

Women, Wealth, and Mobility

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Using estate tax returns data, we observe that the share of women among the very wealthy in the United States peaked in the late 1960s at nearly one-half and then declined to one-third. We argue that this pattern reflects changes in the importance of dynastic wealth, with the share of women proxying for inherited wealth. If so, wealth mobility decreased until the 1970s and rose thereafter. Such an interpretation is consistent with technological change driving long-term trends in mobility and inequality, as well as the recent divergence between top wealth and top income shares documented elsewhere. (JEL D31, J16, J62, O33)

The extent of, and changes in, intergenerational mobility of wealth are central to understanding dynamics of wealth inequality, but are hard to measure. In this paper we argue that the share of women among the wealthiest Americans can be used as a proxy for the importance of inherited relative to self-made wealth. This approach assumes that women tend to inherit rather than make great fortunes. If so, a higher share of women among the wealthy would reflect a rise in inherited wealth at the top, and, thus, lower wealth mobility. Conversely, higher wealth mobility where self-made wealth replaces inherited wealth would result in more men at the top of the wealth distribution. Judged by this proxy, and corroborated by various data sources, wealth mobility decreased in the period 1925–1969 and increased thereafter. Such a pattern is consistent with an important role for technological change in shaping the wealth distribution, and can provide an explanation for why wealth concentration has remained stable, despite increasing income concentration in the last three decades.

Over the past century, the share of women among the very wealthy followed an inverse-U pattern, peaking in the late 1960s. According to estate tax returns, in 1925 one-quarter of the wealthiest 0.01 percent were women. This fraction rose rapidly through World War II (WWII) and then more slowly to peak in 1969, when women neared parity with men. Since then, the decline has been marked. By 2000, women's share had fallen to one-third, its prewar level. While the rise was evident among all wealth groups in the top 1 percent of the wealth distribution, the decline was confined to the very top. Figure 1A graphs the share of women for four different groups in the top 1 percent among decedents by year. Figure 1B does the same for the "living" population with the help of estate-multipliers (a method that treats death as a random sampling device and uses mortality rates by age and gender to infer the distribution of wealth among the living, as described in the Data Appendix).

While the rise in the share of women among the wealthy until the 1960s could reflect improvements in women's economic status, labor market gains work against the recent decline. For instance, since the 1970s, the share of women among top earners (top 0.1 percent) has risen by

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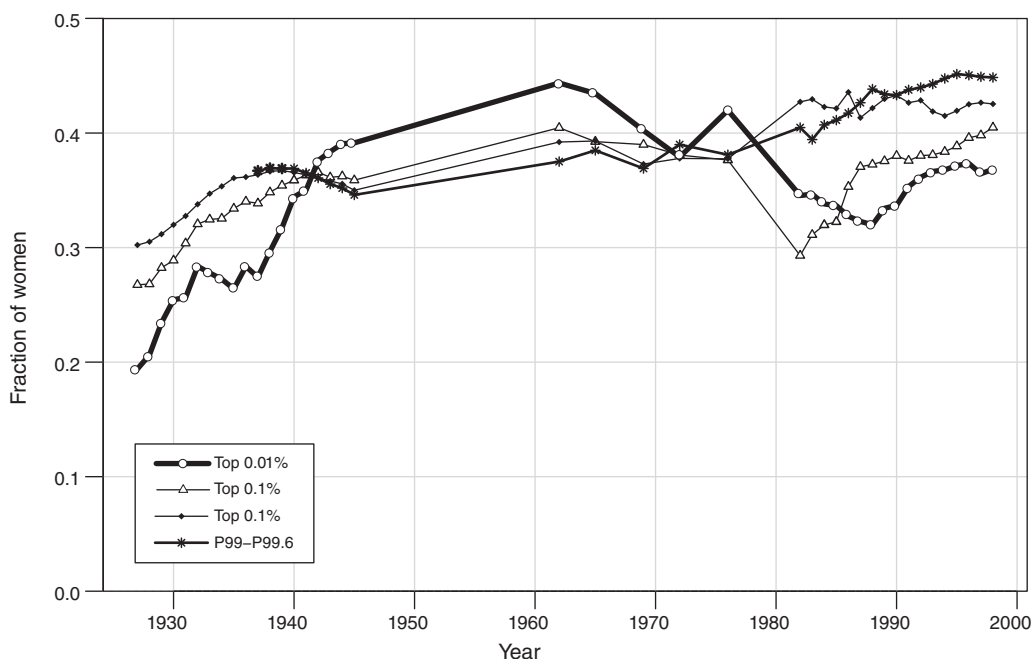


FIGURE 1A. FRACTION OF FEMALES AMONG DECEDENTS

Source: Estate tax tabulations. See Data Appendix for details.

a factor of six (Wojciech Kopczuk, Emmanuel Saez, and Jae Song 2007). Instead, we argue the presence of women among the very wealthy mirrors the relative importance of inherited versus self-made wealth. Such a pattern could follow if men make wealth, but both men and women inherit it.¹ If so, changes to the gender wealth distribution may serve as a gauge of intergenerational wealth mobility at the top, about which there is little information.

Our gender proxy for wealth mobility among the wealthy suggests that intergenerational wealth mobility decreased in the period 1925–1969 and increased thereafter. A U-shaped pattern for wealth mobility is consistent with a primary role for technological change in driving secular trends in inequality, further discussed in Section IV. Moreover, higher wealth mobility in recent decades coincides with a rise in income concentration (Thomas Piketty and Saez 2003). It is also noteworthy in light of the recent finding that top shares of wealth have increased very slowly or even remained constant (Arthur Kennickell 2003; John Karl Scholz 2003; Kopczuk and Saez 2004a), which has raised the question why income and wealth concentrations do not move in lock-step. The contrast between income and wealth concentration patterns is illustrated in Figures 2A and 2B. Our findings suggest a potential reconciliation. While wealth concentration has remained stable, the composition of the wealthy may have changed. Less dynastic and more self-made wealth at the top is consistent with Piketty and Saez's (2003) finding that recent increases in income inequality were driven by labor rather than capital income inequality (assuming that the self-made derive a higher share of income from labor than those who inherited wealth).

We are not the first to study wealth mobility. Recently, Kerwin Kofi Charles and Erik Hurst (2003) studied intergenerational wealth mobility using a sample representative of the full

¹ In Section IIC we provide some supportive evidence that this assumption applies to the wealthy in the United States during the twentieth century.

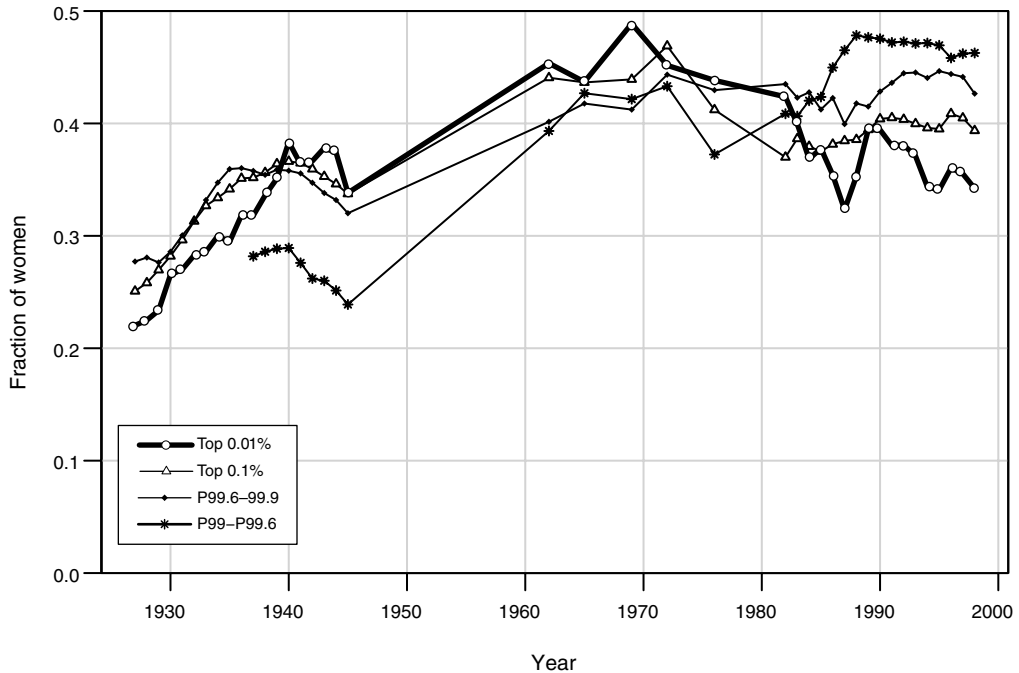


FIGURE 1B. FRACTION OF FEMALES IN THE LIVING POPULATION

Source: Estate tax tabulations using estate-multiplier methodology. See Data Appendix for details.

population (using the Panel Study of Income Dynamics (PSID)) and briefly surveyed the small literature on this topic. However, the PSID sample is too small to study the top of the wealth distribution, where most wealth is held, and contains wealth information for only a short period of time. The Survey of Consumer Finances (SCF) has better coverage of the top, but lacks the panel dimension and is similarly limited in terms of time period. Beyond that, the study of wealth mobility has been limited to genealogical studies of named decedents (see James B. Davis and Anthony F. Shorrocks 2000, who also discuss the limitations of this approach).

This paper draws on estate tax data, a source that offers several advantages. Unlike the PSID or the SCF, wealth is attributed to an individual rather than a household, and the data allow for the study of long-term trends. Estate tax data cover the very top of the distribution, allowing us to study groups as small as the top 0.01 percent of individuals. Since wealth is highly concentrated, the top is quantitatively important.² Moreover, as seen in Figures 1A and 1B, it is also qualitatively different.

Several pieces of evidence support our hypothesis. We construct a model of asset devolution where only men generate wealth, but both men and women inherit, and we find that explaining the estate tax data broken down by gender and marital status requires a U-shaped pattern in the importance of self-made wealth. Second, two sets of “rich lists”—the *Forbes* list of the wealthiest 400 Americans compiled annually since 1982, and “A Classification of American Wealth” which chronicles wealthy Americans from 1675 and 1950 (at 25 year intervals)—provide direct evidence on the relationship between the gender wealth distribution and the role of inherited

² For instance, the estimated wealth held by those in the *Forbes* 400 (the top 1/50th of the top 0.01 percent) peaked at over 3.5 percent in 2000, and the top 1 percent of households is estimated to hold as much as 34 percent of total wealth (Scholz 2003; Kopczuk and Saez 2004a).

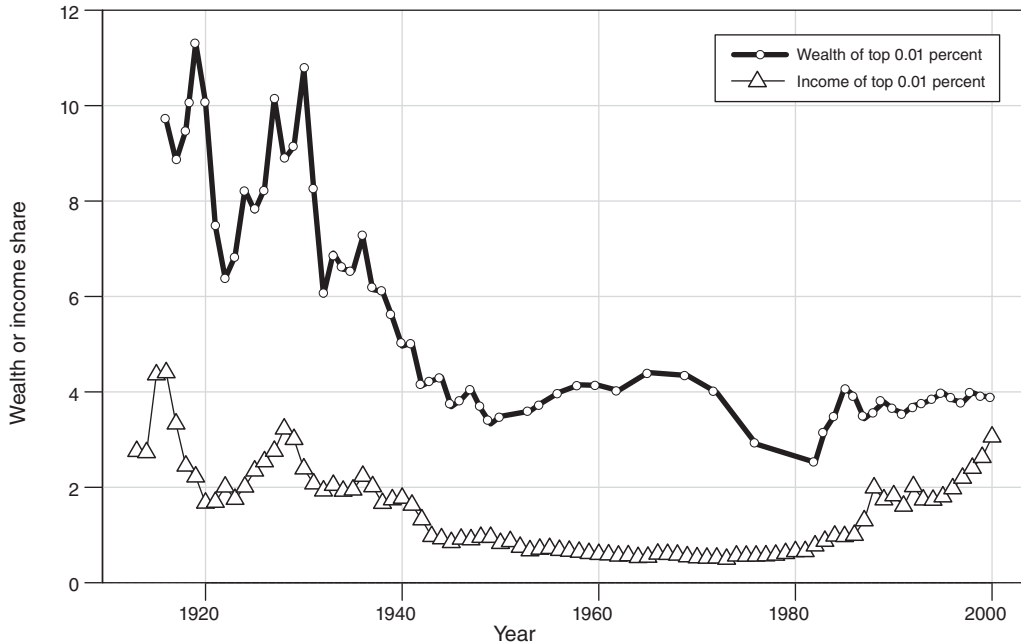


FIGURE 2A. WEALTH AND INCOME CONCENTRATION—SHARE OF TOP 0.01 PERCENT

Sources: Piketty and Saez (2003) and Kopczuk and Saez (2004a).

wealth at the top. In both sets of lists, the fraction of those who inherited wealth and the fraction of women are highly correlated. Furthermore, from its start in 1982 to the present, the *Forbes* list suggests a sharply diminished role of inherited wealth, while “A Classification of American Wealth” shows an increasing role for inherited wealth beginning in 1875 through its end year 1950. Third, if the share of women among top wealth groups reflects the importance of inherited wealth, we would expect (the inverse of) measures of entrepreneurship to vary accordingly. Using Census data from the Integrated Public Use Microdata Series (IPUMS), we find that the fraction of the labor force who are employers (a potential gauge of entrepreneurship) exhibited a U-shaped pattern over the last century.

A note on terminology is warranted. We favor a distinction based on how wealth was primarily obtained: inherited (or bequeathed) or self-made. We will use the terms “rentiers” and “entrepreneurs” to denote those who inherited and made their wealth, respectively, unless otherwise specified.

The remainder of the paper proceeds as follows. Section I presents our primary data source—tabulations derived from the administrative estate tax data base—and supplementary data in the form of “rich-lists.” Section II presents a simple descriptive model that highlights mechanisms that could drive changes in the gender and marital composition of the wealthy. We use this model to evaluate the plausibility of our hypothesis and to infer the importance of inherited versus self-made fortunes. We then discuss the validity of our key assumption that wealthy women at the top arrive at wealth through inheritance, and show direct evidence of changes to the relative importance of inherited and self-made wealth from rich-lists. In Section III, we consider a number of alternative hypotheses, chief among which is changes to the tax code, changes that affect the tax-minimizing allocation of wealth between spouses. The marriage market changed substantially as well. Specifically, we discuss the role of divorce law liberalization and changing norms

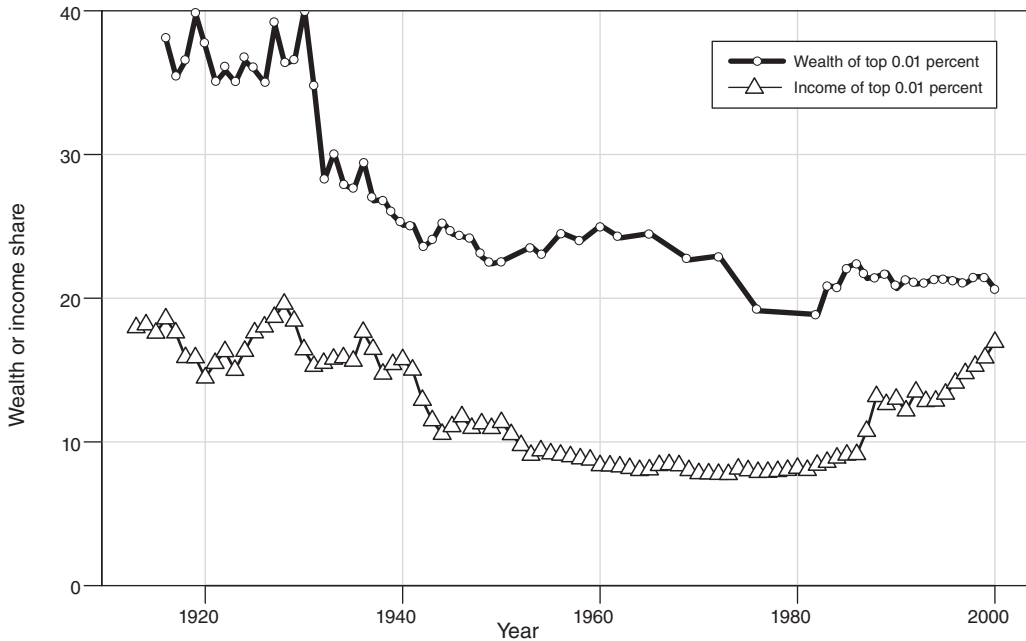


FIGURE 2B. WEALTH AND INCOME CONCENTRATION—SHARE OF TOP PERCENT

Sources: Piketty and Saez (2003) and Kopczuk and Saez (2004a).

for spousal allocation of property. Finally, we discuss the role of changes to the distribution of estates between community and non-community property states. Section IV concludes the paper with a fuller discussion of how our findings relate to the literature on the role of technological change and income concentration.

I. Data

Our main data source is the set of tabulations based on micro estate tax data collected by the Statistics of Income Division of the Internal Revenue Service (IRS). The database of estate tax returns contains all returns filed since the introduction of the federal estate tax in 1916 through 1945, samples for 1962, 1965, 1969, 1972, 1976, and all years after 1982. Our data cover the period 1925–2000.³ Table 1 shows the number of observations and population size by year and wealth category. The data contain most of the information recorded on the tax returns, including basic demographic characteristic such as age, gender, marital status, and state of residence. Although the database itself is confidential, we obtained very detailed tabulations by finely defined wealth categories, marital property regime in place in the state of residence (not available in 1962 and 1972), marital status (not available in 1965), and gender. We will concentrate on groups within the wealthiest 0.4 percent.⁴

³ A more detailed description of the 1916–1945 data can be found in Janet G. McCubbin (1990), and the post-1945 data are described in Barry W. Johnson (1994). Between 1916 and 1924 we have no information about marital status.

⁴ Due to the varying coverage of the estate tax, this is the largest group for which we can construct shares for all years.

TABLE 1—NUMBER OF OBSERVATIONS IN THE ESTATE TAX MICRODATA BY YEAR AND GROUP

Year	Number of observations				Population size			
	Top 0.01%	0.01–0.05	0.05–0.10	0.10–0.40	Top 0.01%	0.01–0.05	0.05–0.10	0.10–0.40
1925	104	409	512	3,066	102	409	511	3,064
1926	109	433	541	3,239	108	432	540	3,238
1927	105	417	521	3,122	104	416	520	3,120
1928	114	451	564	3,378	113	450	563	3,376
1929	116	457	571	3,425	114	456	570	3,422
1930	112	442	552	3,309	110	441	551	3,308
1931	112	444	555	3,324	111	443	554	3,322
1932	113	448	560	3,218	112	447	559	3,352
1933	112	443	554	3,320	111	442	553	3,318
1934	116	461	575	3,446	115	459	574	3,444
1935	118	465	582	3,485	116	464	581	3,484
1936	126	500	624	3,740	125	498	623	3,738
1937	124	492	615	3,683	123	491	614	3,682
1938	119	470	587	3,519	117	469	586	3,518
1939	121	480	599	3,593	120	479	598	3,590
1940	124	493	615	3,689	123	492	614	3,686
1941	122	485	605	3,628	121	483	604	3,626
1942	122	482	602	3,611	120	481	601	3,608
1943	128	509	635	3,806	127	507	634	3,804
1944	125	493	616	3,695	123	492	615	3,692
1945	125	494	617	3,701	123	493	616	3,698
1962	162	642	802	4,808	160	641	801	4,806
1965	170	674	843	5,052	168	673	842	5,050
1969	181	717	896	5,029	179	716	895	5,372
1972	186	740	925	5,544	185	739	924	5,542
1976	183	726	907	5,438	181	725	906	5,436
1982	186	736	914	5,439	189	756	945	5,670
1983	182	524	61	133	194	775	969	5,814
1984	187	703	61	161	196	784	980	5,880
1985	196	730	206	292	201	803	1,004	6,022
1986	204	796	676	3,044	203	810	1,013	6,078
1987	206	814	506	511	205	818	1,023	6,138
1988	209	819	652	582	209	836	1,045	6,270
1989	209	819	912	2,911	207	829	1,036	6,218
1990	209	786	826	759	207	829	1,036	6,218
1991	210	691	489	1661	210	838	1,048	6,286
1992	212	843	1,048	2,269	211	842	1,053	6,316
1993	221	712	463	1,992	220	879	1,099	6,594
1994	222	712	477	2,005	221	884	1,105	6,632
1995	225	882	1,110	2,649	225	899	1,124	6,742
1996	226	899	508	2,069	225	901	1,126	6,758
1997	227	901	628	2,156	225	901	1,127	6,762
1998	228	906	1,133	3,761	228	911	1,139	6,832
1999	234	931	807	1,695	233	933	1,166	6,996
2000	235	932	829	1,315	234	938	1,172	7,032

Source: Tabulations from the IRS estate micro data. See Data Appendix for details.

We will study both the distribution of decedents and the distribution of the living constructed from estate tax returns. For the latter, we will employ the estate multiplier methodology as in Kopczuk and Saez (2004a) and further discussed in the Data Appendix. The estate multiplier methodology amounts to weighting the population by the inverse of the mortality rate, essentially treating death as a random sampling device. As mentioned, Figure 1A shows the evolution over the past century of the fraction of women among decedents in the top 1 percent divided in four categories: the wealthiest 0.01 percent (P99.99–100), the wealthiest 0.10 percent (P99.9–100), those between the top 0.10 percent and the top 0.40 percent (P99.60–99.90), and finally those

between the top 0.40 percent and the top 1 percent (P99–99.6).⁵ Figure 1B shows the same series for “the living,” where the data have been weighed by the estate multipliers.⁶

There are two (not mutually exclusive) ways of viewing the difference between patterns emerging for decedents and the living. First, mechanically, estate-multiplier weighting puts greater emphasis on younger individuals. Second, and relatedly, the estate multiplier technique shows values more representative of the whole population, not just because of mortality-adjusted weighting, but also because estates of younger decedents are much less likely to be skewed by tax-motivated planning. For instance, Kopczuk (2007) found that a substantial share of tax-motivated adjustments takes place following the onset of a terminal illness. Since younger individuals are more likely to have died unexpectedly, these types of adjustments are less important for the young. Lastly, the series for the living allows for differences in the age profile of wealth for men and women (and can thus account for differences in the length of time a person was wealthy).

A. Other Data Sources

Since 1982, *Forbes* has published an annual list of the richest 400 Americans (the top 2 percent of our top group P99.99–100). *Forbes* does not rely on administrative data and attributes wealth to the person mainly responsible for its generation and not its ownership, a method that likely introduces a male bias compared to the estate tax data. Wealthy women may be less visible than wealthy men (e.g., from being less activist owners) and entrepreneurs tend to be male (e.g., only Bill Gates appears on the list, not his spouse).

For earlier periods, information is less comprehensive. We present data from “A Classification of American Wealth,” “an online book being presently written by Drew Caradine Shouter (pseudonym) who has been studying the subject of wealth accumulation and society in America for many years.” The Web site contains lists of wealthy Americans, their biographies, family trees, etc., and is compiled based on various historical sources.⁷

We also make limited use of the list of some 4,000 millionaires in 1892 published by the *New York Tribune*.

Both the *Forbes* list and the Classification contain information about the source of wealth, and specify whether it was inherited. The *New York Tribune* list does not contain an explicit indicator for inheritance, but describes the source of wealth we rely on to assign inheritance status, as described in the Data Appendix. None of the lists specifies explicitly the gender of the person. We assign gender relying on first names and other available information using the algorithm described in the Data Appendix.

We also use IPUMS (Steven Ruggles et al. 2004) extracts from Censuses for 1920 through 2000. Further details are in the Data Appendix.

II. Gender and Intergenerational Wealth Mobility

In this section we first formulate a simple descriptive model of asset devolution in which only men generate wealth but both men and women inherit. We use the model to estimate the shares of rentiers and self-made among the wealthy using the estate tax data. We find that the implied share of entrepreneurs in the economy follows a U-shaped pattern over the study period,

⁵ Wealth thresholds in 2000 (2000 dollars) were 24,415,150, 5,503,678, 2,139,887, and 1,172,896, respectively.

⁶ All figures based on estate tax returns use shares based on years $t - 2$ to $t + 2$ (when adjacent years are available).

⁷ “A Classification of American Wealth” is a subscription-based product available at http://www.raken.com/american_wealth/index.asp. We are grateful to the author for permission to use some of its content in this paper.

1925–2000. We then consider those who never married. Simply put, if sons and daughters inherit equally, we would expect the surplus of men over women in this group to reflect the importance of entrepreneurs. Indeed, the share of never married men over never married women in the estate data also follows a U-shaped pattern. Next, we discuss patterns emerging from the Forbes 400 list and "A Classification of American Wealth." The shares of women and rentiers are highly correlated in these lists, and the lists corroborate the pattern found in the estate tax returns. Finally, we show that patterns of entrepreneurship observed in the IPUMS for 1920–2000 are also consistent with our other evidence.

Alternative explanations such as changes to the tax code, changing social norms for intrafamily distribution of assets, divorce and remarriage, and compositional changes to the domiciles of the wealthy (community versus common law states) are discussed in Section III.

A. Modeling the Wealth Distribution of Ever-Married Decedents

For simplicity, our model describes population in a particular year i , ignoring cross-dependence over time. We will use Greek symbols for parameters that we will estimate (α , γ , and σ) and Latin letters (b and c) for those whose values we will assume. Subscript i denotes calendar time.

Consider a world where only men generate wealth but both men and women inherit (we will provide evidence supporting this assumption in Section IIC). For simplicity, assume that everybody marries once and is survived by one son and one daughter, and that there is no divorce. Clearly, the gender wealth distribution among *decedents* will depend on which spouse dies first, how much of the estate is passed on to the surviving spouse, how long he or she continues to live, and what fraction of the initial wealth passes to the son and daughter, respectively. However, conditional on the value of these parameters, wealth held by women would decrease in times of new wealth accumulation and increase as this wealth is passed down the generations, unless new wealth is created.

To further fix ideas, we assume that there are two kinds of couples among the wealthy: rentiers and entrepreneurs. Rentier couples can derive their wealth from either the husband or the wife.⁸ We denote by $1 - \alpha_i$ the fraction of couples of this kind in year i . We assume that the person who inherited wealth will be subject to the estate tax while the spouse falls below the threshold, regardless of the order of death. That is, we assume that the rentier does not bequeath enough wealth to the surviving spouse for us to observe both in our data. Our key assumption is that the rentier sex ratio is constant and more female than the entrepreneur sex ratio. For simplicity, we will assume that there are equally many men and women rentiers, i.e., on average, we observe 0.5 men and 0.5 women per rentier couple.⁹

There are α_i entrepreneur couples. If the man dies first, we observe him (as a married male) with certainty, and his wife as a widow with frequency γ_i . In principle, γ_i can be any positive number, but we focus on $\gamma_i \in [0, 1]$, which would be the case if husbands do not pass all their wealth to their widows or widows decumulate or pursue tax-avoidance strategies.¹⁰

If the woman dies first, we observe her with frequency c , which reflects (but is not equal to) her share of property. We will often assume that $c = 0$, i.e., the wife of an entrepreneur is not

⁸ If both members of the couple were rentiers, this is equivalent to two couples with one rentier each. Our model cannot distinguish between those two cases. If there are couples with two rentiers, α_i needs to be reinterpreted accordingly. Implicitly, we assume that the frequency of rentiers marrying each other has not changed over time.

⁹ Our qualitative conclusions would not be affected by a different but constant sex ratio (with nonzero women).

¹⁰ γ_i could be greater than one reflecting large interspousal bequests and/or wealth effectively controlled by the wife, augmented by additional wealth accumulation that could take place following the death of the husband (which would introduce into the top groups some wives with "absent husbands").

TABLE 2—MOMENT CONDITIONS

Category	With the frequency of			
		(Entrepreneur)	(Rentier)	
Share of married women, year i	= b_i	($\alpha_i \times c$	+ $(1 - \alpha_i)/2$) S_i
Share of widowed men, year i	= b_i	($\alpha_i \sigma_i$	+ $(1 - \alpha_i)/2$) S_i
Share of married men, year i	= $(1 - b_i)$	(α_i	+ $(1 - \alpha_i)/2$) S_i
Share of widowed women, year i	= $(1 - b_i)$	($\alpha_i \gamma_i$	+ $(1 - \alpha_i)/2$) S_i

Note: S_i is the sum of the numerators in all four conditions.

sufficiently wealthy to appear in the top group. The polar case is that of $c = 1$, i.e., the wife is as wealthy as her husband. We will vary the value of c to represent the strength of the community property rules across states. The widower may pursue tax avoidance and decumulate. We allow for this possibility by assuming that we observe the husband in such cases with frequency σ_i .

To complete the model, we posit that the probability of a wife dying first is equal to b_i and is the same for the rentier and entrepreneur families. In sum, we observe various gender/marital combinations with the frequencies specified in Table 2.

Estimation.—We observe shares of the marital/gender categories in the data for each year i . Because the shares add to one in any given year, we have three independent moment conditions specified in Table 2. The model includes five parameters: b_i , c , α_i , γ_i , and σ_i , four of which vary by time, as indicated by the subscript i . We assume the values for b_i and c as discussed below and, in our baseline specification, estimate the remaining three parameters— α_i , γ_i , and σ_i —for each year i . Since there is no cross-dependence across years, this procedure amounts to solving a (quadratic) system of three equations in three unknowns for each year.

This procedure may be interpreted as a very simple calibration exercise. Equivalently, it amounts to a just-identified method-of-moments approach where we match predictions of our structural model with three unknown parameters to three independent moment estimates, i.e., the means of three (out of four) dummies for gender/marital status categories.

This approach is very demanding—it requires estimating three parameters for each year—but it has the advantage of imposing little structure on the evolution of parameters over time. As an alternative, we will consider a more parsimonious empirical model. Rather than attempt to estimate separate values of α , γ , and σ for each year, we will assume that each of these parameters is a smooth function of time. More specifically, in order to test for the U-shaped pattern of α , we assume that they are all quadratic functions: $\alpha(t) = \alpha_0 + \alpha_1(t - 1925)/100 + \alpha_2((t - 1925)/100)^2$, and analogously for γ and σ . This estimation procedure amounts to estimating a system of nonlinear equations using information for all years simultaneously (further described in the Data Appendix).

Discussion.—A closer inspection of the formulae shows that we can readily derive the solution for α_i by combining the share of married women and the share of married men. These shares are equal to the expressions shown in the table that depend only on α_i and constants divided by the sum of all categories. As a result, by dividing them through each other we obtain a single equation in one unknown, α_i :

$$\frac{\text{married women year } i}{\text{married men year } i} = \frac{1 - b_i}{b_i} = \frac{\alpha_i c + \frac{1 - \alpha_i}{2}}{\alpha_i + \frac{1 - \alpha_i}{2}}.$$

Intuitively, for the self-made, the extent to which we see married women depends on the extent to which a wife shared the wealth generated by the husband. Once we know (assume) the marital property sharing rule, c , and the probability of a husband dying first, b_i , the number of first-dying women relative to first-dying men reflects the influence of α_i only.

Denoting the (observable) term on the left-hand side by r_i , we can write the solution for α_i as

$$(1) \quad \alpha_i = \frac{1 - r_i}{1 + r_i - 2c}.$$

Thus, more married women (relative to married men) in a given year indicates more rentiers (lower α_i), for a constant c . Formally, equation (1) is decreasing in r_i as long as $c < 1$ (which we consider the relevant range). The intuition is simply that while married, the wife is more likely to be wealthy in rentier families than in self-made families.

The model imposes some simple (though weak) testable predictions: since $\alpha_i \in [0, 1]$, it must be that $(1 - r_i)/(1 + r_i - 2c) \in [0, 1]$. This can be shown to be equivalent to $\min\{c, 1\} < r_i < \max\{c, 1\}$. Making the natural assumption that $c < 1$, it follows that $c < r_i < 1$. For $c \geq 0$, for this condition to hold it is necessary that $r_i \in (0, 1)$. Knowing the value of b_i , we can directly verify this condition from the data. In addition, if we know the value of c , we can further tighten this restriction.

While the value of α_i can be derived with no reference to the shares of widows and widowers, the model imposes additional restrictions due to the presence of these groups. We know that γ_i and σ_i must be nonnegative. Given the solution for α_i , the equations for widows and widowers are linear in γ_i and σ_i , as is the sum of all four terms. Consequently, the explicit solutions for γ_i and σ_i can be easily derived as solutions of linear equations. Whether the values implied by these solutions are positive is testable.

There are two confounding factors in the model. First, the frequency of observing married men and married women depends on b_i , the likelihood that a woman dies first. We cannot estimate b_i from our model. Therefore, we estimate this likelihood using the IPUMS Census data for 1920 through 2000 combined with mortality rates from Social Security mortality tables (further described in the Appendix). The estimated value of b_i was 0.4 in 1920. It was falling until the 1980 Census when it reached its minimum at slightly over 0.27 and it subsequently increased to slightly over 0.30.¹¹

Second, the extent to which the wife shares wealth in entrepreneur couples, c , clearly influences the number of married women at any given level of α_i .¹² Since states differ in their treatment of property acquired during marriage, we estimate the model separately for states with different property regimes. There are three regimes to consider: community property, common law, and equitable distribution. Eight states were community property states throughout our study period, meaning that property acquired during marriage was considered marital property.¹³ The

¹¹ An additional assumption that we make is that b_i is the same for rentier and entrepreneur couples. We verified this assumption using pooled SCF data for 1989–2001. We defined the “wealthy” as those in the top 1 percent of wealth distribution in each year, and as rentiers those who reported inheritance of at least \$5 million in 2004 dollars (the value of inheritance was supposed to be reported at the time it was received; we applied a 5 percent real rate of return to obtain present value). We then estimated b for rentiers and the rest (self-made) in the same manner as for the Census data. The estimated value of b for rentiers was 0.314 and for self-made it was 0.322. Varying the rate of return, the threshold for the wealthy group and for being a rentier made b vary between 0.29 and 0.38 with no clear pattern for which group dominates.

¹² However, the direction in which α_i moves with changes in the ratio of married women to married men does not depend on the chosen value of c , since equation (1) is decreasing in r as long as $c < 1$ (which we consider the relevant range).

¹³ These states are Arizona, California, Idaho, Louisiana, Nevada, New Mexico, Texas, and Washington. Wisconsin changed from equitable distribution to community property in 1986. When we split the sample with respect to the marital property regime, we exclude Wisconsin.

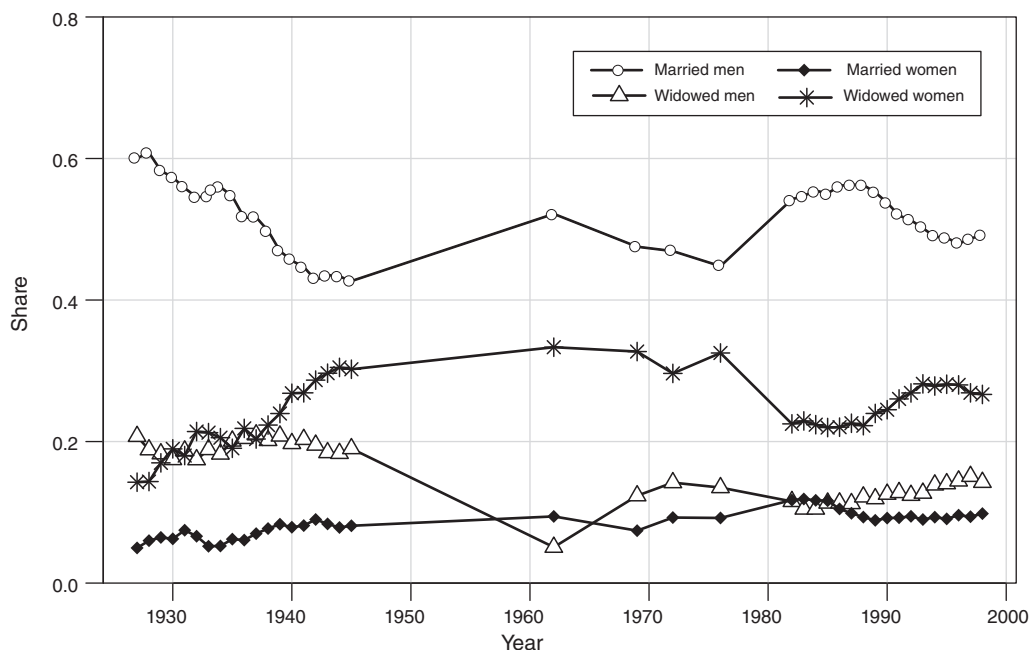


FIGURE 3. MARITAL-GENDER CATEGORIES IN THE TOP 0.01 PERCENT OF DECEDENTS

Source: Estate tax tabulations. See Data Appendix for details.

remaining states were common law states where property formerly was allocated according to title. However, with greater incidence of divorce, this system was deemed unfair as it exposed many wives to financial hardship after divorce. Therefore, a number of states applied the principle of equitable distribution, i.e., divorce judges would allocate assets according to fairness.¹⁴ Equitable distribution was already in place in 25 states in 1970 (Jeffrey S. Gray 1998), and by 1994 the remaining eight community property states had adopted equitable distribution (D. Kelly Weisberg and Susan Freilich Appleton 2002). We code states according to their status in 1970, following Gray (1998, Table 1), where common law states are those that allocated property according to title.¹⁵

Another concern is the possibility that c changed over time. In particular, c may have increased (e.g., the aforementioned shift toward equitable distribution). However, from the discussion above it is clear that higher value of c leads to a higher estimate of α . Hence, allowing c to increase over the period when α is estimated to be increasing would further strengthen this pattern. We will find that α has been increasing over the past 30 years. Thus, our assumption of a constant c is conservative with respect to this key finding. We will return to this issue in Section III.

Model Results.—We estimated our model using data for decedents for all of the United States and then separately for common law and non-common law states. Figure 3 presents the underlying moments—shares of gender/marital status categories in the top 0.01 percent—for all states. The results for α_i are shown on Figure 4A for all states and common law states, under the

¹⁴ The length of the marriage and the nonmarket contributions of the financially weaker spouse are among the factors considered.

¹⁵ Those states are Alabama, Florida, Georgia, Maryland, Massachusetts, Mississippi, Missouri, Montana, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Virginia, and West Virginia.

TABLE 3—ESTIMATES OF THE PARAMETERS OF THE MODEL OF THE DISTRIBUTION OF EVER-MARRIED DECEDENTS

	All		Common law				Non-common law		
	$c = 0$	$c = 0.2$	$c = 0$	$c = 0.2$	$c = 0$	$c = 0.2$	$c = 0$	$c = 0.2$	
α_0	0.720*** (0.035)	0.740*** (0.034)	1.105*** (0.059)	0.792*** (0.044)	0.798*** (0.050)	1.225*** (0.090)	0.542*** (0.052)	0.543*** (0.045)	0.766*** (0.071)
α_1	-0.964*** (0.296)	-1.671*** (0.256)	-2.660*** (0.414)	-1.558*** (0.434)	-1.561*** (0.447)	-2.670*** (0.774)	-0.251 (0.369)	-1.245*** (0.327)	-1.812*** (0.492)
α_2	0.587 (0.385)	1.712*** (0.328)	2.713*** (0.525)	1.795*** (0.579)	1.771*** (0.582)	3.036*** (1.004)	-0.480 (0.446)	1.239*** (0.418)	1.790*** (0.622)
γ_0	0.121 (0.116)	0.162*** (0.055)	0.330*** (0.044)	0.260* (0.137)	0.272*** (0.060)	0.418*** (0.048)	-0.259 (0.242)	-0.073 (0.124)	0.142 (0.099)
γ_1	1.385 (1.117)			-0.026 (1.327)			4.995** (2.346)		
γ_2	-2.276 (1.509)			0.092 (1.745)			-8.731*** (3.343)		
σ_0	0.536*** (0.043)	0.449*** (0.024)	0.559*** (0.019)	0.649*** (0.051)	0.530*** (0.027)	0.624*** (0.021)	0.110 (0.097)	0.280*** (0.052)	0.424*** (0.042)
σ_1	-0.150 (0.452)			-0.558 (0.574)			3.494*** (1.019)		
σ_2	-0.357 (0.626)			0.301 (0.770)			-5.870*** (1.508)		
N	6,353	6,353	6,353	3,202	3,202	3,202	2,827	2,827	2,827
Lowest α in	2,007.12	1,973.80	1,974.03	1,968.41	1,969.05	1,968.98		1,975.23	1,975.60
Minimum α	0.327	0.332	0.453	0.454	0.455	0.638	0.083	0.231	0.308
Maximum α	0.720	0.740	1.105	0.792	0.798	1.225	0.542	0.543	0.766

Source: Estimates of the model described in Section II, assuming quadratic pattern of changes in parameters over time. Details of the estimation procedure are in the Data Appendix.

*** Significant at the 1 percent level.

assumption that $c = 0$. To smooth the series, we use shares defined based on years $t - 2$ to $t + 2$, when available. The results for α_t , γ_t , and σ_t are in Figures A1A (all) and A1B (common law) (see Appendix). The figures show a marked decline in the share of entrepreneurs until the 1970s and then an increase—and this pattern is much more pronounced in common law states.

The corresponding results based on the parametric approach that allows for α , γ , and σ to change as a quadratic function of time are presented in Table 3. Our hypothesis is that $\alpha_2 > 0$ and that the minimum (equal to $1925 - 100 (\alpha_1/2\alpha_2)$) falls at some point in the 1960s or 1970s. Furthermore, the model assumes that $\gamma(t) > 0$ and $\sigma(t) > 0$. When we attempt to estimate the model on the full sample, we find that α_2 is indeed positive but insignificant, with the minimum not falling in the expected region. However, there is no evidence either that $\gamma(t)$ or $\sigma(t)$ are anything but constants. We can improve the power of the method by restricting those two parameters to be constant over time. As the second specification shows, the corresponding results are very much in line with our story; the implied pattern is also shown in Figure 4A. The minimum level of α is estimated to take place in 1973, with α bottoming out at 0.33, down from the maximum of 0.74. All of the parameters fall within the economically sensible region: γ and σ are positive and well below one, and the range of α is contained between zero and one. We then repeat the analogous experiment for the common law states. As argued before, the model is likely to perform better for such states. This is indeed what we find even without imposing restrictions on γ and σ . The results are qualitatively similar to those based on the full sample, with added significance. The model does worse for the remaining states, although once γ and σ

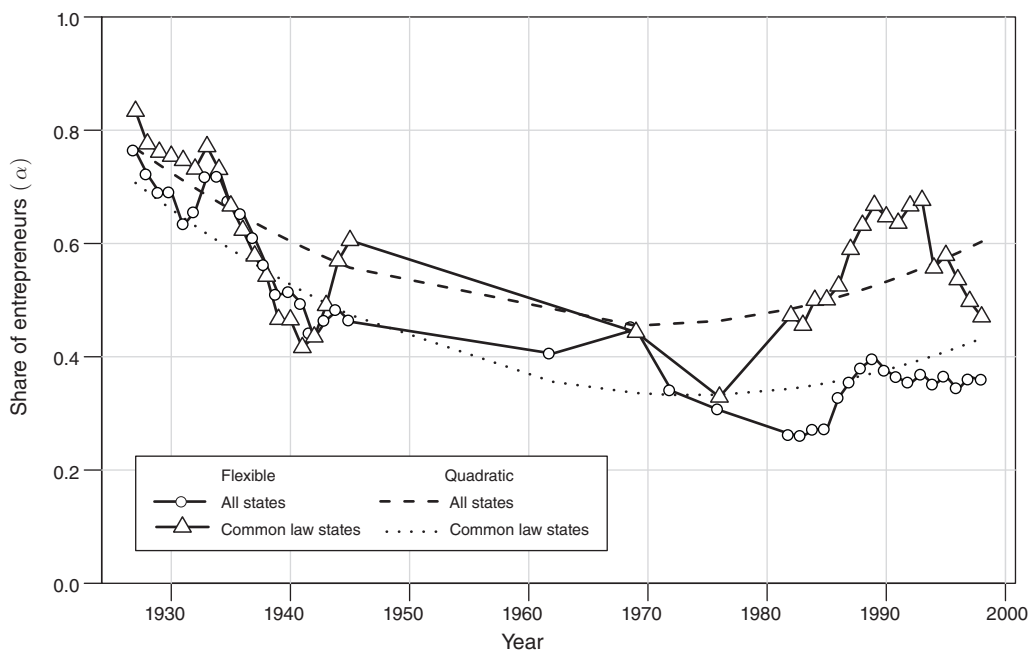


FIGURE 4A. SHARE OF ENTREPRENEURS IMPLIED BY MARRIED MEN AND WOMEN AMONG DECEDENTS

Source: Estimates based on the model described in Section II. Estimates labeled “quadratic” correspond to specifications #2 and #5 in Table 3.

are restricted to be constant, the quadratic pattern is again present and significant. In that case, though, the restriction that $\gamma > 0$ is violated.

One reason to favor the results from common law states is that our model performs worse on other dimensions in equitable distribution and community property states. In the unrestricted specification, common law states are the only ones for which the nonnegativeness restrictions imposed by the model on the values of γ_i and σ_i are not rejected. This may be because our models perform better for low c and, arguably, c is the lowest in common law states. For $c = 1$, our model cannot distinguish between entrepreneur and rentier wealth (α_i is not identified). Also, for values of c close to 1, we would expect much greater sensitivity of results to sampling variation and measurement error, a problem that is exacerbated by the fact that the sample size for community property and equitable distribution states is much smaller.¹⁶

Sensitivity of the results to the assumed value of c is investigated in Figure 4B. As discussed in the previous section, higher values of c have a monotonic effect on the value of α . Even for c as low as 0.1, the implied value of α in common law states can be greater than one, hence rejecting the model. While the choice of c matters for the actual value of α , these figures illustrate that its choice has no effect on the qualitative conclusion regarding the time-pattern of the share of entrepreneurial wealth.

The assumption that $c = 0$ is potentially problematic for the non-common law states. Hence, we repeat our parametric approach using a higher value of c , $c = 0.2$, with the results presented

¹⁶ In the 1990s, approximately 50 percent of observations come from the common law states and a quarter from each of the remaining two groups. In the first part of the century, residents of community property states constituted on the order of 10 percent or less of wealthy decedents, and common law states made up over 60 percent.

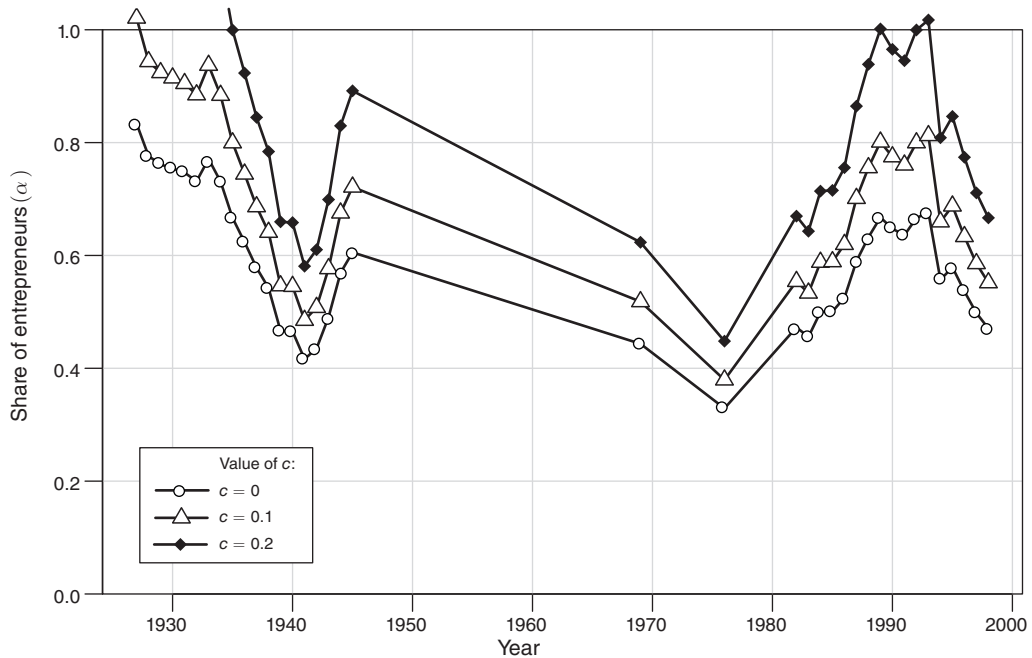


FIGURE 4B. SHARE OF ENTREPRENEURS IMPLIED BY MARRIED MEN AND WOMEN AMONG DECEDENTS IN COMMON LAW STATES—SENSITIVITY TO THE CHOICE OF c

Source: Estimates based on the model described in Section II using decedents in common law states and different values of c .

in the corresponding columns of Table 3. This change has no qualitative implications for any of the groups of states; in each case the quadratic pattern is preserved. Given the results shown in Figure 4B, it is not surprising to see that α falls outside the $(0, 1)$ range in the pooled specification and for the common law states. At the same time, all the model restrictions for the non-common law states now hold. We conclude that, conditional on imposed parametric restrictions, there is statistically significant evidence of the presence of a U-shaped profile of α for all groups of states. These findings are of course in line with the patterns visible on Figure 4A.

The decline in the share of women in the top group was more pronounced among the living than decedents. Therefore, we would like to estimate our model on the former group as well. However, the model was formulated for the decedent population and cannot match the data for the living (who are younger and consequently more married). A model for the living would have to give greater weight to married individuals—how much higher we do not know. Considering only those who are married in the full population, clearly there must be equal numbers of men and women. Thus, the extent to which we observe more married men than married women among the wealthy is driven by α_i , the share of entrepreneurs (for a constant $c \neq 1$). In terms of our model, equations for the number of married men and married women remain valid with $b_i = 0.5$, while equations for widowed men and women do not because they should be multiplied by the unknown survival factors. As before, the solution for α_i can be derived based on equations for married men and women only. Assuming that $c = 0$ and $b_i = 0.5$, we have that $\alpha_i = (1 - \hat{r}_i)/(1 + \hat{r}_i)$, where $\hat{r}_i = (\text{married women year } i)/(\text{married men year } i)$. Figure 4C shows the estimate of α_i thus obtained from data for the *living* for all states and just for common law states. An advantage of this approach is that the estimate of the share of entrepreneurs is independent of the constructed value of b_i . Again, α_i follows a U-shaped pattern.

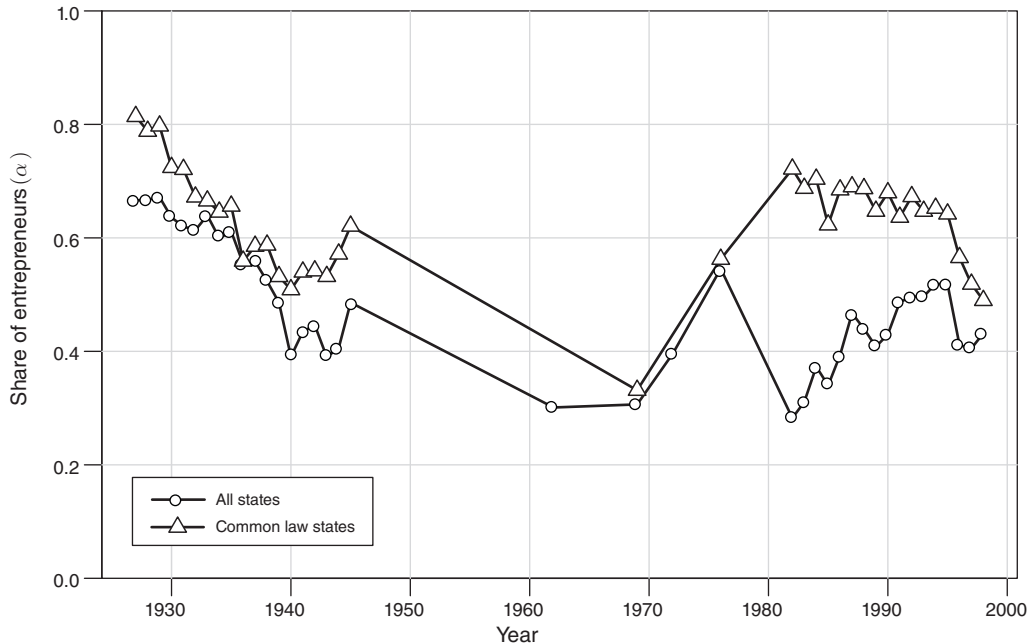


FIGURE 4C. SHARE OF ENTREPRENEURS IMPLIED BY MARRIED MEN AND WOMEN AMONG THE LIVING POPULATION IN COMMON LAW STATES

Source: Estimates based on the simplified model for the living population as described in Section II.

B. Singles

The never married (henceforth, singles) can provide further evidence on the relative importance of inherited versus self-made wealth. If sons and daughters inherit equally, but only men make wealth, then all wealthy single women inherited. Assume for now similar marriage ages for rentier men and women; then the number of single men in excess of single women would be due to self-made wealth. Figure 5A (5B) shows the fraction of decedent (living) single men and women, respectively, for P99.90–100.¹⁷ Figure 6A (6B) shows the implied fraction of decedent (living) entrepreneurs. Note that the implied fraction of entrepreneurs follows a U-shaped pattern.¹⁸

The evidence from the singles is particularly interesting since arguably the gender composition in this group is relatively invariant to changes in the tax code, the marital deduction in particular. And while not definitive, these findings line up with our other evidence.

A possible objection is that rentier men may marry at substantially different ages than rentier women. For instance, if men married later, we would see more single men. Also, a U-shaped pattern for the excess of single men over single women could be driven by a similar movement in the marriage age gap, although we are not aware of such changes in the marriage mores of heirs and heiresses.

¹⁷ Single individuals are overall a small fraction, and therefore we need to define the top category more widely.

¹⁸ There were more women than men in 1969 and 1976, and thus the estimate of the fraction of entrepreneurs is negative for these years. While clearly this cannot be the case, treating death as a random sampling device, this is what we would expect to estimate with probability 0.5 if there were no self-made wealth (and thus equally many men and women among the wealthy). Another possibility is that there were more unmarried heiresses than unmarried heirs, for instance, due to the former marrying later than the latter.

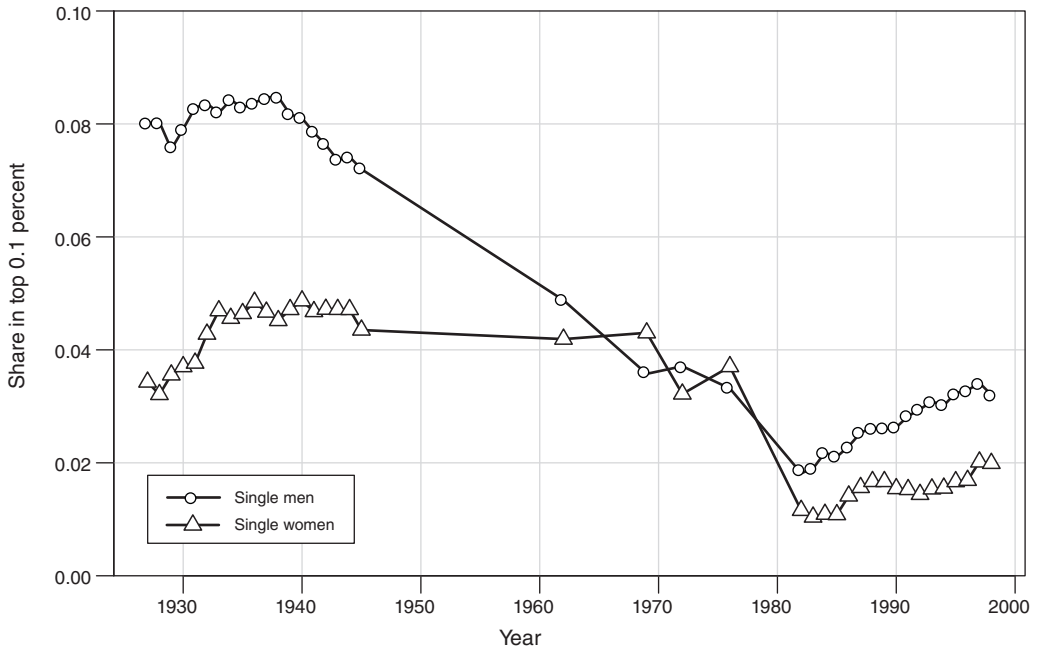


FIGURE 5A. SINGLE MEN AND WOMEN IN THE TOP 0.1 PERCENT OF DECEDENTS

Source: Estate tax tabulations. See Data Appendix for details.

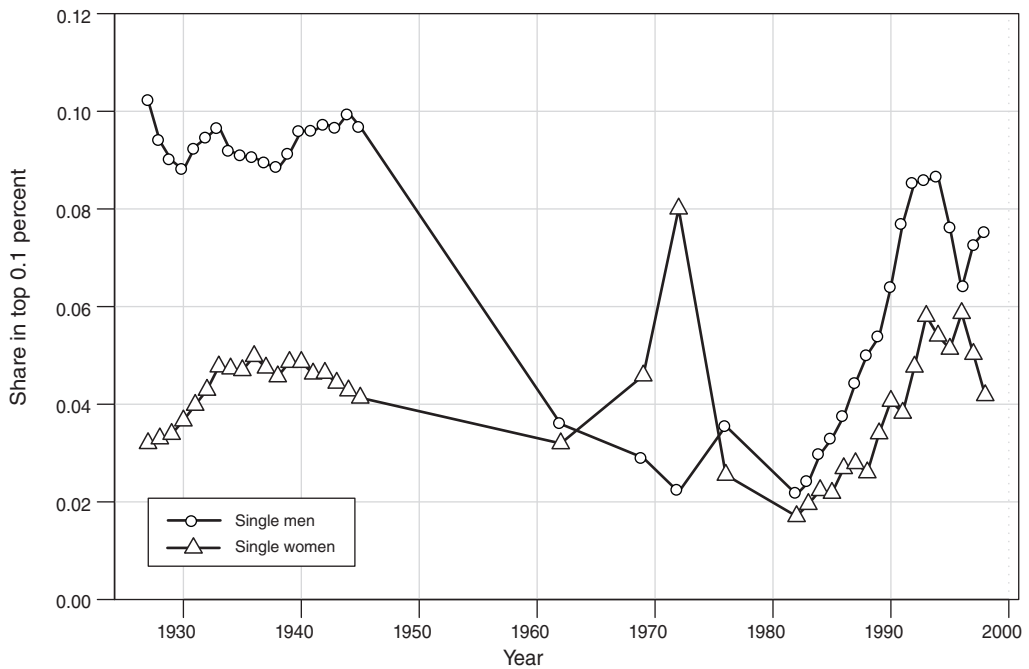


FIGURE 5B. SINGLE MEN AND WOMEN IN TOP 0.1 PERCENT OF THE LIVING POPULATION

Source: Estate tax tabulations using estate-multiplier methodology. See Data Appendix for details.

C. Rich-Lists and IPUMS Evidence

The *Forbes* list provides direct evidence of a strong (positive) link between inherited wealth and the share of women, and their parallel decline. In 2004, *Forbes* estimated the wealth of Margaret Whitman (eBay) at \$1.6 billion, making her the richest self-made woman in the United States. Despite the Margaret Whitmans and Oprah Winfreys of the world, the *Forbes* 400 lists suggest that family remains the primary route to wealth for women. According to the 2004 list, the wealthiest women in America inherited their wealth. Ms. Whitman's achievements afforded her only the 152nd spot, well short of positions occupied by the widow and the daughter of Sam Walton, the Mars fortune heiress, Cox daughters, and others. In fact, all seven women among the 25 richest Americans came to wealth through their families. In contrast, of the 18 top men, 14 were self-made.

Table 4 lists, by year, the number (and share) of women on the list, and specifically those who had inherited their wealth. It is noteworthy that while women make up 45–50 percent of those who inherited wealth, their share among the self-made is substantially lower (6.6 percent in 2003). Moreover, the drop in the share of women is mirrored by a drop in the share of individuals who inherited wealth. In 1982, more than one-third had inherited, whereas by 2003 this fraction had more than halved.¹⁹

The importance of inheritance for women's wealth is hardly new. The list of some 4,000 millionaires in 1892 published by the *New York Tribune* showed a much greater fraction of women among those who had inherited than those who were self-made (Table 5). A similar pattern emerges from "A Classification of American Wealth" (Table 6). While the number of observations is small for the early years and the fraction of women varies widely, the last three data points are the most relevant for us. In 1900–1950, the fraction of women among those who had inherited wealth was fairly flat at around 60 percent (no women were self-made). Moreover, for the period 1875–1950, these data show a steady increase in the role of inherited wealth, consistent with our hypothesis that the rise in the share of women in the estate tax data is linked to inherited wealth playing an increasingly important role.²⁰

Further evidence for the importance of entrepreneurs can be obtained from the censuses. Using the IPUMS data, we calculate the fraction of the labor force that is employed or employs others. These data show that entrepreneurship, thus measured, indeed declined between 1920 and 1970, and picked up thereafter (Figure 7).²¹

D. Significance

We have demonstrated several pieces of evidence supporting our hypothesis that wealth mobility in the twentieth century followed a U-shaped pattern. We consider (and largely dismiss)

¹⁹ The Sunday Times Rich List, an annual listing of the wealthiest individuals residing in the United Kingdom, shows a similar pattern for the United Kingdom. According to a recent article, the percent on the list who had inherited wealth declined from 75 percent in 1989 (its start year) to 25 percent in 2006 (Times Online, 4/19/2007, <http://www.timesonline.co.uk/tol/news/uk/article1676370.ece>), although the original 1989 article (*The Sunday Times*, April 2, 1989) states that 57 percent of the wealthiest derive their wealth from inheritance. In both 1989 and 2007 the number of women on the list is below 10 percent. Our women-based proxy for the importance of inheritance breaks down in a society with a strong male bias in inheritance.

²⁰ The greater fraction of inherited wealth in the more inclusive category (top 400) may be an artifact of the data collection. Inherited wealth may be traceable and therefore relatively more visible in lower wealth categories. Also, the criterion for the source of wealth being due to inheritance is "... whether a person has significantly contributed to the management and development of a business, in which case he will be allocated a specific activity (e.g., banking, manufacturing, oil and gas, etc.)" (personal communication with Drew Caradine Shouter on January 29, 2006). This is likely to lead to an underestimation of the number of men among those who inherited.

²¹ The details of these calculations are in the Data Appendix.

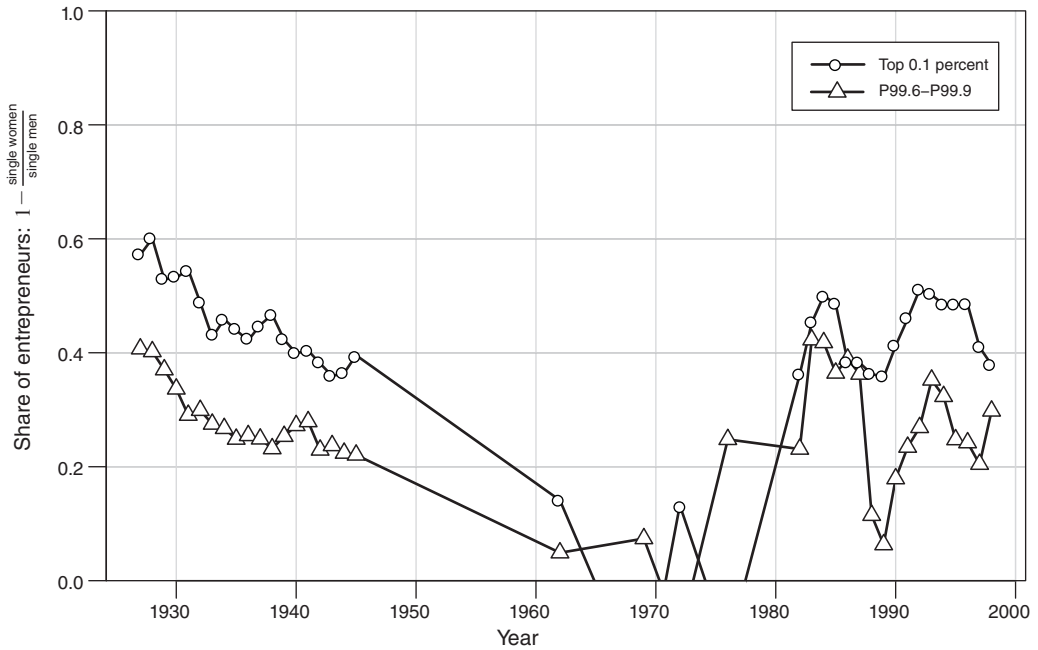


FIGURE 6A. SHARE OF ENTREPRENEURS IMPLIED BY SINGLE MEN AND WOMEN AMONG DECEDENTS

Source: Estate tax tabulations. The share defined as $1 - \text{single women} / \text{single men}$.

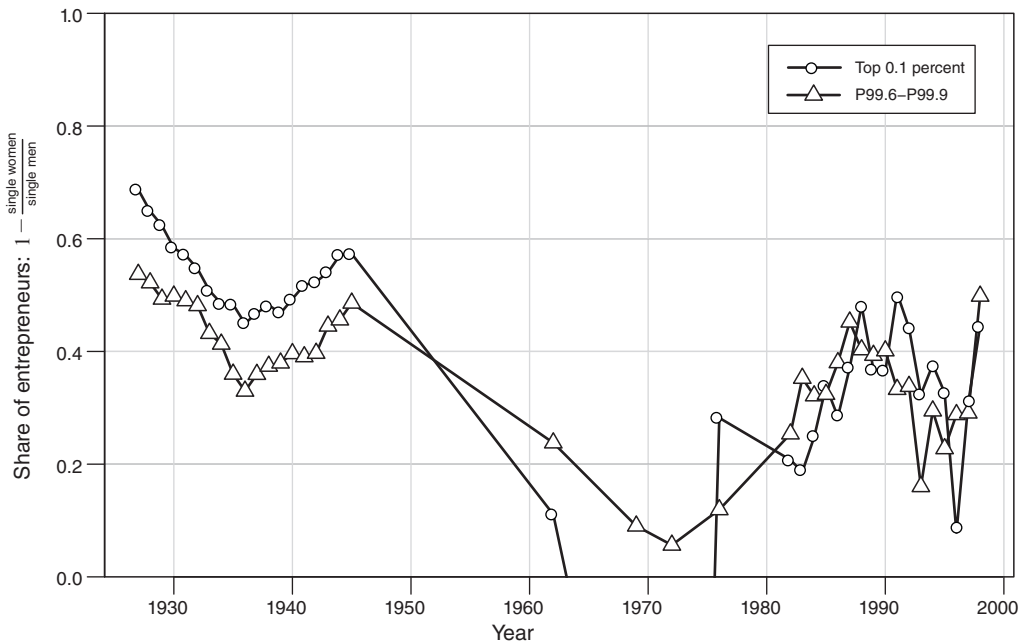


FIGURE 6B. SHARE OF ENTREPRENEURS IMPLIED BY SINGLE MEN AND WOMEN AMONG THE LIVING POPULATION

Source: Estate tax tabulations using estate multiplier methodology. The share defined as $1 - \text{single women} / \text{single men}$.

TABLE 4—FORBES 400: 1982–2003

Year	#Women	%Women	# with inheritance			% with inheritance		
			Total	Women	Men	Total	Women	Men
1982	73	0.18	143	65	78	0.36	0.89	0.24
1983	75	0.19	142	68	74	0.36	0.91	0.23
1984	68	0.17	135	61	74	0.34	0.90	0.22
1985	84	0.18	159	76	83	0.34	0.90	0.22
1986	89	0.19	150	77	73	0.32	0.87	0.19
1987	88	0.18	143	74	69	0.29	0.84	0.17
1988	66	0.14	107	52	55	0.23	0.79	0.14
1989	67	0.14	114	51	63	0.24	0.76	0.16
1990	70	0.16	109	51	58	0.24	0.73	0.15
1991	74	0.16	110	51	59	0.24	0.69	0.16
1992	70	0.16	107	49	58	0.24	0.70	0.15
1993	73	0.16	104	49	55	0.23	0.67	0.15
1994	76	0.17	105	50	55	0.23	0.66	0.15
1995	75	0.17	96	46	50	0.21	0.61	0.13
1996	76	0.17	99	47	52	0.22	0.62	0.14
1997	73	0.16	91	42	49	0.20	0.58	0.13
1998	69	0.15	87	40	47	0.19	0.58	0.12
1999	67	0.14	84	37	47	0.18	0.55	0.12
2000	49	0.12	58	24	34	0.14	0.49	0.10
2001	47	0.12	60	25	35	0.15	0.53	0.10
2002	49	0.12	58	26	32	0.14	0.53	0.09
2003	52	0.13	66	30	36	0.16	0.58	0.10

Source: The Forbes 400 Richest American, *Forbes*, various issues 1982–2003. See Data Appendix for details.

TABLE 5—1892 MILLIONAIRES

Gender	Inheritance		Total
	No	Yes	
Men	2,366	417	2,783
Women	74	348	422
Total	2,440	765	3,205

Note: The full list includes 4,056 individuals, the table relies only on those whose gender we were able to establish. See Data Appendix for explanation of our algorithm.

Source: *New York Tribune*, June 1892.

TABLE 6—HEIRS AND HEIRESSSES AMONG THE WEALTHY, 1800–1950

Year	Obs.	All	% Inheritance			% Women			Heiresses	
			400	100	All	400	100	All	Heirs + Heiresses	
									400	100
1800	151	0.27		0.28	0.17		0.11	0.40		0.33
1825	157	0.23		0.19	0.15		0.12	0.40		0.53
1850	275	0.16		0.12	0.06		0.07	0.27		0.45
1875	441	0.15	0.13	0.08	0.10	0.08	0.08	0.51	0.51	0.75
1900	422	0.22	0.21	0.13	0.15	0.14	0.09	0.60	0.60	0.50
1925	990	0.45	0.37	0.21	0.34	0.27	0.12	0.62	0.62	0.32
1950	735	0.61	0.49	0.28	0.43	0.37	0.22	0.64	0.64	0.52

Source: "A Classification of American Wealth" (http://www.raken.com/american_wealth/index.asp), accessed January 27, 2006. The first column contains the number of individuals included in the Classification for a given year. Columns marked "400" and "100" correspond to Top 400 and Top 100 individuals from the lists. The table shows the share of those with wealth primarily derived from inheritance, the share of women on the list, and the share of women among those with inheritances, respectively. See Data Appendix for a description of data construction.

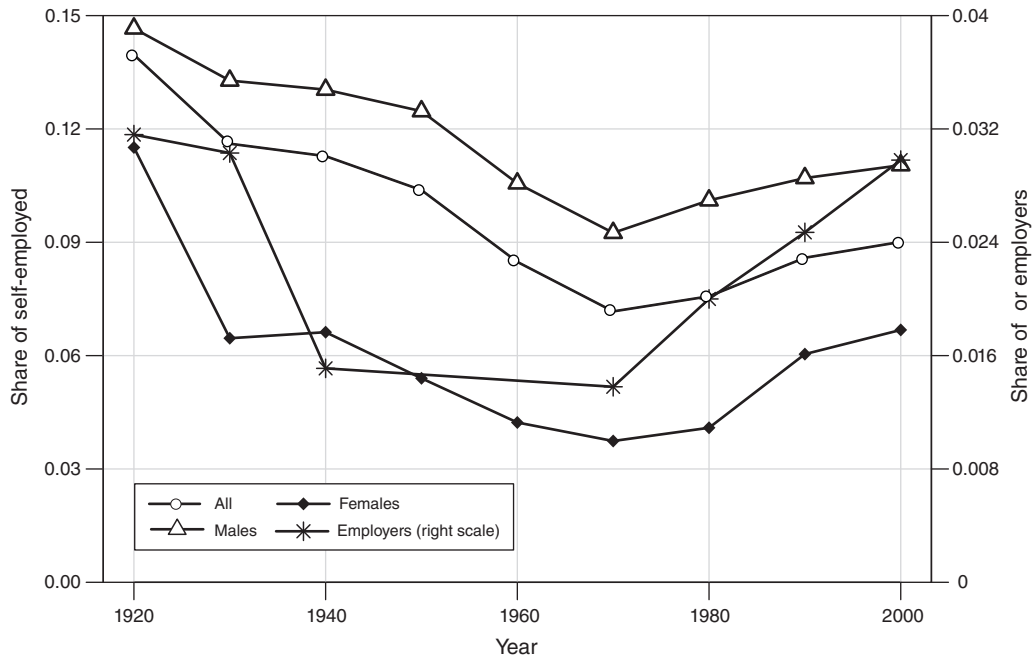


FIGURE 7. ENTREPRENEURSHIP MEASURED BY SELF-EMPLOYMENT OR EMPLOYERS IN IPUMS

Source: Authors' calculations based on the Integrated Public Use Microdata Series (IPUMS). See Data Appendix for details.

alternative explanations for the empirical patterns in the next section, which may be skipped by readers convinced by the analysis above. Other than shedding light on the evolution of wealth mobility, these findings are of significance because they contribute to two important economic questions. First, the increase in the importance of self-made wealth since the 1970s is consistent with the notion that general-purpose technological revolutions (such as the information technology (IT) revolution) favor new over old capital (Jeremy Greenwood and Boyan Jovanovic 1999; Bart Hobijn and Jovanovic 2001). Second, the implied process of obsolescence of old wealth and creation of new wealth can offer a reconciliation of the diverging patterns in wealth and income concentration over the past 30 years. We elaborate on these issues in Section IV.

III. Alternative Explanations

We now turn to alternative explanations: changes to the estate tax code, changing norms, divorce and remarriage, and changes to the geographic distribution of the population.

A. Tax Changes

The tax treatment of estates may affect the gender wealth distribution by influencing allocation of assets between spouses.²² There are primarily two factors to consider: the level and graduation of the estate tax, and the maximum marital deduction. The tax treatment of marital

²² The estate tax was introduced in 1916 but rates remained low until the 1930s, when they were very sharply increased (peaking at 77 percent) in a series of tax reforms between 1932 and 1942. Top rates were reduced in the tax

transfers changed on several occasions, including the introduction of 50 percent marital deduction in 1948, the extension of the marital deduction in 1976 to 50 percent or \$250,000 (whichever is greater), and unlimited marital deduction in 1981.²³ For our purposes, the 1981 change is of most interest (we have no data to study the 1948 change, and the 1976 extension did not affect higher wealth categories).

The 1981 introduction of unlimited marital deductions made it more advantageous to transfer assets to the surviving spouse at death (compared to an inter vivos transfer)—and as shown in Figure 8, marital deductions increased sharply after 1976 (our last year of data available prior to 1981). A priori, we would expect a reduction in spousal inter vivos transfers and transfers to others (inter vivos or at death), and an increase in the net worth (as observed at death) of the married. The initial effect would be to make the wealthy wealthier, more likely to be married, and more male. Subsequently, we would expect wealth held at death by widows (widowers) to increase (since, presumably, they inherited more), partly offsetting the initial “gains” of married men (women).

This is roughly what we find for the decedents (Figure 3). The share of married men in the top group increases between 1976 and 1982, and the share of widowed women falls. There are weaker but corresponding patterns for married women and widowed men. The initial decline is followed by a recovery among widows and widowers and a decline of married decedents. The evidence from the living is weaker, although some of the same patterns are visible. Consistent with the logic that unlimited marital deduction reduces the incentives to reallocate wealth toward the wife inter vivo, we see a gradual increase in married men. However, widows no longer show a recovery post-1982, but a continued gradual decline, a development that unlimited marital deduction cannot account for (Figure 9).²⁴

The estimate of α_i in the model section decreases in r_i , the ratio of married women to married men. Thus, if unlimited marital deduction resulted in a decline in r (relatively more married men), then the rise in α_i seen in Figure 4A may reflect tax changes rather than greater entrepreneurship. The effect of marital deduction on the relative number of married men and married women is difficult to assess. By reducing the penalty for holding on to wealth, the incentive to pursue tax avoidance after the 1981 reform likely weakened for both groups. As a result, both the number of married men and the number of married women should have increased. It is unclear whether such an effect, if any, was stronger for men or women. It is certainly possible that married men pursued more aggressive tax avoidance strategies prior to the introduction of unlimited marital deduction, and therefore their reported wealth increased by more than the wealth of married women.

Lower wealth groups may shed some light on the issue. The less wealthy use the marital deduction more extensively (see Figure 8), which would suggest that the 1981 changes had a stronger effect on their gender-marital composition. As Figure 10 illustrates, the share of married females in the remainder of the top 0.4 percent increased between 1976 and 1982,²⁵ with

reform of 1981 from 70 percent in 1982 to 55 percent in 1984 and thereafter. For 2006, the top rate is 46 percent. For an excellent historical overview of estate taxation, see John R. Luckey (1995).

²³ The marital deduction arose as a means of correcting a perceived inequity in the tax treatment of estates between community and noncommunity property states. In community property states, half of the community property would be automatically subject to the estate tax, while in noncommunity property states an exclusion would be granted only if the surviving spouse could be shown to have contributed to the acquisition of the property. The introduction of marital deduction in 1948 was preceded by legislation in 1942 that attempted to tax community property, unless a reason for exception as in noncommunity property states could be established (Luckey 1995).

²⁴ A possible explanation is that widowed women were more likely to remarry.

²⁵ Note that P99.6–P99.99 contains 39 times as many individuals as the top 0.01 percent, so that the presence of individuals moving between P99.6–P99.99 and the top 0.01 percent has a minor effect on the gender composition of the larger group.

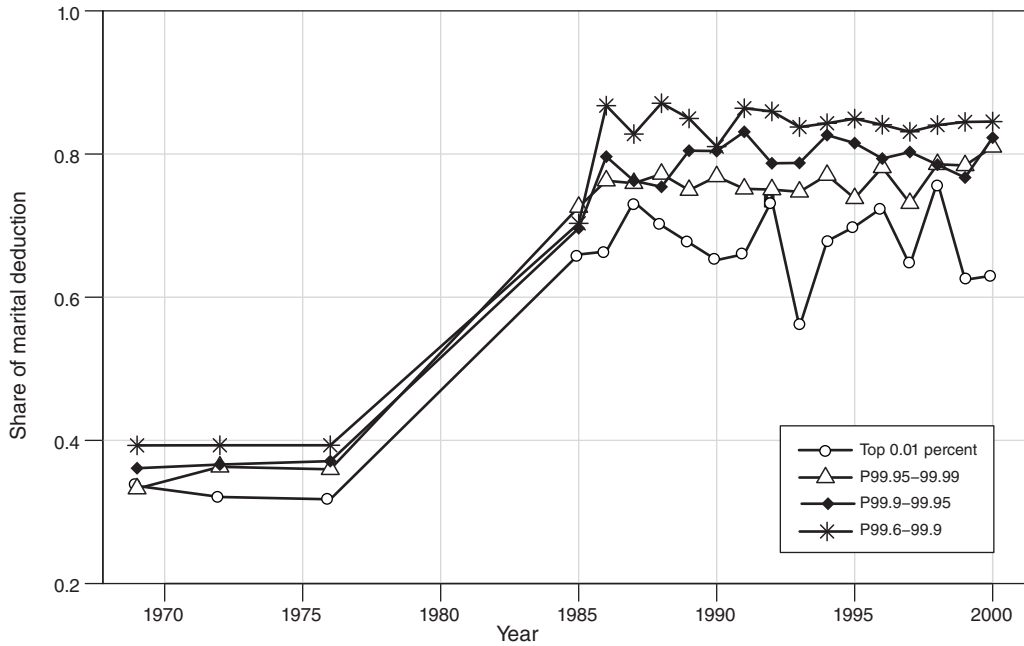


FIGURE 8. SHARE OF MARITAL DEDUCTION IN NET WORTH ABOVE THE EXEMPTION, BY WEALTH CATEGORY

Source: Estate tax tabulations. See Data Appendix for details.

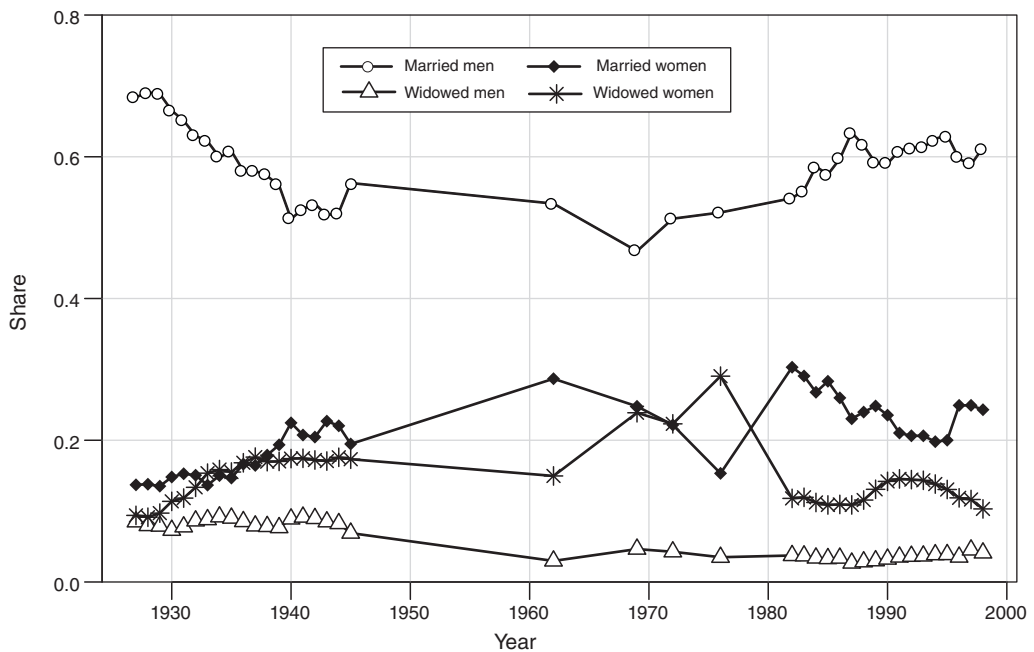


FIGURE 9. MARITAL-GENDER CATEGORIES IN THE TOP 0.01 PERCENT AMONG THE LIVING POPULATION

Source: Estate tax tabulations using estate multiplier methodology. See Data Appendix for details.

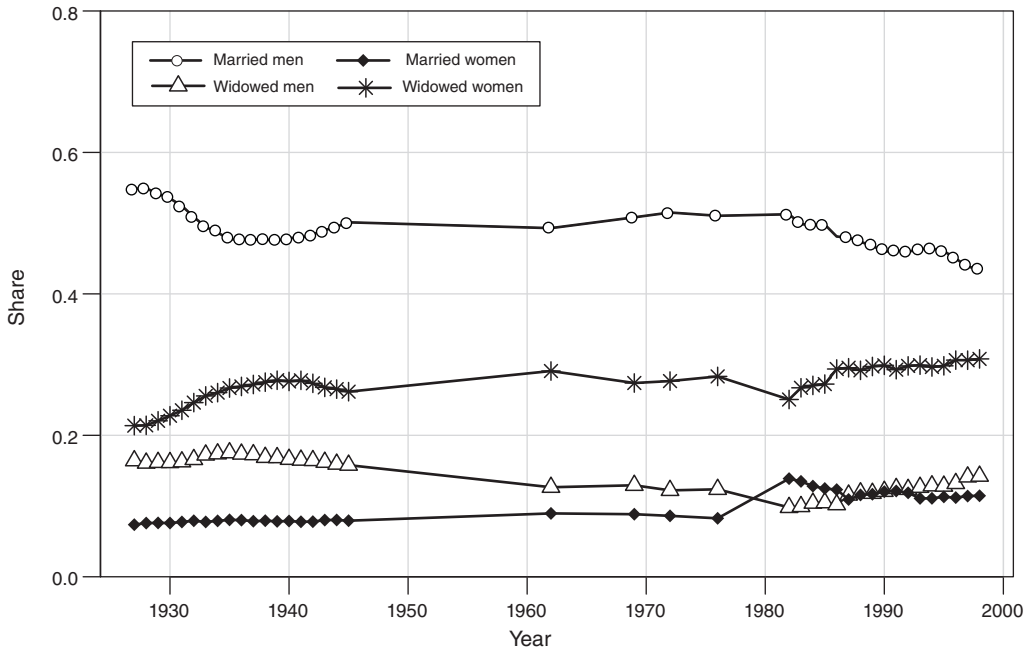


FIGURE 10. MARITAL-GENDER CATEGORIES IN THE 0.01–0.4 PERCENT CATEGORY AMONG DECEDENTS

Source: Estate tax tabulations. See Data Appendix for details.

no similar effect for the share of married men, thus suggesting a stronger response for married women than married men. Given these patterns for the lower wealth categories, we suspect that marital deductions cannot fully explain developments at the very top—the rise in married men specifically.

Another factor potentially influencing the gender composition of estate taxpayers is its graduation. We would expect greater graduation to increase the tendency to split *taxable* estates when marital transfers were taxable (the case prior to 1948, and to some extent until 1982), for instance, by sharing wealth more equally while alive. Moreover, absent marital deductions, a couple aiming to maximize wealth holdings of the surviving spouse should tilt assets toward the spouse who is more likely to survive. Both of these factors would result in more women among the wealthy as the graduation of tax rates increased. Effective marginal tax rates for the estate in the top 0.01 percent were in fact increasing until the 1970s and stabilized after that until 2001.²⁶ Therefore, changes in estate taxation could have contributed to an increase in the share of women until the 1970s. However, graduation of the tax schedule cannot account for the later decline.

In sum, it appears unlikely that marital deductions were the sole driving force behind the fall in the share of women. First, while there was an increase in married men in the top group, lower wealth groups saw no such increase. Arguably, lower wealth groups were more affected. Second, evidence from the Forbes 400 list reveals a strong link between the importance of inherited wealth and the fraction of women, both declining steadily in the last two decades. Finally, the fact that evidence from the single population on the share of entrepreneurs shows a similar

²⁶ The rise was driven by rate changes prior to 1945 and falling real value of thresholds due to inflation after that (Kopczuk and Saez 2004a, fig. 10).

pattern to that obtained from married couples (and widows and widowers) suggests that changes to the tax code have not been the main factor driving the share of women among the wealthy.

B. Changing Norms

It may be that what is considered a fair division of assets between spouses has changed over time. While this might explain the rise in the fraction of women seen in the 1925–1969 period, it is less clear that it can account for the decline since then, although the no-fault divorce revolution has been associated with negative economic consequences for women. Assuming that women in the concerned group have more to lose from divorce, their bargaining position would have worsened, which would show up as married women owning a lower share of household wealth. However, the decline of women at the top of the wealth distribution seems driven not by married women but by widows, thus casting doubt on this explanation.

While norms are difficult to measure, the lower wealth categories may provide some evidence on changes to what is considered a fair share. The reason is twofold. First, wealth distribution is more skewed than income distribution, and therefore we would expect that at lower wealth categories the bulk of wealth is not inherited. Thus, for a sufficiently low wealth category, self-made wealth will dominate. Second, at lower wealth levels, the wife's entitlement is more likely to be a fixed share of household wealth than at higher wealth levels (where this share is likely to decline with wealth). For instance, in the much publicized divorce of Gary and Lorna Wendt in 1995, the wife claimed 50 percent of the husband's estimated \$100 million, but was only awarded \$20 million on the grounds that this would be sufficient to maintain the standard of living she had grown accustomed to. In other words, the wife's entitlement may extend only to consumption, not savings, and savings increase faster than consumption with household wealth.²⁷ Thus, asset allocation in the lower wealth group may provide some evidence on what is considered a wife's entitlement. If so, changes in the share of women beyond what would be indicated by the share of women in lower wealth groups might then be interpreted as caused by factors other than changes in social norms.

Figure 11 shows the difference between the share of women in P99.6–99.99 and the top 0.01 percent. The difference follows a U-shaped pattern. In the beginning of the period there were more women in the lower wealth category, but the difference rapidly falls, and by the 1940s there were relatively more women in the top group. This reverses in the 1970s. Since then, the fraction of women has held steady in the lower wealth categories and the difference is driven by fewer women at the top.

This U-shaped pattern suggests that the rise and decline of the fraction of women in the top group cannot be accounted for by changes in the norms governing allocation of assets between spouses. The negative values for the 1940s through the 1970s is consistent with inherited wealth being (relatively) more important in the top group (unless wives in the top group received a higher share of wealth generated by husbands than wives in lower groups, which we find implausible).

Norms regarding the distribution of estates between sons and daughters also play into the gender wealth distribution. The allocation of a greater share of estates to daughters may have contributed to the more rapid rise in the fraction of women in the top wealth group. While equal division of estates became the norm among the less wealthy as early as the late nineteenth

²⁷ The combination of the practice of awarding assets at divorce (and alimony) based on the notion that the financially weaker spouse (the wife) has a right to maintain the standard of living she has grown accustomed to, and the noninterventionist doctrine of leaving it up to the husbands (spouses after 1981, see *Kirshberg v. Feenstra*, 450 US 455 (1981)) in ongoing marriages to determine what that (joint) standard of living is (see *McGuire v. McGuire*, 59 N.W.2d 336, Neb. 1953), suggests that a wife has an entitlement to a fixed share of consumption but not savings.

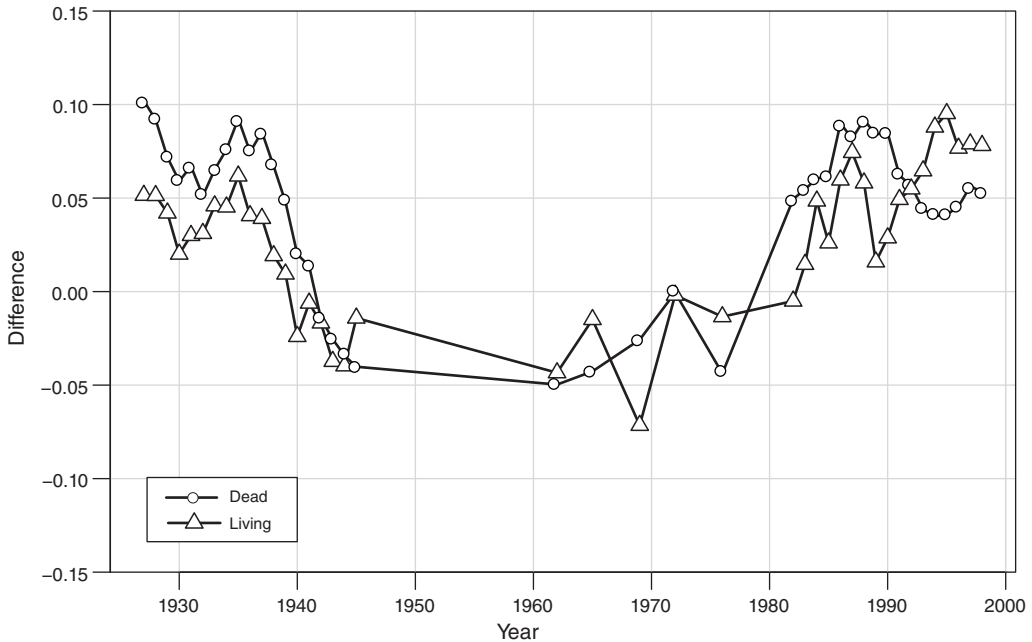


FIGURE 11. DIFFERENCE BETWEEN SHARE OF WOMEN IN P99.6–99.99 AND TOP 0.01 PERCENT

Source: Authors' calculations based on estate tax tabulations for decedents and using estate multiplier methodology. See Data Appendix for details.

century, we know less about the very wealthy, and it may be that they continued to favor sons, albeit at a decreasing rate, well into the twentieth century. One piece of evidence to the contrary is our Table 6, which shows that the rise in the fraction of women between 1900 and 1950 is driven by an increasing presence of inherited wealth, not by more women among those who inherit. Similarly, our Table 5 suggests that gender distribution of inherited wealth among the wealthy, while not yet exactly balanced, was already approaching parity at the end of the nineteenth century.²⁸ Furthermore, while wills of American presidents favored sons until Garfield (1831–1881), subsequent presidents' wills expressed no such bias, starting with Arthur (1829–1886) (Laura Betzig and Samantha Weber 1995). Finally, we are not aware of any tendency since the 1960s and onward to increasingly favor sons.

C. Divorce and Remarriage

Easier divorce could lead to fewer women in the top wealth category if the upshot were that wealthy men spread their wealth over more wives. There were two waves of divorce law liberalization in the last century. The first took place in the 1930s and involved a few states and Mexico (a “loophole” in the divorce law recognizing divorces filed for there). The second wave, the so called “no-fault” revolution, took place in the 1970s, following California's

²⁸ Fewer than 10 percent of women were listed as widows on this list, although as explained in the Data Appendix, this is an imperfect classification.

removing fault grounds for divorce in 1969. Both waves of reforms are visible in our data (not shown). However, had the decline of women among the very wealthy been driven by serial monogamy on the part of men, we would have expected an increase in divorced women in the lower categories, something we do not observe. The rise in divorcées attributable to the later wave is confined to the top group. While it is possible that divorcées do not show up as such because of remarriage, we find it unlikely that remarriage would eliminate all traces of increased “polygyny.”

D. Geographic Composition

As mentioned, in the eight (mostly Western) community property states, all wealth accumulated during marriage is owned jointly by husband and wife by default. Women are wealthier in community property states (for some years even wealthier than men), and it is thus conceivable that changes to the demographic composition of the wealthy affects the gender wealth distribution. A growing share of the wealthy living in community property states may have contributed to the nationwide increase in the share of women in the early period, although the share of women in top wealth groups grew in both types of states. However, geographic composition cannot account for the decline of women in the later period since that would have required a decline in the fraction living in community property states, the opposite of what happened.

In sum, several factors may have contributed to the development of the share of women among the wealthy. The increase is consistent with a shift of the population toward community property states, increasing graduation of the estate tax, and changing social norms emphasizing economic equality between the sexes. However, these factors are unlikely to have played a role in the subsequent decline. The migration to community property states observed in the later period would predict a counterfactual increase in the fraction of women. The graduation of the tax system did not change much in the later period, and while it is possible that women lost out in terms of intra-household bargaining power in the later part of the century, the fact that women have not lost ground in the lower wealth categories is inconsistent with such an interpretation. Changes in the tax treatment of marital transfers may have played a role in the decline, in particular, the unlimited marital deduction introduced in 1981. However, evidence from the population of singles, a group arguably unaffected by such changes, suggests that this cannot be the sole factor.

IV. Summary and Discussion

If men make, but women inherit, great fortunes, then the share of women at the top of the wealth distribution would reflect the relative importance of self-made over inherited wealth and thus intergenerational wealth mobility. This is the interpretation we have given to the gender pattern found in estate tax returns data covering the period 1925–2000, where the share of women among the very wealthy rose sharply between 1925 and 1945 to peak in the 1960s, and declined since, implying a U-shaped pattern for intergenerational wealth mobility over the last century.

We have presented several pieces of evidence supporting a link between the share of women among the wealthy and the role of inherited wealth. The marital-gender composition of estates is consistent with a model of asset devolution where only men generate wealth but both men and women inherit. Moreover, data from "A Classification of American Wealth" show that inherited wealth became increasingly prominent some time in the late nineteenth century. While this series ends in 1950, the Forbes 400 series indicate a decline in both the share of women and the share of inherited wealth since its initial publication in 1982.

Our hypothesis that the share of women reflects the role of inherited wealth among the wealthy, and thus wealth mobility, is primarily a story about the top wealth brackets. For lower wealth brackets, the decline was absent. There are several possible explanations for this. In lower wealth categories, the wife's entitlement is more likely to be a share of household assets than at higher wealth levels. Moreover, the wealth needed to enter, for instance, the top 1 percent (corresponding to the richest 2 million adults) was "only" about \$1 million in 2000 (2000 dollars), a net worth well within the reach of a small business owner or professional at the end of her life. Thus, the share of women may have been boosted by women's greater incomes (directly and indirectly in the form of changes in the norms for asset allocation between spouses). Finally, while the share of women in the top 0.1 percent of the wealth distribution declined, women who dropped out of this category were probably still wealthy and likely to show up in neighboring wealth categories. From 1976 to 2000, the wealth thresholds rose more in the higher wealth categories. This was especially true for the top 0.01 percent, where the wealth threshold rose by 13 million in 2000 dollars, while in wealth categories below the top 0.4 percent, the increase was less than one million. However, this effect can only be modest considering the small size of the top group. In sum, the share of women in the lower wealth groups may have been sustained by a larger share of assets being jointly held (by spouses) in lower wealth groups, women's greater earnings, and, to some extent, a trickle-down from higher wealth groups.

The share of women among the very wealthy may also relate inversely to technological change. In times of rapid technological change, self-made entrepreneurs displace old wealth, and if the self-made tend to be men, the share of women would decline. By contrast, when technological change is more incremental, old fortunes prevail, and as wealth at the top of the distribution becomes more dynastic, the share of women increases.

We have presented some evidence of an inverse relationship between the share of women among the very wealthy and entrepreneurship from the IPUMS (the fraction of the workforce who are employers or self-employed). We conclude with a fuller discussion of how our interpretation of the evolution of the share of women relates to the literature on technological change and the distribution of income and wealth.

Equating women with inherited wealth, entrepreneurship would have followed a U-shaped pattern over the past century. Such a pattern fits the timing of the so-called second and third industrial revolutions. The period in which we see a rise in the share of women follows on the heels of a period of major inventions (electrification and the internal combustion engine) but is itself not one. According to Jovanovic and Peter L. Rousseau (2003, 419): "It seems to us that the periods 1890–1930 and 1971–2001 saw more creative destruction than the period 1930–1970." Thus, the initial rise in the share of women in the 1925–1969 period may be attributed to the passing down of fortunes generated during the "Gilded Age" (circa 1865–1914).

The IT revolution, with a start date in the early 1970s, coincides with the decline of women in our data. One reason why inventions (as opposed to innovations) are likely to encourage entrepreneurship and generate new fortunes large enough to replace existing ones at the top is that rapid technological change renders existing capital obsolete and favors new firms (Greenwood and Jovanovic 1999; Hobijn and Jovanovic 2001). New firms, in turn, tend to be more closely held, owned primarily by the entrepreneurs themselves. Thus, technological change may propel founders of firms that successfully adapt the new technology to the top of the wealth distribution. If founders are primarily men, we would expect rapid technological change to result in the top of the wealth distribution being both more male and less "dynastic," and the share of women to rise in its aftermath as wealth is passed down.

Our hypothesis is also largely consistent with the fact that the fraction of women in the top wealth group moved in the opposite direction of income inequality over the study period—if

indeed spurts of economic growth coincide with the generation of new fortunes and greater inequality. While the increase in wage inequality since the 1970s has been linked to rapid technological change, e.g., Chinhui Juhn, Kevin M. Murphy, and Brooks Pierce (1993) and Lawrence F. Katz and David Autor (1999), there has been less focus to date on the potential role of its *absence* for understanding the decline in inequality in the 1930s and 1940s, and continued low levels through the 1950s and 1960s (Oded Galor and Daniel Tsiddon (1997) being an exception). Instead, macro-economic shocks such as the Great Depression, World War II, egalitarian social norms, and—their possible expressions—policy measures such as income and estate taxation, anti-trust legislation, and the GI bill have been given more weight, e.g., Claudia Goldin and Robert A. Margo (1992), Piketty (2003), Piketty and Saez (2003), Kopczuk and Saez (2004a). While norms are potentially important determinants, they may themselves be viewed as endogenous outcomes.

Women as a proxy for old wealth complements the approach of Piketty and Saez (2003) and Piketty (2003), who have interpreted a high share of capital income to indicate the importance of rentiers. Our approach has the advantage of not relying on the distinction between labor and capital income, a distinction that may not be meaningful for business owners and may be sensitive to changes in corporate structure and taxation. If the question is whether the wealthy are thus because of their own industriousness, the gender wealth composition may shed additional light.

Finally, our findings suggest a potential explanation for why wealth concentration remained constant in the past 25 years despite the surge in income concentration. Figures 2A and 2B showed that wealth concentration declined in the 1970s. We speculate that this reflects the erosion of old wealth, and that wealth concentration would have fallen further still if not for the inflow of new fortunes generated by the IT revolution in the 1980s and thereafter. There are primarily two reasons why old wealth would decline. First, assuming that the old wealth dates from the Gilded Age, dilution from the passing down to generations (its being spread over more people, estate taxation, consumption) would result in a reduction in wealth concentration. Second, the decline in concentration in the 1970s is likely driven by the stock market, which has been connected to the arrival of new technology and the period of “creative destruction” noted by Jovanovic and coauthors.

DATA APPENDIX

A. Estate Tax Data

Estate tax tabulations were performed on confidential data available through the Statistics of Income Division of the Internal Revenue Service. We define net worth as the difference between gross estate and debts. Given the overall population and weights assigned to each observation, we tabulated the number of individuals by gender, marital status, and marital property regime of the state of residence for the top 0.01 percent, P99.9–P99.99, and so on. Tabulations for “decedents” use adult deaths as the population basis. Methodology for constructing estimates for the “living population” is identical as in Kopczuk and Saez (2004b); we review it briefly here and refer the reader to the extensive appendix in that paper for more detailed discussion.

The estate multiplier method relies on the assumption that decedents are randomly selected from the living population. Denoting the probability of death by m , then, a single estate observation stands for $1/m$ observations. This is the weight that is attached to any given observation. Implementing the method requires appropriate mortality rates. Mortality tables were obtained from the Human Mortality Database (www.mortality.org) and rely on the life tables constructed by the Office of the Actuary of the Social Security Administration (see Felicitie C. Bell, Alice H. Wade, and Stephen C. Goss (1992) for a full description of the methodology).

While it is well known that mortality rates are negatively correlated with socioeconomic status, the extent and trends in the mortality gradient for the population considered here are not known. We follow Kopczuk and Saez (2004b) and adjust mortality rates for socioeconomic status using estimates of white college-educated mortality differentials obtained by Jeffrey R. Brown, Jeffrey B. Liebman, and Joshua Pollet (2002). The appendix in Kopczuk and Saez (2004b) discusses evidence on the evolution of mortality differentials over time.

We classify states into marital property regimes in 1970 following Gray (1998, table 1). When splitting the sample by marital property regime, we exclude Wisconsin because it changed regimes in 1986.

Estate Tax Treatment of Marital Property.—In Section III we discussed potential behavioral responses to changes in the estate tax treatment of jointly held assets. Here, we clarify how such property is included on the estate tax return. Concurrently owned property is fully included on the tax return unless it can be proven that the surviving spouse materially contributed to the asset. Community property is allocated equally between the spouses so that half of it shows up on the first-dying spouse's tax return, except for a short period between 1942 and 1948, when it was treated similarly as concurrently owned property. That is, all of it was included in the estate unless it was possible to demonstrate that the surviving spouse contributed to the acquisition cost. Removing a portion of concurrently owned property from the estate through (potentially taxable) gifts was simplified after 1976 (for details, see Luckey 1995). While the rules and avoidance strategies regarding joint property are complicated, its quantitative relevance is arguably small at the top. For example, Fritz Scheuren (1994) reported that jointly owned nonexcludable property constituted only 0.8 percent of estimated (using estate multiplier method) wealth among those with assets exceeding \$3 million (roughly corresponding to our 0.01 percent group).

B. Census Data

We rely on the IPUMS (Ruggles et al. 2004) data for the 1920 through 2000 Censuses. For self-employment and entrepreneurship calculations, we define our sample as those between the age of 18 and 65 who are in the labor force, excluding those living on farms. We rely on the variable *classwkr* (class of worker) to determine self-employment status (this category includes values of self-employed, employer, working on own account, self employed not-incorporated, and self-employed incorporated, with different subsets of these available for different censuses). To classify individuals as employers, we use the “employer” value for 1920–1940 and “self-employed, incorporated” for 1970–2000. Unfortunately, there is no guarantee that these values are comparable and therefore the level differences between values up to 1940 and those starting in 1970 for the employer variable should be treated with caution.

Estimation of b .—We estimate the likelihood that the wife dies first by assigning to every individual in the IPUMS a mortality rate based on gender, age, and year. In the baseline calculation, we weight each married or widowed individual by the mortality risk. The total number of families with one spouse dying in a given year is obtained by adding up these weights, while the total number of such families in which the woman was the first to die is obtained by adding up weights for married females and widowed men. Our parameter b_i is the ratio of the latter to the former. This procedure yields values of b_i for Census years and we use cubic spline to interpolate values in intermediate years.

The intuition is as follows. Consider a universe of married couples whose members will be observed in the decedent population in the year they pass (a couple has two members until one of them passes and then one member until that person passes). Assume further that only one

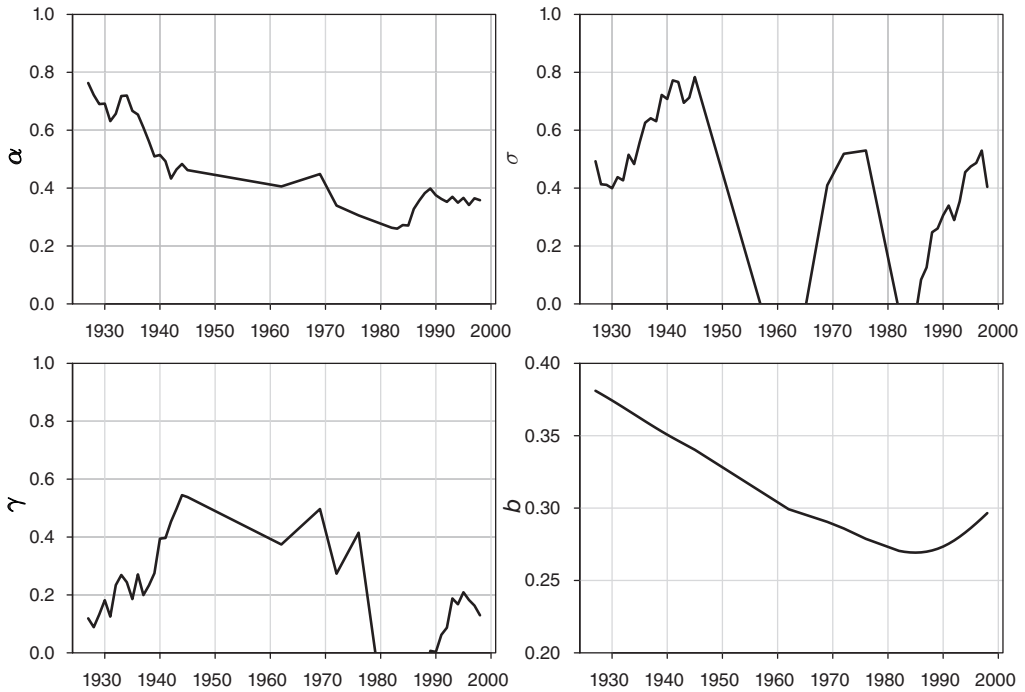


FIGURE A1A. MODEL ESTIMATES, ALL STATES

Source: Estimates of the unrestricted model described in Section II using data for all states.

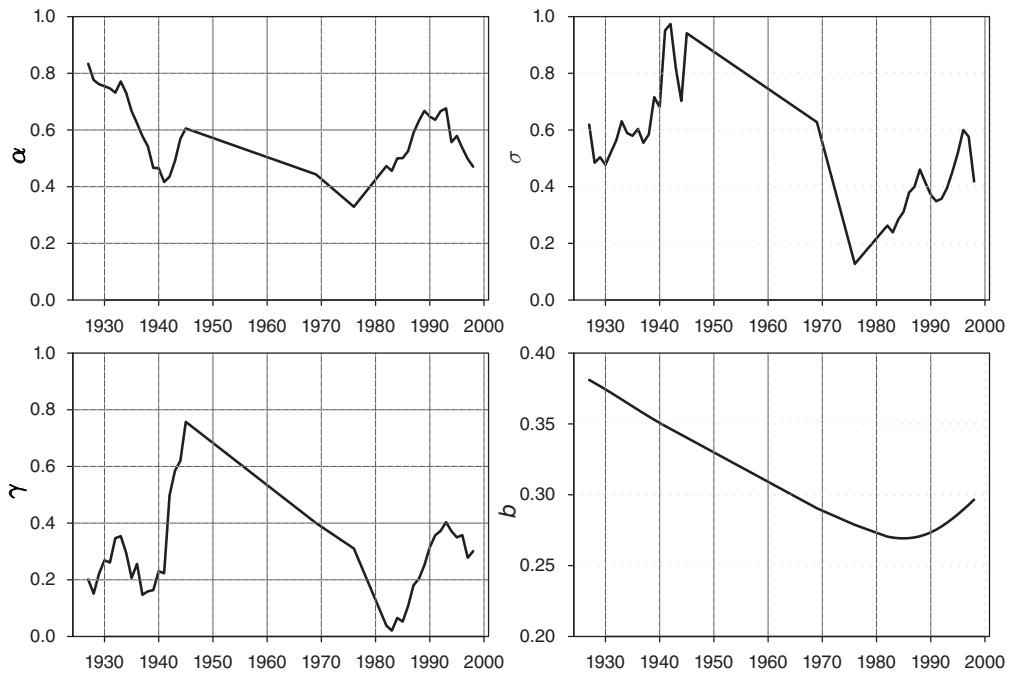


FIGURE A1B. MODEL ESTIMATES, COMMON LAW STATES

Source: Estimates of the unrestricted model described in Section II using data for common law states.

member of a couple dies in any given year. (Adjusting the mortality rate for married spouses for the possibility of dying in the same year by assigning each of them a probability of $\frac{1}{2}$ of dying first has a trivial effect.) Then, we can estimate b_i , the probability that a wife dies first, by the number of couples in which the woman died first divided by the total number of couples experiencing a death in any given year. The numerator could be estimated by adding the mortality rates for all married women and widowed men. To obtain the denominator, we add to the numerator the added mortality rates for all married men and widowed women.

We considered two variations. First, we corrected mortality rates using socioeconomic mortality differentials as in Kopczuk and Saez (2004a). Second, we linked records for spouses and corrected weights for the possibility of the two spouses dying in the same year by subtracting for each of them a half of the product of mortality rates of both spouses. Both of these adjustments had very minor effect on b_i and no discernible effect on the estimates; the actual values we are using in the paper are based on the last approach. (We also repeated the same results by education and the results are very similar. However, education measures are available only starting with 1940.) The estimated values for b_i for the Census years were 39.6 in 1920, 37.4 in 1930, 35.1 in 1940, 32.9 in 1950, 30.3 in 1960, 28.9 in 1970, 27.3 in 1980, 27.3 in 1990, and 30.4 in 2000.

C. Gender and Inheritances

None of the rich-lists (*Forbes*, *New York Tribune*, Classification of American Wealth) specifies gender of the person. For the Classification and *Forbes*, we identify gender relying on first names as follows. The Social Security Administration published (<http://www.ssa.gov/OACT/babynames/>) list of 1,000 most popular names for men and women (by decade) starting in 1900, with their frequencies. Some of the names show up both as male and female names; we use them if they are much more common (when aggregated over the decades) for one of the genders (specifically, if the ratio exceeds eight). Both the *Forbes* list and the Classification indicate whether wealth was inherited.

The *New York Tribune* applies to people alive in 1892 and therefore twentieth century lists of names are an imperfect source of information. Furthermore, the list often includes only the first initial. On the other hand, the list often includes titles (e.g., mrs., miss, lady, mme, princess, etc.) that are more informative than first names (e.g., the form of Mrs. John Smith is very common). It also includes short descriptions of the source of wealth that in many cases allow for identifying gender (e.g., a person may be referred to as a “daughter,” “widow,” “niece,” or a phrase such as “left her,” “from her,” and so on can be used). We use a simple pattern matching algorithm to identify all such cases and classify them as women. We supplement it with matching on first names as described above, with classification based on the titles and description taking precedence (so that we do not misclassify Mrs. John Smith). We assign individuals an inheritance dummy based on the description, again using pattern matching to identify phrases indicating inheritance.

D. Restricted Model

The restricted version of the model described in Section A is based on the set of conditions in Table 2, augmented by the parametric restrictions imposed on the evolution of α_i , γ_i , and σ_i : $\alpha_i = \alpha(i) = \alpha_0 + \alpha_1 t(i) + \alpha_2 t^2(i)$, $\gamma_i = \gamma(i) = \gamma_0 + \gamma_1 t(i) + \gamma_2 t^2(i)$, $\sigma_i = \sigma(i) = \sigma_0 + \sigma_1 t(i) + \sigma_2 t^2(i)$, where for the ease of exposition $t(i) = (i - 1925)/100$. Denoting the indicator of marital status by I ($I \in \{m, w\}$) and gender by G ($G \in \{M, F\}$), the model takes the form of a system of four nonlinear equations:

$$P(I = m, G = F | i, b_i) = b_i (\alpha(i) c + (1 - \alpha(i))/2) / S(i),$$

$$P(I = w, G = M | i, b_i) = b_i (\alpha(i) \sigma(i) + (1 - \alpha(i))/2) / S(i),$$

$$P(I = m, G = M | i, b_i) = (1 - b_i) (\alpha(i) + (1 - \alpha(i))/2) / S(i),$$

$$P(I = w, G = F | i, b_i) = (1 - b_i) (\alpha(i) \gamma(i) + (1 - \alpha(i))/2) / S(i),$$

where $S(i)$ is defined so that the probabilities add up to one. Because these four conditions are linearly dependent by construction, one of them is redundant; without loss of generality, we ignore the last one. The independent variables in this model are b_i , i , and i^2 , and we are attempting to estimate nine parameters: α_0 , α_1 , α_2 , γ_0 , γ_1 , γ_2 , σ_0 , σ_1 , and σ_2 .

Our data take the form of annual tabulations by gender and marital status; this is of course equivalent to having individual observations of gender and marital status. There are 6,353 decedents in years covered by our data who belong to the top 0.01 percent and are either married or widowed. We define three dummy variables, D_{mF} , D_{wM} , and D_{mM} , corresponding to the marital/gender categories in the three equations. We replace the probabilities in the system of equations by the corresponding dummy variables and specify the empirical specification as

$$D_{mF} = b_i (\alpha(i) c + (1 - \alpha(i))/2) / S(i) + \varepsilon_{mF},$$

$$D_{wM} = b_i (\alpha(i) \sigma(i) + (1 - \alpha(i))/2) / S(i) + \varepsilon_{wM},$$

$$D_{mM} = (1 - b_i) (\alpha(i) + (1 - \alpha(i))/2) / S(i) + \varepsilon_{mM}.$$

We estimate the system jointly using nonlinear least squares. Because the error terms are likely to be correlated, we rely on the seemingly unrelated regression approach. This procedure is straightforwardly implemented using “*proc model*” in SAS. We cannot exclude the possibility of heteroskedasticity. For one thing, the number of observations varies over time as the population grows. Hence, our standard errors are based on a heteroskedasticity-consistent covariance matrix. Specifically, we use the conservative “jackknife” approximation suggested by Russell Davidson and James G. MacKinnon (1993, 554) due to its good small sample performance.

REFERENCES

- Bell, Felicitie C., Alice H. Wade, and Stephen C. Goss.** 1992. *Life Tables for the United States Social Security Area, SSA Pub. No. 11-11536, Actuarial Study 107*. Washington, DC: Social Security Administration.
- Betzig, Laura, and Samantha Weber.** 1995. “Presidents Preferred Sons.” *Politics and the Life Sciences*, 14(1): 61–64.
- Brown, Jeffrey R., Jeffrey B. Liebman, and Joshua Pollet.** 2002. “Estimating Life Tables That Reflect Socioeconomic Differences in Mortality.” In *The Distributional Aspects of Social Security and Social Security Reform*, ed. M. Feldstein and J. B. Liebman, 447–57. Chicago: University of Chicago Press.
- Charles, Kerwin Kofi, and Erik Hurst.** 2003. “The Correlation of Wealth across Generations.” *Journal of Political Economy*, 111(6): 1155–82.
- Davidson, Russell, and James G. MacKinnon.** 1993. *Estimation and Inference in Econometrics*. Oxford: Oxford University Press.

- Davies, James B., and Anthony F. Shorrocks.** 2000. "The Distribution of Wealth." In *Handbook of Income Distribution Volume 1*, ed. A. B. Atkinson and F. Bourguignon, 605–75. Amsterdam: Elsevier Science, North-Holland.
- Galor, Oded, and Daniel Tsiddon.** 1997. "Technological Progress, Mobility, and Economic Growth." *American Economic Review*, 87(3): 363–82.
- Goldin, Claudia, and Robert A. Margo.** 1992. "The Great Compression: The Wage Structure in the United States at Mid-Century." *Quarterly Journal of Economics*, 107(1): 1–34.
- Gray, Jeffrey S.** 1998. "Divorce-Law Changes, Household Bargaining, and Married Women's Labor Supply." *American Economic Review*, 88(3): 628–42.
- Greenwood, Jeremy, and Boyan Jovanovic.** 1999. "The Information-Technology Revolution and the Stock Market." *American Economic Review*, 89(2): 116–22.
- Hobijn, Bart, and Boyan Jovanovic.** 2001. "The Information-Technology Revolution and the Stock Market: Evidence." *American Economic Review*, 91(5): 1203–20.
- Johnson, Barry W., ed.** 1994. *Compendium of Federal Estate Tax and Personal Wealth Studies, Department of Treasury, Internal Revenue Service, Pub. 1773 (4-94)*. Washington, DC: Internal Revenue Service.
- Jovanovic, Boyan, and Peter L. Rousseau.** 2003. "Two Technological Revolutions." *Journal of the European Economic Association*, 1(2–3): 419–28.
- Juhn, Chinhui, Kevin M. Murphy, and Brooks Pierce.** 1993. "Wage Inequality and the Rise in Returns to Skill." *Journal of Political Economy*, 101(3): 410–42.
- Katz, Lawrence F., and David H. Autor.** 1999. "Changes in the Wage Structure and Earnings Inequality." In *Handbook of Labor Economics Volume 3a*, ed. O. Ashenfelter and D. Card, 1463–1555. Amsterdam: Elsevier Science, North-Holland.
- Kennickell, Arthur B.** 2003. "A Rolling Tide: Changes in the Distribution of Wealth in the U.S., 1989–2001." Board of Governors of the Federal Reserve System, Finance and Economics Discussion Series 2003–24.
- Kopczuk, Wojciech.** 2007. "Bequest and Tax Planning: Evidence from Estate Tax Returns." *Quarterly Journal of Economics*, 122(4): 1801–54.
- Kopczuk, Wojciech, and Emmanuel Saez.** 2004a. "Top Wealth Shares in the United States, 1916–2000: Evidence from Estate Tax Returns." *National Tax Journal*, 57(2): 445–87.
- Kopczuk, Wojciech, and Emmanuel Saez.** 2004b. "Top Wealth Shares in the United States: 1916–2000: Evidence from Estate Tax Returns." National Bureau of Economic Research Working Paper 10399.
- Kopczuk, Wojciech, Emmanuel Saez, and Jae Song.** 2007. "Uncovering the American Dream: Inequality and Mobility in Social Security Earnings Data since 1937." National Bureau of Economic Research Working Paper 13345.
- Luckey, John R.** 1995. *A History of Federal Estate, Gift and Generation-Skipping Taxes*. CRS Report for Congress 95–444A. Washington, DC: Congressional Research Service.
- McCubbin, Janet G.** 1990. "The Intergenerational Wealth Study: Basic Estate Data 1916–1945." *Statistics of Income Bulletin*, 9(4): 79–114.
- Piketty, Thomas.** 2003. "Income Inequality in France, 1901–1998." *Journal of Political Economy*, 111(5): 1004–42.
- Piketty, Thomas, and Emmanuel Saez.** 2003. "Income Inequality in the United States, 1913–1998." *Quarterly Journal of Economics*, 118(1): 1–39.
- Ruggles, Steven, Matthew Sobek, Trent Alexander, Catherine A. Fitch, Ronald Goeken, Patricia Kelly Hall, Miriam King, and Chad Ronnander.** 2004. "Integrated Public Use Microdata Series: Version 3.0." <http://usa.ipums.org/usa/>.
- Scheuren, Fritz.** 1994. "Personal Wealth Estimated from Estate Tax Returns, 1962." In *Compendium of Federal Estate Tax and Personal Wealth Studies*, ed. Barry W. Johnson 152–202. Washington, DC: Department of Treasury, Internal Revenue Service.
- Scholz, John Karl.** 2003. "Wealth Inequality and the Wealth of Cohorts." Unpublished.
- Weisberg, D. Kelly, and Susan Freilich Appleton.** 2002. *Modern Family Law: Cases and Materials*. 2nd ed. New York: Aspen Law and Business.