth Studies*, edited by Barry W. Johnson, 391–400. Washington, D.C.: Department of Treasury, Internal Revenue Service, Pub. 1773 (4–94), 1994.
- Joulfaian, David. "Gift Taxes and Lifetime Transfers: Time Series Evidence." Office of Tax Analysis and George Washington University. Mimeo, 2003.
- Katz, Lawrence, and David Autor. "Changes in the Wage Structure and Earnings Inequality." In *Handbook of Labor Economics*, edited by Orley Ashenfelter and David Card, 1463–555. Amsterdam and New York: Elsevier/North Holland, 1999.
- Kennickell, Arthur. "Modeling Wealth with Multiple Observations of Income: Redesign of the Sample for the 2001 Survey of Consumer Finances." Survey of Consumer Finances Working Paper. Washington, D.C.: Survey of Consumer Finances, 2001.
- Kennickell, Arthur. "Using Income Data to Predict Wealth." Survey of Consumer Finances Working Paper. Washington, D.C.: Survey of Consumer Finances, 2001.
- Kennickell, Arthur. "A Rolling Tide: Changes in the Distribution of Wealth in the United States, 1989–2001." Survey of Consumer Finances Working Paper. Washington, D.C.: Survey of Consumer Finances, 2003.
- Kennickell, Arthur B., Martha Starr–McCluer, and Annika E. Sunden. "Family Finances in the U.S.: Recent Evidence from the Survey of Consumer Finances." *Federal Reserve Board Bulletin* (January, 1997): 1–24.
- King, Willford I. "Wealth Distribution in the Continental United States at the Close of 1921." *Journal of the American Statistical Association* 22 No. 158 (June, 1927): 135–53.
- Kopczuk, Wojciech, and Emmanuel Saez. "Top Wealth Shares in the United States, 1916–2000: Evidence from Estate Tax Returns." NBER Working Paper No. 10399. Cambridge, MA: National Bureau of Economic Research, 2004.
- Kopczuk, Wojciech, and Joel Slemrod. "The Impact of the Estate Tax on the Wealth Accumulation and Avoidance Behavior of Donors." In *Rethinking Estate and Gift Taxation*, edited by William G. Gale, James R. Hines Jr.,

- and Joel Slemrod, 299–343. Washington, D.C.: Brookings Institution Press, 2001.
- Kopczuk, Wojciech, and Joel Slemrod.
 “Tax Consequences on Wealth Accumulation and Transfers of the Rich.” In *Death and Dollars: The Role of Gifts and Bequests in America*, edited by Alicia H. Munnell and Annika Sundén, 213–49. Washington, D.C.: Brookings Institution Press, 2003.
- Kuznets, Simon.
 “Economic Growth and Economic Inequality.” *American Economic Review* 45 No. 1 (March, 1955): 1–28.
- Lampman, Robert J.
The Share of Top Wealth-Holders in National Wealth, 1922–56. Princeton, NJ: Princeton University Press, 1962.
- Luckey, John R.
 “A History of Federal Estate, Gift and Generation-Skipping Taxes.” CRS Report for Congress 95-444A. Washington, D.C.: Congressional Research Service, March, 1995.
- Mallet, Bernard.
 “A Method of Estimating Capital Wealth from Estate Duty Statistics.” *Journal of the Royal Statistical Society* 71 No. 1 (March, 1908): 65–101.
- McCubbin, Janet G.
 “Improving Wealth Estimates Derived From Estate Tax Data.” In *Compendium of Federal Estate Tax and Personal Wealth Studies*, edited by Barry W. Johnson, 363–9. Washington, D.C.: Department of Treasury, Internal Revenue Service, Pub. 1773 (4–94), 1994.
- McGarry, Kathleen.
 “Inter Vivos Transfers and Intended Bequests.” *Journal of Public Economics* 73 No. 3 (September, 1999): 321–51.
- Mikow, Jacob M.
 “Fiduciary Income Tax Returns, 1997.” *Statistics of Income Bulletin* (Winter, 2000–01): 77–99.
- Piketty, Thomas.
 “Income Inequality in France, 1901–1998.” *Journal of Political Economy* 111 No. 5 (October, 2003): 1004–42.
- Piketty, Thomas, and Emmanuel Saez.
 “Income Inequality in the United States, 1913–1998.” *Quarterly Journal of Economics* 118 No. 1 (February, 2003): 1–39.
- Poterba, James M.
 “The Estate Tax and After-Tax Investment Returns.” In *Does Atlas Shrug? The Economic Consequences of Taxing the Rich*, edited by Joel Slemrod, 329–49. New York: Harvard University Press and Russell Sage Foundation, 2000.
- Poterba, James M.
 “Estate and Gift Taxes and Incentives for Inter Vivos Giving in the US.” *Journal of Public Economics* 79 No. 1 (January, 2001): 237–64.
- Scheuren, Fritz, and Janet McCubbin.
 “Piecing Together Personal Wealth Distributions.” In *Compendium of Federal Estate Tax and Personal Wealth Studies*, edited by Barry W. Johnson, 371–90. Washington, D.C.: Department of Treasury, Internal Revenue Service, Pub. 1773 (4–94), 1994.
- Schmalbeck, Richard.
 “Avoiding Federal Wealth Transfer Taxes.” In *Rethinking Estate and Gift Taxation*, edited by William G. Gale, James R. Hines Jr., and Joel Slemrod. Washington, D.C.: Brookings Institution Press, 2001.
- Scholz, John Karl.
 “Wealth Inequality and the Wealth of Cohorts.” University of Wisconsin. Mimeo, 2003.
- Schwartz, Marvin.
 “Estimates of Personal Wealth, 1982: A Second Look.” In *Compendium of Federal Estate Tax and Personal Wealth Studies*, edited by Barry W. Johnson, 255–70. Washington, D.C.: Department of Treasury, Internal Revenue Service, Pub. 1773 (4–94), 1994.
- Schwartz, Marvin, and Barry W. Johnson.
 “Estimates of Personal Wealth, 1986.” In *Compendium of Federal Estate Tax and Personal Wealth Studies*, edited by Barry W. Johnson, 271–86. Washington, D.C.: Department of Treasury, Internal Revenue Service, Pub. 1773 (4–94), 1994.
- Smith, James D.
 “Trends in the Concentration of Personal Wealth in the United States, 1958–1976.” *Review of Income and Wealth* 30 No. 4 (December, 1984): 419–28.

- Smith, James D., and Stephen Franklin.
"The Concentration of Personal Wealth, 1922–1969." *American Economic Review* 62 No. 2 (May, 1974): 162–7.
- Smith, James P.
"Healthy Bodies and Thick Wallets: The Dual Relation between Health and Economic Status." *Journal of Economic Perspectives* 13 No. 2 (Spring, 1999): 145–66.
- Stewart, Charles.
"Income Capitalization as a Method of Estimating the Distribution of Wealth by Size Group." In *Studies in Income and Wealth* Volume 3, edited by Conference on Research in National Income and Wealth, 97–128. New York: National Bureau of Economic Research, 1939.
- Thorelli, Hans Birger.
The Federal Antitrust Policy: Origination of an American Tradition. Baltimore, MD: Johns Hopkins Press, 1955.
- U.S. Bureau of the Census.
Historical Statistics of the United States: Colonial Times to 1970. Washington, D.C.: U.S. Government Printing Office, 1975.
- U.S. Treasury Department, Internal Revenue Service.
"Statistics of Income: Estate and Gift Tax Returns." Washington, D.C., various years a.
- U.S. Treasury Department, Internal Revenue Service.
"Statistics of Income: Individual and Fiduciary Income Tax Returns." Washington, D.C., various years b.
- Wolff, Edward N.
"Trends in Aggregate Household Wealth in the United States, 1900–1983." *Review of Income and Wealth* 35 No. 1 (March, 1989): 1–29.
- Wolff, Edward N.
Top Heavy—The Increasing Inequality of Wealth in America. New York: Twentieth Century Fund Press, 1994.
- Wolff, Edward N.
"Discussant's Comments on Douglas Holtz-Eakin, 'The Uneasy Case for Abolishing the Estate Tax'." *Tax Law Review* 51 No. 3 (1996): 517–22.
- Wolff, Edward N., and Marcia Marley.
"Long-Term Trends in U.S. Wealth Inequality: Methodological Issues and Results." In *The Measurement of Saving, Investment and Wealth*, Vol. 52, edited by Robert E. Lipsey and Helen Stone Tice, 765–839. National Bureau of Economic Research Studies in Income and Wealth. Chicago and London: University of Chicago Press, 1989.
- Zabel, William D.
The Rich Die Richer and You Can Too. New York: Morrow, William, and Co., 1995.

