NBER WORKING PAPER SERIES

WOMEN, WEALTH AND MOBILITY

Lena Edlund
Wojciech Kopczuk

Working Paper 13162
http://www.nber.org/papers/w13162

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
June 2007

We have benefited from comments by Douglas Almond, Boyan Jovanovic, Aloysius Siow, and seminar participants at the University of Massachusetts at Amherst, Dartmouth and the 2006 meeting of the AEA. Barry Johnson helped us in obtaining tabulations from the IRS estate tax returns. Emmanuel Saez provided the electronic version of Forbes data. Financial support from the Program for Economic Research at Columbia University, Sloan Foundation and NSF Grant SES-0617737 is gratefully acknowledged. The views expressed herein are those of the author(s) and do not necessarily reflect the views of the National Bureau of Economic Research.

Women, Wealth and Mobility
Lena Edlund and Wojciech Kopczuk
NBER Working Paper No. 13162
June 2007
JEL No. D31,J62,N32,O3

ABSTRACT

The extent of and changes in inter-generational mobility of wealth are central to understanding dynamics of wealth inequality but hard to measure. Using estate tax returns data, we observe that the share of women among the very wealthy (top 0.01%) in the United States peaked in the late 1960s, reaching almost 50%. Three decades on, women's share had declined to one third, a return to pre-war levels. We argue that this pattern mirrors the relative importance of inherited vs. self-made wealth in the economy and thus the gender-composition of the wealthiest may serve as a proxy for inter-generational wealth mobility. This proxy for "dynastic wealth" suggests that wealth mobility in the past century decreased until the 1970s and rose thereafter, a pattern consistent with technological change driving long term trends in income inequality and mobility. Greater wealth mobility in recent decades is also consistent with the simultaneous rise in top income shares and relatively stable wealth concentration.

Lena Edlund
Columbia University
420 West 118th Street, Rm. 1022 IAB
MC 3323
New York, NY 10027
le93@columbia.edu

Wojciech Kopczuk
Columbia University
420 West 118th Street, Rm. 1022 IAB
MC 3323
New York, NY 10027
and NBER
wk2110@columbia.edu

1 Introduction

The share of women among the very wealthy peaked in the late 1960s. According to estate tax returns, in 1925 one quarter of the wealthiest 0.01 percent was 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 pre-war 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).

This decline in the share of women in the top wealth groups took place against a backdrop of unprecedented economic emancipation. Moreover, women's progress in the labor market has not been confined to the lower rungs. Social Security data analyzed by Kopczuk et al. (2007) reveal that since the 1970s there has been a steady increase of women among top earners: in the highest category they analyze (top 0.1 percent), women's share increased by a factor of six. We argue that rather than reflecting women's labor market status, the presence of women among the very wealthy may mirror the relative importance of inherited vs. 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 inter-generational wealth mobility at the top, an entity on which there is little information.

Our gender proxy for wealth mobility among the wealthy suggests that inter-generational wealth mobility decreased in the period 1925-1969 and increased thereafter. Higher wealth mobility in recent decades coincides with a rise in income concentration (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 (Kennickell, 2003; 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 on 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)

[1] We provide some supportive evidence that this assumption applies to the wealthy in the United States during the 20^{th} century in Section 3.3.

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. Finally, 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 5.

Recently, Charles and Hurst (2003) studied intergenerational wealth mobility using a sample representative of the full 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) lacks the panel dimension and is similarly limited time wise but allows for the studying of the top 0.5% of the household wealth distribution. Beyond that, the study of wealth mobility has been limited to genealogical studies of named decedents (see Davies and Shorrocks, 2000, who also discuss the limitations of this approach).

Estate tax data offer 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% 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 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 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

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

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 2 presents our primary data source — tabulations derived from the administrative estate tax data base — and supplementary data in the form of rich-lists. Section 3 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 vs. 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 4, we consider a number of alternative hypotheses, chief among which is changes to the tax code, changes which impact the tax-minimizing allocation of wealth between spouses. The marriage market changed substantially as well. Specifically, we discuss the role of divorce laws liberalization and changing norms 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 5 concludes with a fuller discussion of how our finding relates to the literature on the role of technological change and income concentration.

2 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] 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 .4%.[4]

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 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 show 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% (P99.99-100), the wealthiest 0.10%, those between the top 0.10% and the top 0.40% (P99.60-99.90), and finally those between the top 0.40% and the top 1% (P99-99.6).[5] Figure 1b shows the same series for "the living," where the data has 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 any 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).

[3] A more detailed description of the 1916-1945 data can be found in McCubbin (1990), while the post-1945 studies are described in Johnson (1994). Between 1916-1924 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.

[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).

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

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 website contains lists of wealthy Americans, their biographies, family trees etc. and is compiled based on various historical sources.[7]

We will 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 it does contain a description of the source of wealth that we rely on to assign the inheritance status, as described in the Data Appendix. None of the lists specifies explicitly the gender of the person. We assigned gender relying on first names and other available information using the algorithm described in the Data Appendix.

We also use the Integrated Public Use Microdata Series (Ruggles et al., 2004) extracts from Censuses for 1920 through 2000. The Data Appendix discusses in more detail how we processed various data sources.

3 Gender and inter-generational 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, 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

[7] A Classification of American Wealth is available at `http://www.raken.com/american_wealth/index.asp`. Currently, it is a subscription based product. We are grateful to the author for permission to use some of this information in this paper.

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 over the course of the 20^{th} century are also consistent with other evidence.

Alternative explanations such as changes to the tax code, changing social norms for intra-family distribution of assets, divorce and remarriage, and compositional changes to the domiciles of the wealthy (community vs. common law states) are discussed in Section 4.

3.1 Modelling the wealth distribution of ever-married decedents

For simplicity, our model describes population in a particular year i, ignoring cross-dependence over time. As a convention, 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 3.3. For simplicity, assume that everybody marries once and is survived by one son and one daughter, and 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 at any particular time, 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

[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.

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 .5 men and .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 de-cumulate 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 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 de-cumulate. 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 1

Table 1: Moment conditions

Category	with the frequency of (entrepreneur)	(rentier)
share of married women, year i	$= b_i\Big($ $\alpha_i \cdot c$	$+ (1-\alpha_i)/2$ $\Big)/S_i$
share of widowed men, year i	$= b_i\Big($ $\alpha_i \sigma_i$	$+ (1-\alpha_i)/2$ $\Big)/S_i$
share of married men, year i	$= (1-b_i)\Big($ α_i	$+ (1-\alpha_i)/2$ $\Big)/S_i$
share of widowed women, year i	$= (1-b_i)\Big($ $\alpha_i \gamma_i$	$+ (1-\alpha_i)/2$ $\Big)/S_i$

where S_i is the sum of the numerators in all four conditions.

[9] Our qualitative conclusions would not be affected by a different but constant sex ratio (with non-zero women).

[10] γ_i could be greater than one reflecting large inter-spousal 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").

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 1. 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 – σ_i, γ_i and α_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 that imposes more structure on the parameters. 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 σ and γ. Our estimation procedure amounts to estimating a system of nonlinear equations using information for all years simultaneously and is 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 (known) term on the left hand side by r_i, we can write the solution for α_i as

$$\alpha_i = \frac{1 - r_i}{1 + r_i - 2c}\,. \tag{1}$$

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 a rentier families than in a self-made family.

The model imposes some simple (though weak) testable predictions: since $\alpha_i \in [0, 1]$, we must have that $\frac{1-r_i}{1+r_i-2c} \in [0, 1]$. 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 $c \geq 0$, the necessary condition for this condition to hold is 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 non-negative. Given the solution for α_i, the equations for widows and widowers are linear in γ_i and σ_i, and so 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 the actual 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]

[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% 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% 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.

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 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 on 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 (Gray, 1998), and by 1994 the remaining eight states had adopted equitable distribution (Weisberg and 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.

Another concern is the possibility that c changed over time. It is conceivable that c has increased over time (e.g., the aforementioned shift towards equitable distribution).. Nevertheless, from the discussion above it is clear 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 4.

Model results We estimated our model using data for decedents for all of the U.S. and then separately for common law and non-common law states. For illustration, we present in Figure 3 the underlying moments of data — shares of gender/marital status categories in the top 0.01% — for all states. The results for α_i are shown on Figure 4a for both all states and common law states, under assumption that $c = 0$. To smooth the series, we use shares defined

[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] 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.

[14] The length of the marriage and the non-market contributions of the financially weaker spouse are among the factors considered.

based on years $t-2$ to $t+2$, when available. The results for α_i, σ_i, and γ_i are in Figures A-1a (all) and A-1b (common law). The figures show a marked decline in the share of entrepreneurs until the 1970s and then an increase. 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 $1925 - 100\frac{\alpha_1}{2\alpha_2}$) 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 alpha 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, while the range of α is contained between 0 and 1. 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 are restricted to be constant, the quadratic pattern is again present and significant. In that case though the restriction that $\gamma > 0$ is now 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 non-negativeness 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.[15]

[15] In the 1990s, approximately 50% 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

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.

Assuming that $c = 0$ is particularly 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 in the corresponding columns of Table 3. This change has no qualitative implications for any of the groups of states, in each case preserving the quadratic pattern. Given the results shown on Figure 4b, it is not surprising to see α falls out of 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, dependent on the marital property regime specific choice of c. 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. However, 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 would be 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 $\hat{r}_i = \frac{\text{married women year } i}{\text{married men year } i}$. Figure 4c shows the estimate of α_i thus obtained from data for the *living* both for all 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.

of the order of 10% or less of wealthy decedents and common law states made up over 60%.

3.2 Singles

The never married (henceforth, singles) can provide further evidence on the relative importance of inherited vs. self-made wealth. If, as before, sons and daughters inherit equally, but only men make wealth, then all 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.[16] Figure 6a (6b) shows the implied fraction of entrepreneurs. Note that the implied fraction of entrepreneurs indeed follows a U-shaped pattern.[17]

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, marital deduction in particular.

While not definitive, these findings do line up with 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 a movement in the marriage mores of heirs and heiresses.

3.3 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 Whitman*'s and *Oprah Winfrey*'s 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 only afforded her 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.

[16] Single individuals are overall a small fraction and therefore we need to define the top category more widely.

[17] There were more women then 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 .5 if there were no self-made wealth at all (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.

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% of those who inherited wealth, their share among the self-made is substantially lower (6.6% 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.[18]

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 6. A similar pattern emerges from A Classification of American Wealth, Table 5. While the number of observations is small for the early years and the fraction of women varies widely, the last three data points are most relevant for us. In 1900-1950, the fraction of women among those who had inherited wealth was fairly steady and 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.[19]

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 self-employed, and, for some years, employers. These data show that entrepreneurship, so measured, indeed declined between 1920-1970 and picked up thereafter, Figure 7.[20]

[18]The Sunday Times Rich Lists, an annual listing of the wealthiest individuals residing in the United Kingdom, show a similar pattern for the United Kingdom. According to a recent article, the percent on the list who had inherited wealth declined from 75% in 1989 (its start year) to 25% 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 2nd 1989) states that 57% of the wealthiest derive their wealth from inheritance. In both 1989 and 2007 the number of women on the list is below 10%. Our women-based proxy for the importance of inheritance breaks down in a society with a strong male bias in inheritance.

[19]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 & gas, etc.)," (personal communication with Drew Caradine Shouter on 1/29/2006). This is likely to lead to underestimation of the number of men among those who inherited.

[20]The details of these calculations are in the Data Appendix.

3.4 Significance

We have demonstrated several pieces of evidence supporting our hypothesis that wealth mobility in the 20$^{\text{th}}$ century followed a U-shaped pattern. We consider (and largely dismiss) alternative explanations for the empirical patterns in the next section, which may skipped by readers convinced by the above analysis. 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 (Greenwood and Jovanovic, 1999; 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 5.

4 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.

Tax changes The tax treatment of estates may affect the gender wealth distribution by influencing allocation of assets between spouses.[21] There are two primary factors to consider: the level and graduation of the estate tax; and the maximum marital deduction. The tax treatment of marital transfers changed on several occasions, including the introduction of 50% marital deduction in 1948, an extension of marital deduction in 1976 to the greater of 50% and $250,000 and unlimited marital deduction in 1981.[22] For our purposes, the 1981 change

[21] The estate tax was introduced in 1916 but rates remained low until the 1930s, when they were very sharply increased (peaking at 77%) in a series of tax reforms between 1932 and 1942. Top rates were reduced in the tax reform of 1981 from 70% in 1982 to 55% in 1984 and thereafter. For 2006, the top rate is 46%. An excellent historical overview of estate taxation can be found in Luckey (1995).

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

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 (as opposed 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 towards 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 unlimited marital deduction cannot account for, Figure 9.[23]

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 that therefore their reported wealth increased by more than the wealth of married women.

Looking at lower wealth groups may shed some light on the issue. Less wealthy use the

[23] A possible explanation is that widowed women were more likely to remarry.

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 .4% increased between 1976 and 1982,[24] with 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). One way of accomplishing this objective was 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 towards 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 .01% were in fact increasing until the 1970s (driven by rates changes prior to 1945 and falling real value of thresholds due to inflation after that (Kopczuk and Saez, 2004a, figure 10)) and stabilizing after that until 2001. Therefore, changes in estate taxation could have contributed to an increase in the share of women until the 1970s. Thus, the increase in the share of women in the early part is consistent with increasing graduation of the estate tax leading to a more even distribution of assets between spouses. However, graduation of the tax schedule cannot account for the later decline.

For a number of reasons, however, 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, the lower wealth group saw no such increase. Arguably, the lower wealth group was 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. Lastly, we should bear in mind the results for singles. Tax considerations have no direct implications for the frequency of observing single males vs. single females. Thus, the fact that evidence from the single population on the share of entrepreneurs shows a similar pattern to that obtained from married couples (and widows

[24]Note that P99.6-P99.99 contains 39 times as many individuals as top .01% so that the presence of individuals moving between P99.6-P99.99 and Top .01% has a minor effect on the gender composition of the larger group.

and widowers) suggests that changes to the tax code have not been the main factor driving the share of women among the wealthy.

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, 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 difficult to pin down, the lower wealth categories 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 was 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 the Wendts in 1995, the wife claimed 50% of the husband's estimated 100 million dollar wealth but was only awarded 20 million on the ground that this would be sufficient to maintain the standard of living she had grown accustomed to. In other words, the wife's entitlement may only extend to consumption, not savings, and savings increase faster than consumption with household wealth.[25] 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%. The difference follows a U-shaped pattern. In the beginning of the period there were

[25]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 non-interventionist doctrine of leaving it up to the husbands (spouses after 1981, see Kirshberg v. Feenstra. 450 U.S. 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.

more women in the lower wealth category, but the difference is falling rapidly and by the 1940s, there were relatively more women in the top group. This reverses in the 1970s. Since then, the fraction 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 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).

It should also be noted that daughters' being allocated a greater share of estates 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 already in the late 19^{th} 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 20^{th} century. One piece of evidence against this is our Table 5 that 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 6 suggests that gender distribution of inherited wealth among the wealthy, while not yet exactly balanced, was already approaching parity at the end of the 19^{th} century.[26] Furthermore, while wills of American presidents favored sons until Garfield (1831 - 1881), subsequent presidents' wills expressed no such bias, starting with Arthur (1829 - 1886), (Betzig and Weber, 1995). Finally, we are not aware of any tendency since the 1960s and onwards to increasingly favor sons.

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 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

[26] Fewer than 10% of women were listed as widows on this list, although as explained in the Appendix, this is an imperfect classification.

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."

Geographic composition As mentioned, in 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 (not shown).

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 towards 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.

5 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 inter-generational 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 1925-1945 to peak in the 1960s, and declined since; implying a U-shaped pattern for inter-generational wealth mobility over the last century.

We have presented several pieces of evidence supporting the 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 sometime in the late 19^{th} 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.

The share of women among the very wealthy may also related inversely to technological change. In times of rapid technological change, self-made entrepreneurs displace old wealth. If the self made tend to be men, the share of women declines. 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 between the share of women among the very wealthy and entrepreneurship from the IPUMS (the fraction of the workforce who are employers). 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 Rousseau (2003, p. 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 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., Juhn et al. (1993), Katz and 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 (Galor and 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., Goldin and Margo (1992), Piketty (2003), Piketty and Saez (2003), Kopczuk and Saez (2004a). While norms are important, they may be viewed as endogenous outcomes.

Women as a proxy for old wealth complements the approach of Piketty and Saez (2003); Piketty (2003) who have interpreted a high share of capital income to indicated 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.

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 one million dollars 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%, 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.

Finally, we propose a potential explanation for why wealth concentration remained constant in the past 25 years despite the surge in income concentration. Figures 2a and 2b show that wealth concentration declined in the 1970s. We speculate that this reflected 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 for why old wealth would decline. First, assuming that the old wealth dates from the Gilded Age, dilution from passing down the generations (because of its 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 co-authors.

References

Bell, Felicitie C., Alice H. Wade, and Stephen C. Goss, "Life Tables for the United States Social Security Area," SSA Pub. No. 11-11536, Actuarial Study 107 August 1992.

Betzig, Laura and Samantha Weber, "Presidents Preferred Sons," *Politics and the Life Sciences*, February 1995, *14* (1), 61–64.

Brown, Jeffrey R., Jeffrey B. Liebman, and Joshua Pollet, "Estimating Life Tables That Reflect Socioeconomic Differences in Mortality," in Martin Feldstein and Jeffrey B. Liebman, eds., *The Distributional Aspects of Social Security and Social Security Reform*, Chicago and London: The University of Chicago Press, 2002, 447–457.

Charles, Kerwin Kofi and Erik Hurst, "The Correlation of Wealth acrross Generations," *Journal of Political Economy*, December 2003, *6* (111), 1155–1182.

Davidson, Russell and James G. MacKinnon, *Estimation and Inference in Econometrics*, Oxford; New York; Toronto and Melbourne: Oxford University Press, 1993.

Davies, James B. and Anthony F. Shorrocks, "The Distribution of Wealth," in Anthony B. Atkinson and François Bourguignon, eds., *Handbook of Income Distribution*, Amsterdam; New York: Elsevier, 2000.

Galor, Oded and Daniel Tsiddon, "Technology, Mobility, and Growth," *American Economic Review*, June 1997, *87*, 363–382.

Goldin, Claudia and Robert A. Margo, "The Great Compression: The Wage Structure in the United States at Mid-Century," *Quarterly Journal of Economics*, February 1992, *107* (1), 1–34.

Gray, Jeffrey S., "Divorce-Law Changes, Household Bargaining and Married Women's Labor Supply," *American Economic Review*, June 1998, *88* (3), 628–642.

Greenwood, Jeremy and Boyan Jovanovic, "The IT Revolution and the Stock Market," *American Economic Review Papers and Proceedings*, May 1999, *89* (2), 116–122.

Hobijn, Bart and Boyan Jovanovic, "The IT Revolution and the Stock Market: Evidence," *American Economic Review*, December 2001, *91* (5), 1203–1220.

Johnson, Barry W., ed., *Compendium of Federal Estate Tax and Personal Wealth Studies*, Department of Treasury, Internal Revenue Service, Pub. 1773 (4-94), 1994.

Jovanovic, Boyan and Peter L. Rousseau, "Two Technological Revolutions," *Journal of the European Economic Association*, April-May 2003, *1* (2-3), 419–428.

Juhn, Chinhui, Kevin M. Murphy, and Brooks Pierce, "Wage Inequality and the Rise in Returns to Skill," *Journal of Political Economy*, June 1993, *101* (3), 410–442.

Katz, Lawrence and David Autor, "Changes in the Wage Structure and Earnings Inequality," in Orley Ashenfelter and David Card, eds., *Handbook of Labor Economics*, Amsterdam; New York: Elsevier/North Holland, 1999.

Kennickell, Arthur, "A Rolling Tide: Changes in the Distribution of Wealth in the United States, 1989-2001," 2003. Federal Reserve Board mimeo.

Kopczuk, Wojciech, "Bequest and Tax Planning: Evidence from Estate Tax Returns," *Quarterly Journal of Economics*, 2007. Forthcoming.

_ **and Emmanuel Saez**, "Top Wealth Shares in the United States, 1916-2000: Evidence from Estate Tax Returns," *National Tax Journal*, June 2004, *57* (2 (part 2)), 445–488.

_ **and** _ , "Top Wealth Shares in the United States, 1916-2000: Evidence from Estate Tax Returns," Working Paper, National Bureau of Economic Research 2004.

_ **,** _ **, and Jae Song**, "Uncovering the American Dream: Inequality and Mobility in Social Security Earnings Data since 1937," March 2007. Columbia, UC-Berkeley and SSA, mimeo.

Luckey, John R., "A History of Federal Estate, Gift and Generation-Skipping Taxes," CRS Report for Congress 95-444A, Congressional Research Service March 1995.

McCubbin, Janet G., "The Intergenerational Wealth Study: Basic Estate Data 1916-1945," *Statistics of Income Bulletin*, Spring 1990.

Piketty, Thomas, "Income Inequality in France, 1901-1998," *Journal of Political Economy*, October 2003, *111* (5), 1004–42.

_ **and Emmanuel Saez**, "Income Inequality in the United States, 1913-1998," *Quarterly Journal of Economics*, February 2003, *118*, 1–39.

Ruggles, Steven, Matthew Sobek, Trent Alexander, Catherine A. Fitch, Ronald Goeken, Patricia Kelly Hall, Miriam King, and Chad Ronnander, "Integrated Public Use Microdata Series: Version 3.0," Minneapolis, MN: Minnesota Population Center [producer and distributor] 2004. Accessible at `http://usa.ipums.org/usa/`.

Scholz, John Karl, "Wealth Inequality and the Wealth of Cohorts," 2003. University of Wisconsin, mimeo.

Weisberg, D. Kelly and Susan Freilich Appleton, *Modern Family Law: Cases and Materials*, 2nd ed., New York: Aspen Law and Business, 2002.

Data Appendix

A Estate tax data

Estate tax tabulations were performed on the 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 observations, we tabulated the number of individuals by gender, marital status and marital property regime of the state of residence for the top 0.01%, 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. Then, given the probability of dying by m_i, a single estate observation stands for $\frac{1}{m_i}$ 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 Bell et al., 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 is 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 Brown et al. (2002). The extensive 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 this state changed its category in 1986.

B Census data

We rely on the IPUMS (Ruggles et al., 2004) data for 1920 through 2000 Censuses. For self-employment and entrepreneurship calculations, we define our sample as those between ages 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 strictly 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 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 for this procedure 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 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 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 experience 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 of this procedure. First, we corrected mortality rates using socio-economic 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 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 lists of the rich (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. We proceed as follows. The Social Security Administration published (`http://www.ssa.gov/OACT/babynames/`) list of 1000 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 Forbes list and the Classification contain indicators for having inherited wealth.

The New York Tribune applies to people alive in 1892 and therefore 20^{th} 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 mis-classify 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 3.1 is based on the set of conditions in Table 1, 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

$$\begin{aligned}
P(I = m, G = F|i, b_i) &= b_i\Big(\alpha(i) \cdot c + (1 - \alpha(i))/2\Big)/S(i) \\
P(I = w, G = M|i, b_i) &= b_i\Big(\alpha(i)\sigma(i) + (1 - \alpha(i))/2\Big)/S(i) \\
P(I = m, G = M|i, b_i) &= (1 - b_i)\Big(\alpha(i) + (1 - \alpha(i))/2\Big)/S(i) \\
P(I = w, G = F|i, b_i) &= (1 - b_i)\Big(\alpha(i)\gamma(i) + (1 - \alpha(i))/2\Big)/S(i)
\end{aligned}$$

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 takes 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 6353 decedents in years covered by our data who belong to the top .01% 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

$$\begin{aligned}
D_{mF} &= b_i\Big(\alpha(i) \cdot c + (1 - \alpha(i))/2\Big)/S(i) + \varepsilon_{mF} \\
D_{wM} &= b_i\Big(\alpha(i)\sigma(i) + (1 - \alpha(i))/2\Big)/S(i) + \varepsilon_{wM} \\
D_{mM} &= (1 - b_i)\Big(\alpha(i) + (1 - \alpha(i))/2\Big)/S(i) + \varepsilon_{mM}
\end{aligned}$$

We estimate the system jointly using nonlinear least squares. Because the error terms are likely to be correlated, we account for it relying 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 population grows. Hence, our standard errors are based on heteroskedasticity-consistent covariance matrix. Specifically, we use the conservative "jackknife" approximation suggested by Davidson and MacKinnon (p. 554 1993) due to its good small sample performance.

Table 2: Number of observations in the estate tax microdata by year and group

Year	Number of observations				Population size			
	Top 0.01%	.01 − .05	0.05 − 0.10	0.10 − 0.40	Top 0.01%	.01 − .05	0.05 − 0.10	0.10 − 0.40
1925	104	409	512	3066	102	409	511	3064
1926	109	433	541	3239	108	432	540	3238
1927	105	417	521	3122	104	416	520	3120
1928	114	451	564	3378	113	450	563	3376
1929	116	457	571	3425	114	456	570	3422
1930	112	442	552	3309	110	441	551	3308
1931	112	444	555	3324	111	443	554	3322
1932	113	448	560	3218	112	447	559	3352
1933	112	443	554	3320	111	442	553	3318
1934	116	461	575	3446	115	459	574	3444
1935	118	465	582	3485	116	464	581	3484
1936	126	500	624	3740	125	498	623	3738
1937	124	492	615	3683	123	491	614	3682
1938	119	470	587	3519	117	469	586	3518
1939	121	480	599	3593	120	479	598	3590
1940	124	493	615	3689	123	492	614	3686
1941	122	485	605	3628	121	483	604	3626
1942	122	482	602	3611	120	481	601	3608
1943	128	509	635	3806	127	507	634	3804
1944	125	493	616	3695	123	492	615	3692
1945	125	494	617	3701	123	493	616	3698
1962	162	642	802	4808	160	641	801	4806
1965	170	674	843	5052	168	673	842	5050
1969	181	717	896	5029	179	716	895	5372
1972	186	740	925	5544	185	739	924	5542
1976	183	726	907	5438	181	725	906	5436
1982	186	736	914	5439	189	756	945	5670
1983	182	524	61	133	194	775	969	5814
1984	187	703	61	161	196	784	980	5880
1985	196	730	206	292	201	803	1004	6022
1986	204	796	676	3044	203	810	1013	6078
1987	206	814	506	511	205	818	1023	6138
1988	209	819	652	582	209	836	1045	6270
1989	209	819	912	2911	207	829	1036	6218
1990	209	786	826	759	207	829	1036	6218
1991	210	691	489	1661	210	838	1048	6286
1992	212	843	1048	2269	211	842	1053	6316
1993	221	712	463	1992	220	879	1099	6594
1994	222	712	477	2005	221	884	1105	6632
1995	225	882	1110	2649	225	899	1124	6742
1996	226	899	508	2069	225	901	1126	6758
1997	227	901	628	2156	225	901	1127	6762
1998	228	906	1133	3761	228	911	1139	6832
1999	234	931	807	1695	233	933	1166	6996
2000	235	932	829	1315	234	938	1172	7032

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

Table 3: Estimates of the parameters of the model of the distribution of ever-married decedents

	All			Common law			Non-common law		
	$c = 0$		$c = 0.2$	$c = 0$		$c = 0.2$	$c = 0$		$c = 0.2$
α_0	0.720***	0.740***	1.105***	0.792***	0.798***	1.225***	0.542***	0.543***	0.766***
	(0.035)	(0.034)	(0.059)	(0.044)	(0.050)	(0.090)	(0.052)	(0.045)	(0.071)
α_1	−0.964***	−1.671***	−2.660***	−1.558***	−1.561***	−2.670***	−0.251	−1.245***	−1.812***
	(0.296)	(0.256)	(0.414)	(0.434)	(0.447)	(0.774)	(0.369)	(0.327)	(0.492)
α_2	0.587	1.712***	2.713***	1.795***	1.771***	3.036***	−0.480	1.239***	1.790***
	(0.385)	(0.328)	(0.525)	(0.579)	(0.582)	(1.004)	(0.446)	(0.418)	(0.622)
γ_0	0.121	0.162***	0.330***	0.260*	0.272***	0.418***	−0.259	−0.073	0.142
	(0.116)	(0.055)	(0.044)	(0.137)	(0.060)	(0.048)	(0.242)	(0.124)	(0.099)
γ_1	1.385			−0.026			4.995**		
	(1.117)			(1.327)			(2.346)		
γ_2	−2.276			0.092			−8.731***		
	(1.509)			(1.745)			(3.343)		
σ_0	0.536***	0.449***	0.559***	0.649***	0.530***	0.624***	0.110	0.280***	0.424***
	(0.043)	(0.024)	(0.019)	(0.051)	(0.027)	(0.021)	(0.097)	(0.052)	(0.042)
σ_1	−0.150			−0.558			3.494***		
	(0.452)			(0.574)			(1.019)		
σ_2	−0.357			0.301			−5.870***		
	(0.626)			(0.770)			(1.508)		
N	6353	6353	6353	3202	3202	3202	2827	2827	2827
Lowest α in	2007.12	1973.80	1974.03	1968.41	1969.05	1968.98		1975.23	1975.60
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 3.1, assuming quadratic pattern of changes in parameters over time. Details of the estimation procedure are in Section D.

Table 4: Forbes 400: 1982-2003

			# with inheritance			% with inheritance		
Year	#Women	%Women	Total	Women	Men	Total	Women	Men
1982	72	0.18	143	64	78	0.36	0.89	0.24
1983	74	0.19	142	67	74	0.36	0.91	0.23
1984	67	0.17	135	60	74	0.34	0.90	0.22
1985	83	0.18	159	75	83	0.34	0.90	0.22
1986	88	0.19	150	76	73	0.32	0.86	0.19
1987	87	0.18	143	73	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 Magazine, various issues 1982-2003. See Data Appendix for details.

Table 5: Heirs and heiresses among the wealthy, 1800-1950

		% Inheritance			% Women			$\frac{\text{Heiresses}}{\text{Heirs+Heiresses}}$		
Year	Obs.	All	400	100	All	400	100	All	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

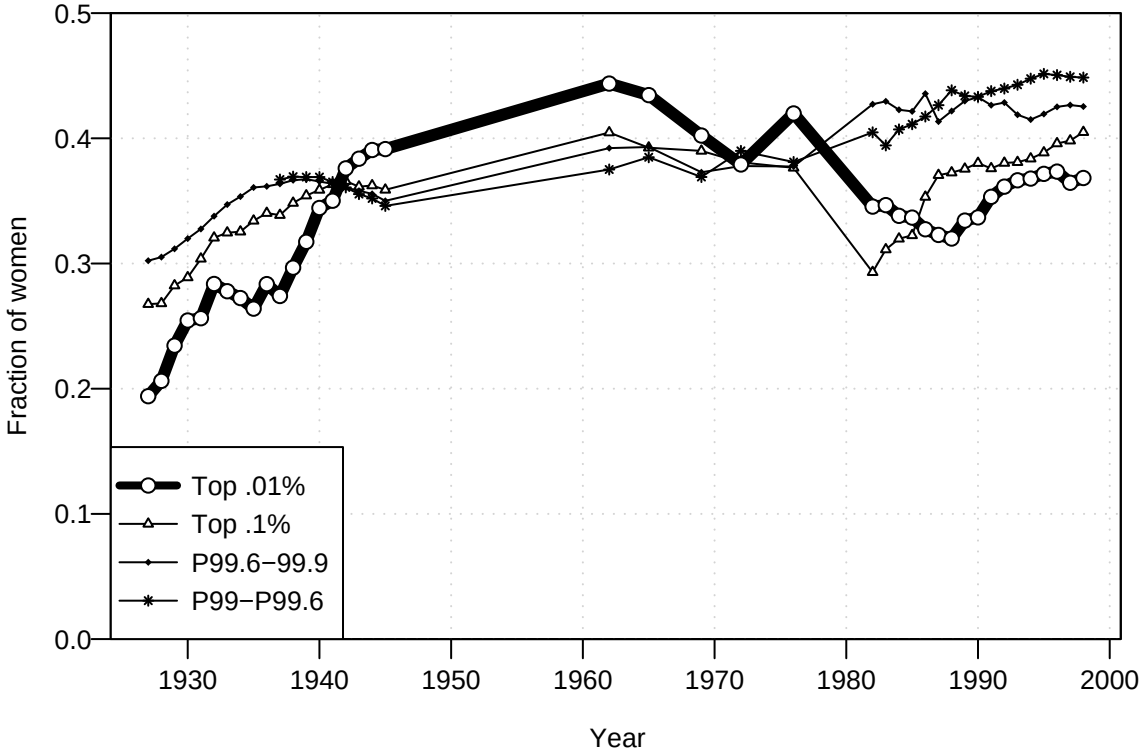
Source: A Classification of American Wealth, `http://www.raken.com/american_wealth/index.asp`), accessed January 27$^{\text{th}}$, 2006. The first column contains the number of individuals included in the Classification of American Wealth for a given year. Columns marked "400" and "100" correspond to 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 the description of data construction.

Table 6: 1892 Millionaires

	Inheritance		
Gender	No	Yes	Total
Man	2366	417	2783
Woman	74	348	422
Total	2440	765	3205

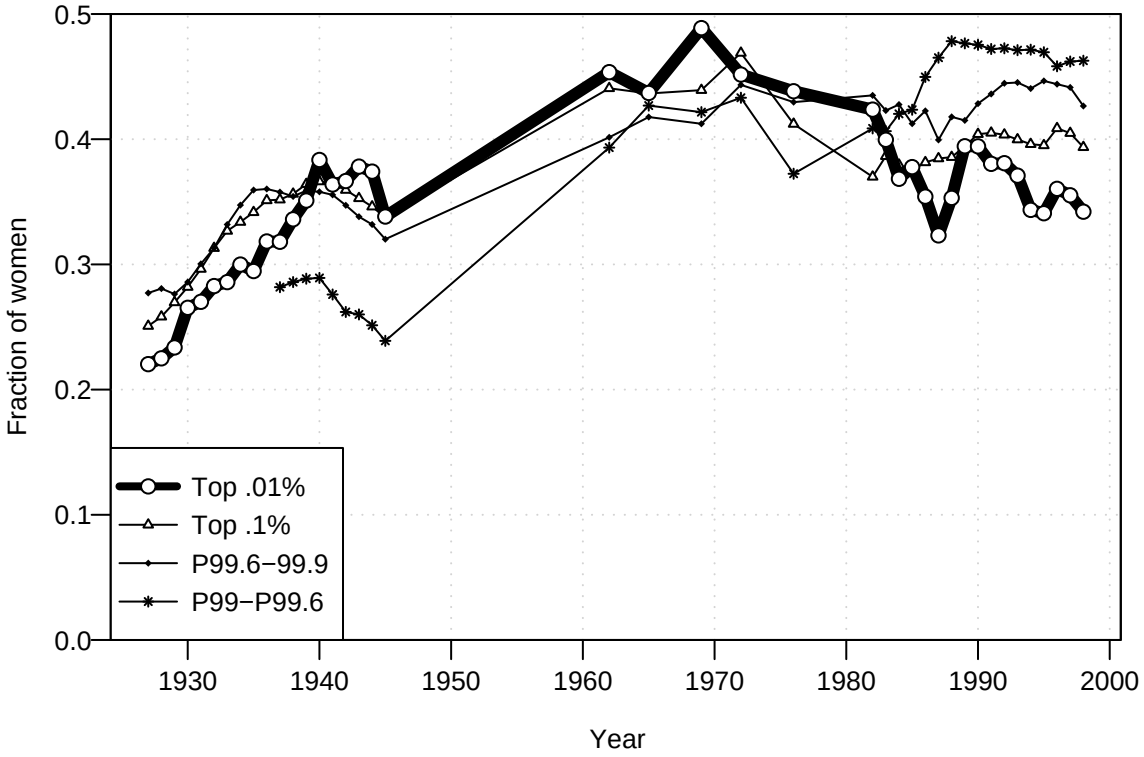
Source: New York Tribune, June 1892. Note: The full list includes 4056 individuals, the table relies only on those whose gender we were able to establish. See Data Appendix for explanation of our algorithm.

Figure 1a: Fraction of females among decedents



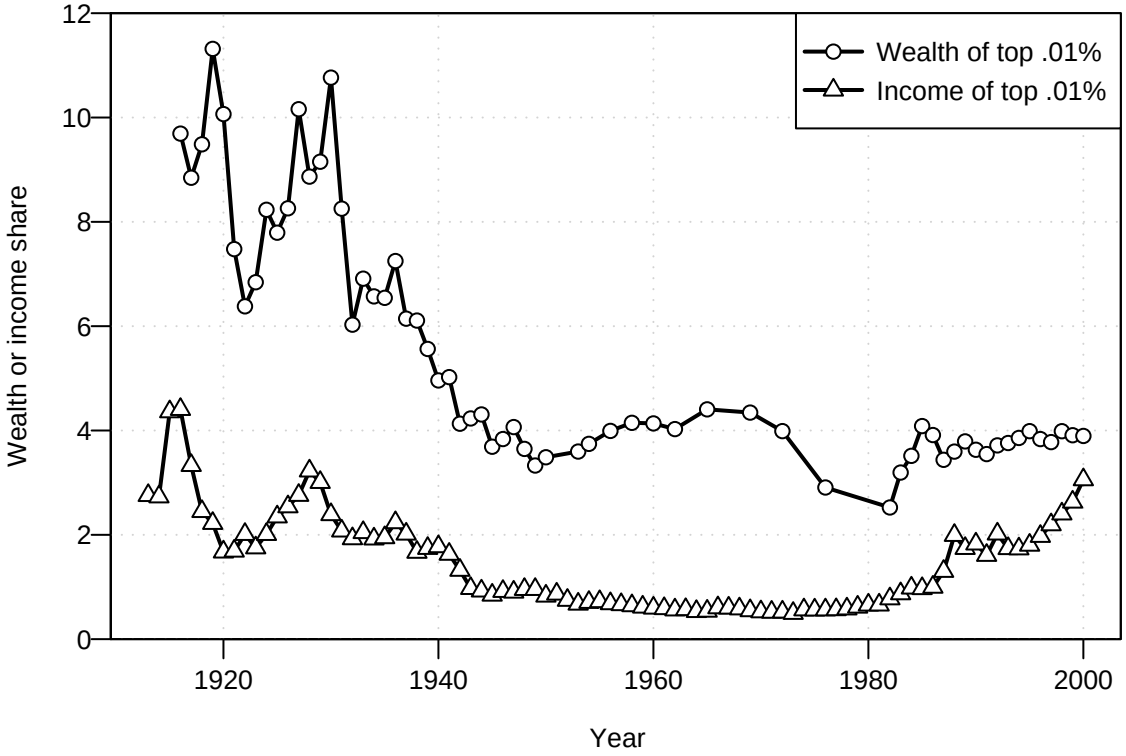
Source: Estate tax tabulations. See Data Appendix for details.

Figure 1b: Fraction of females in the living population



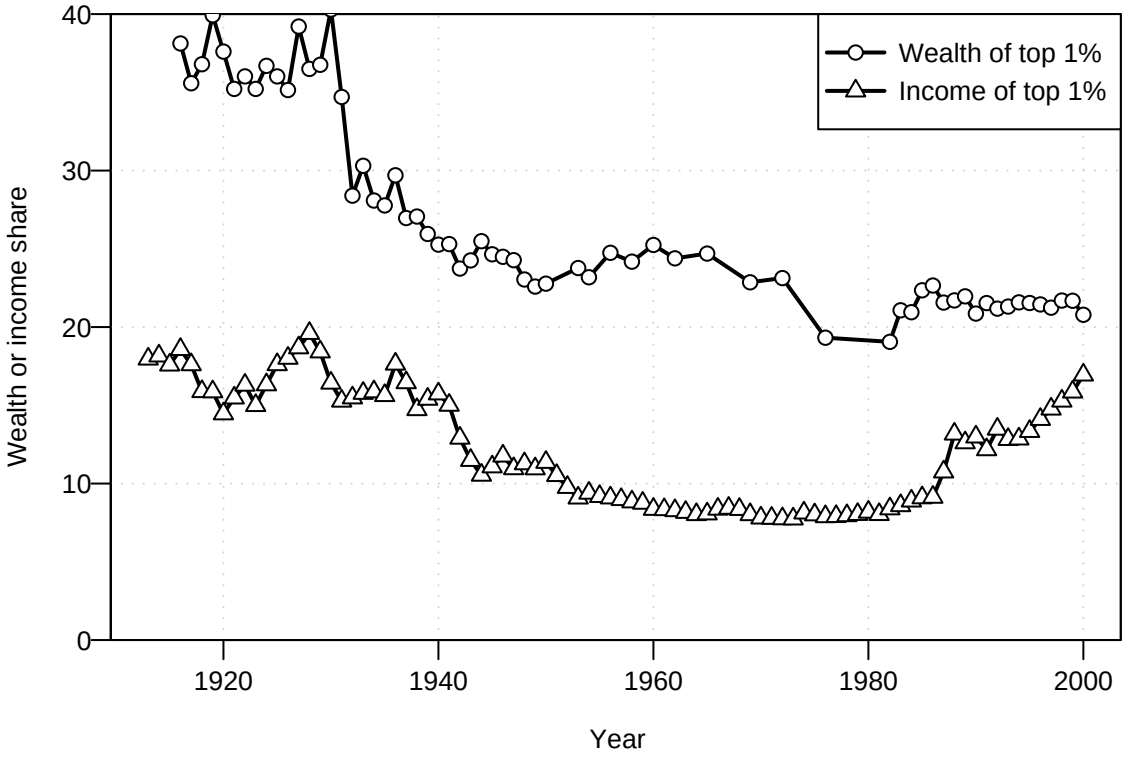
Source: Estate tax tabulations using estate-multiplier methodology. See Data Appendix for details.

Figure 2a: Wealth and Income Concentration — Share of Top 0.01%



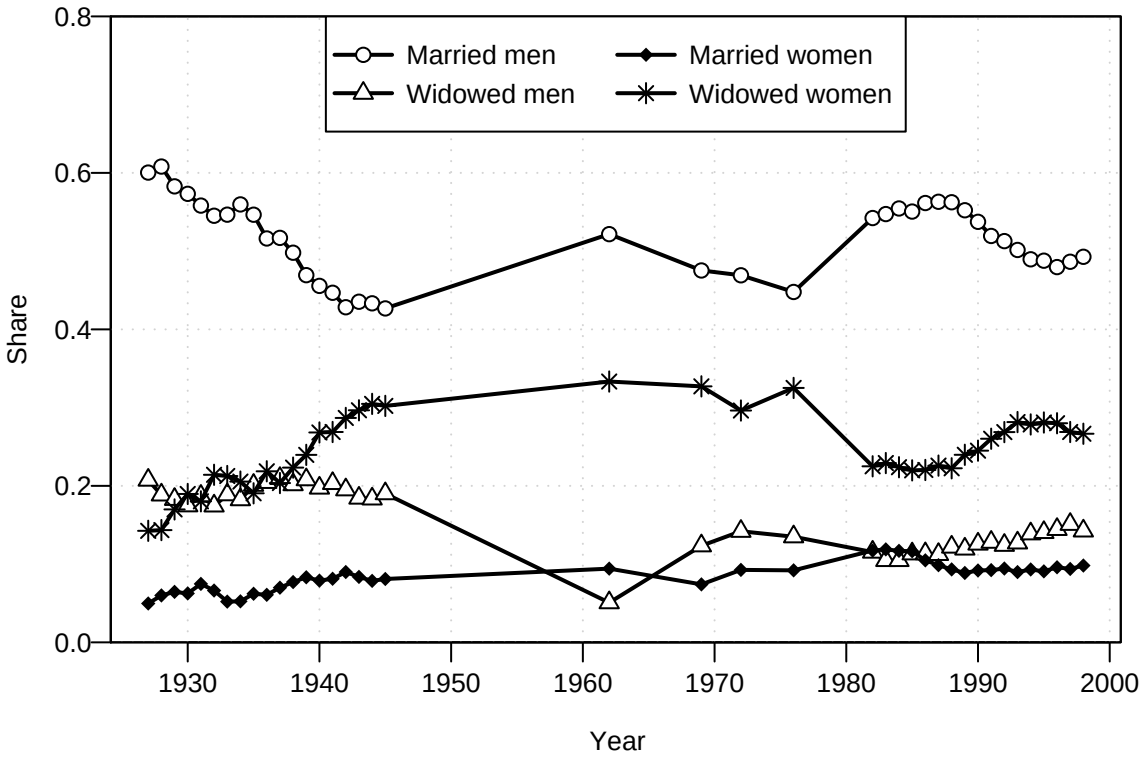
Source: Piketty and Saez (2003) and Kopczuk and Saez (2004a).

Figure 2b: Wealth and Income Concentration — Share of Top 1%



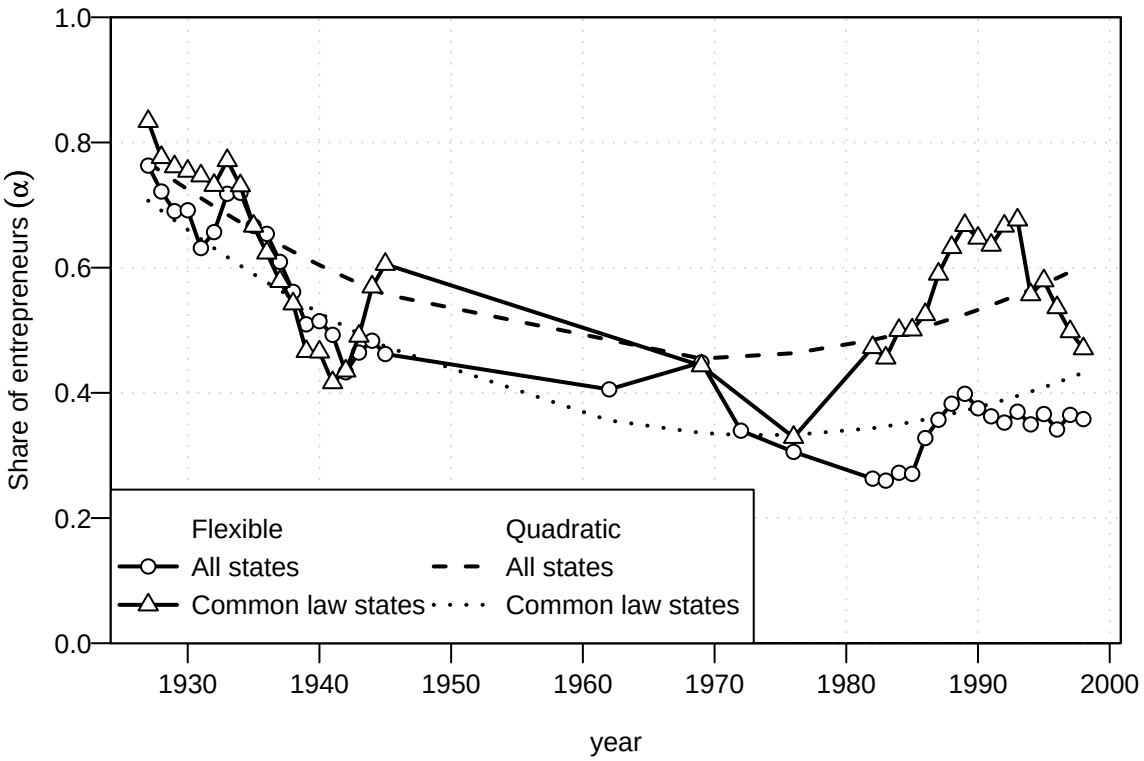
Source: Piketty and Saez (2003) and Kopczuk and Saez (2004a).

Figure 3: Marital-gender categories in the top 0.01% of decedents



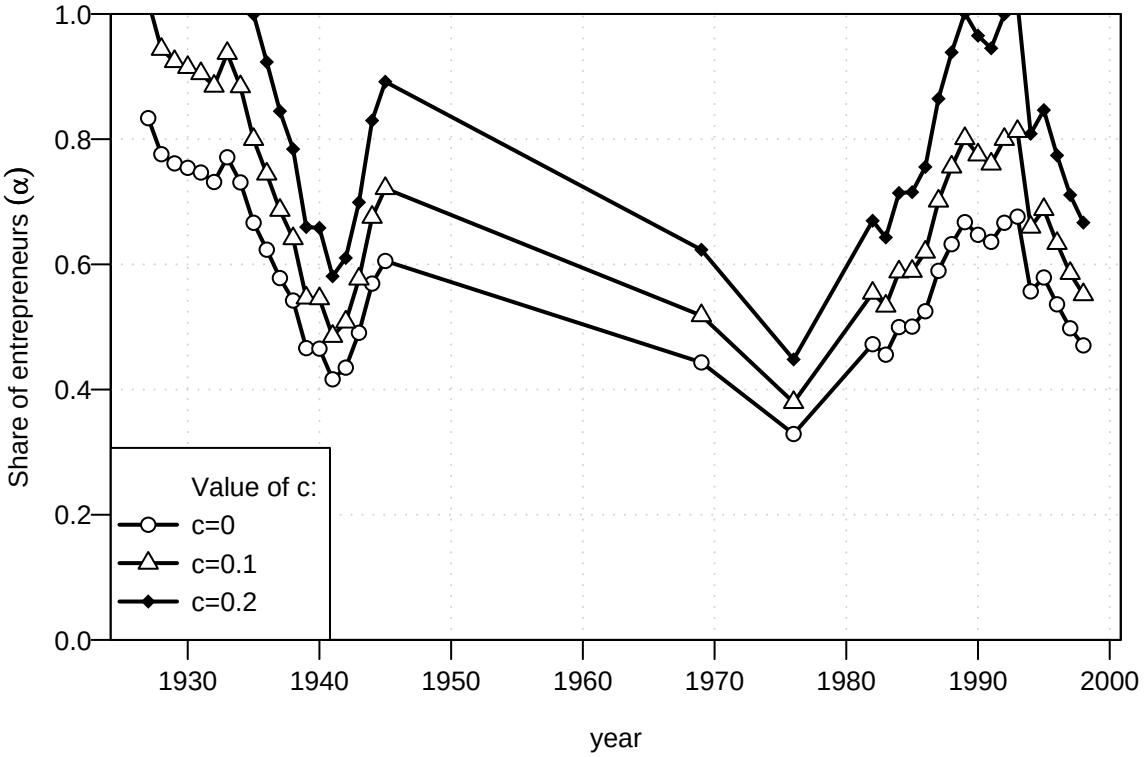
Source: Estate tax tabulations. See Data Appendix for details.

Figure 4a: Share of entrepreneurs implied by married men and women among decedents



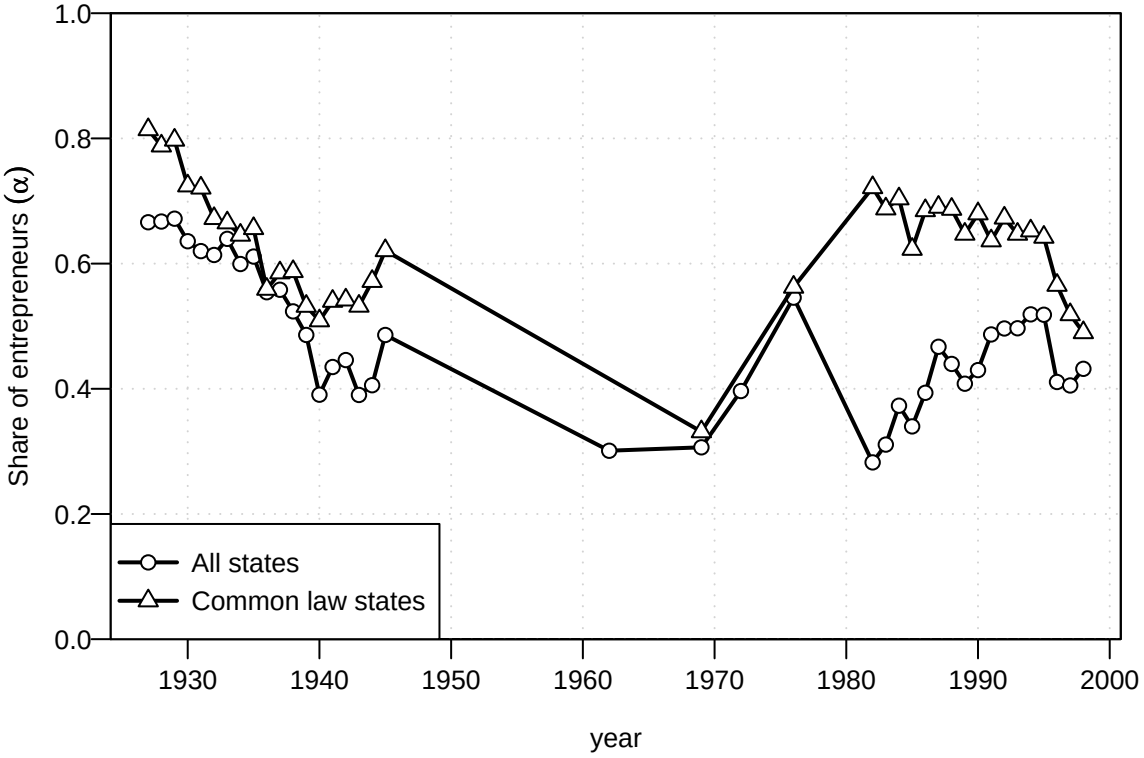
Source: Estimates based on the model described in Setion 3.1. Estimates labeled "quadratic" correspond to specifications #2 and #5 in Table 3.

Figure 4b: Share of entrepreneurs implied by married men and women among decedents in common law states — sensitivity to the choice of c



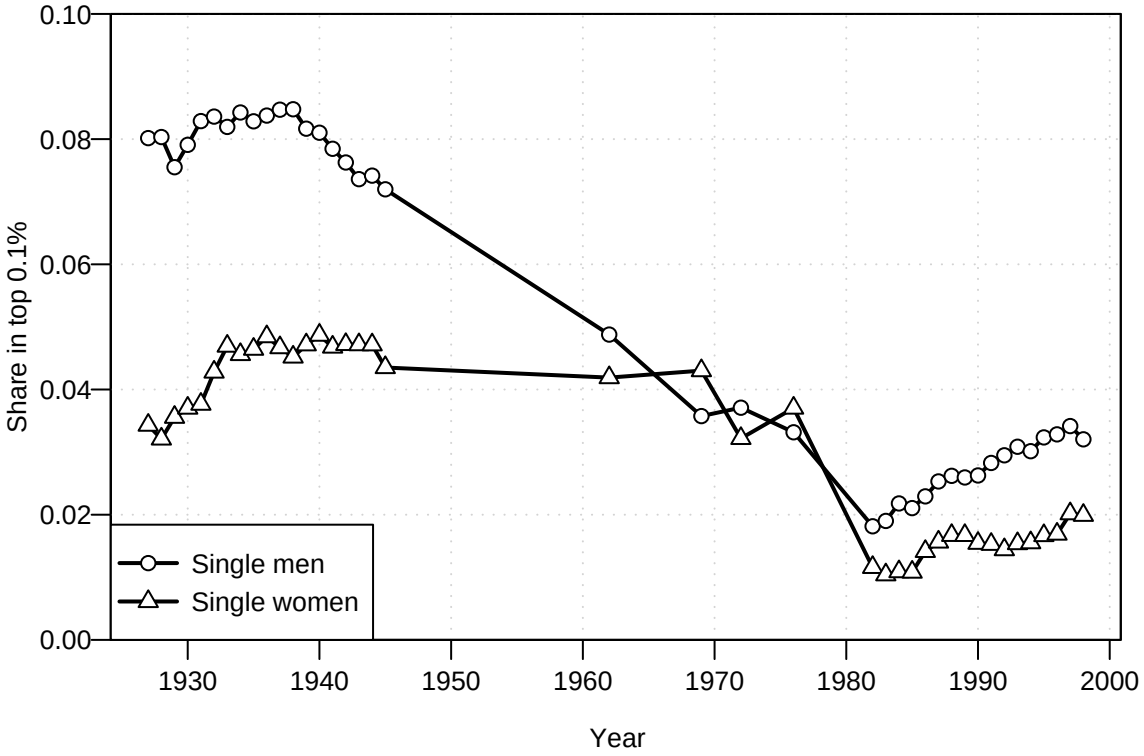
Source: Estimates based on the model described in Setion 3.1 using decedents in common law states and different values of c.

Figure 4c: Share of entrepreneurs implied by married men and women among the living population in common law states



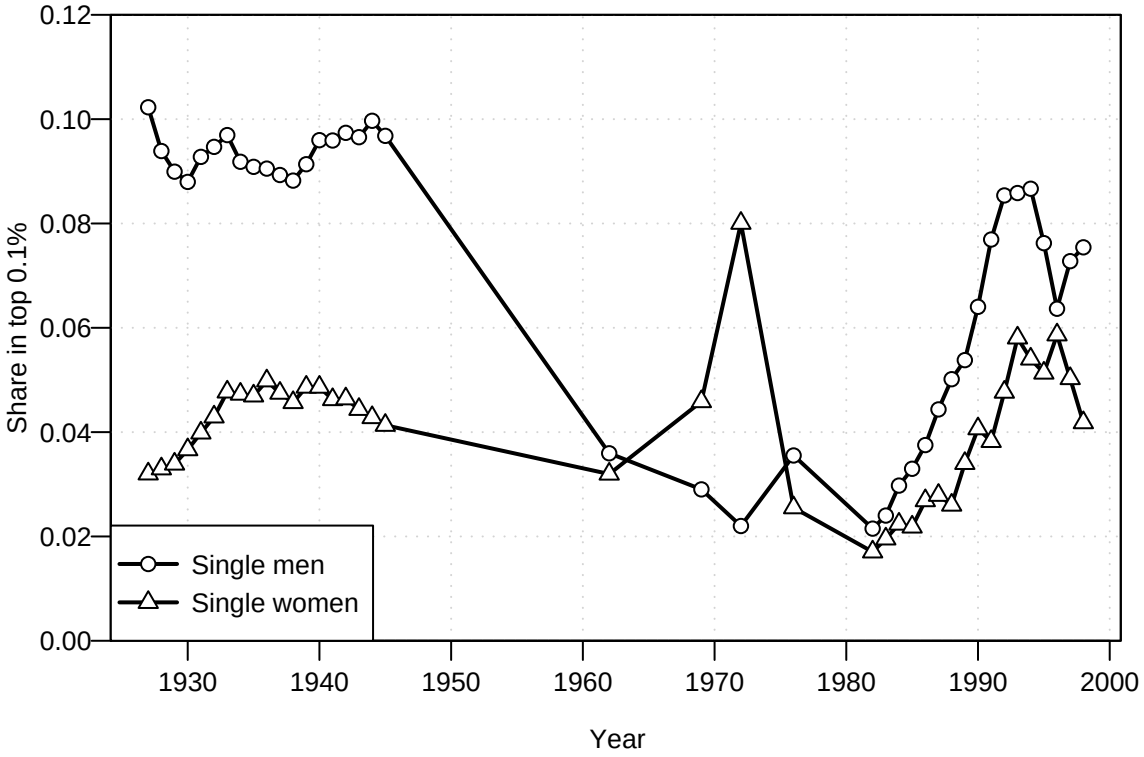
Source: Estimates based on the simplified model for the living population as described in Setion 3.1.

Figure 5a: Single men and women in the top 0.1% of decedents



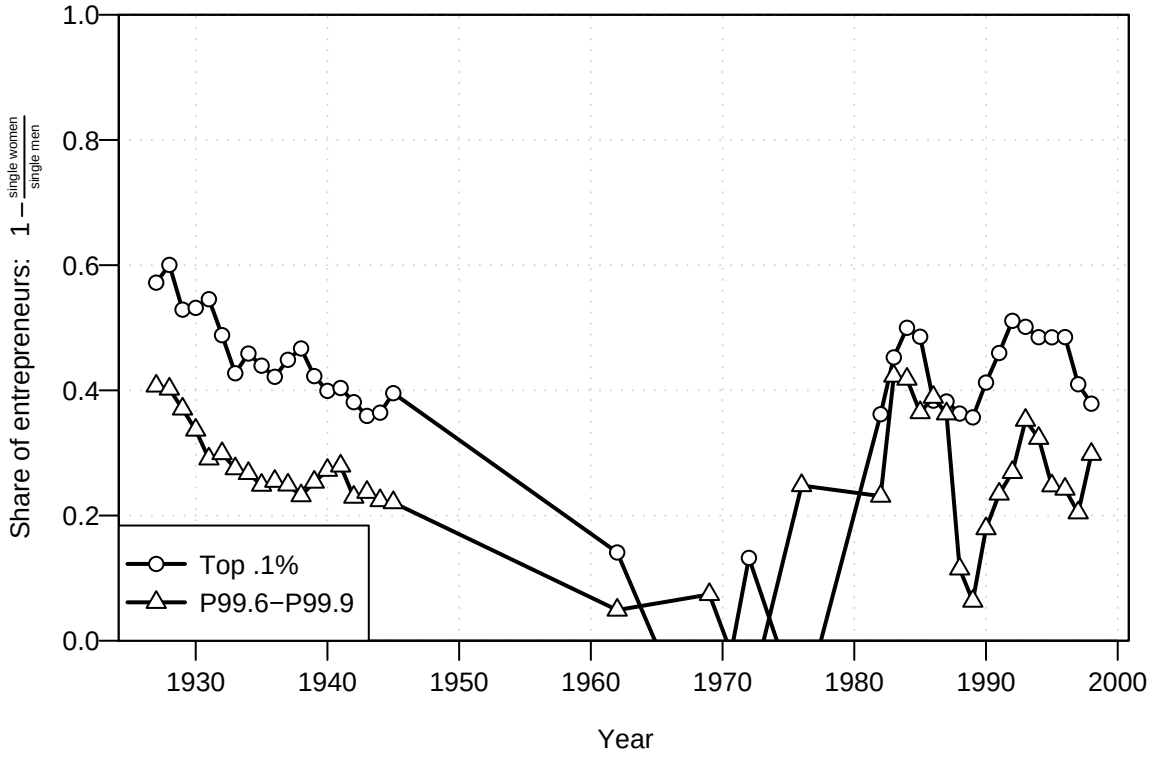
Source: Estate tax tabulations. See Data Appendix for details.

Figure 5b: Single men and women in top 0.1% of the living population



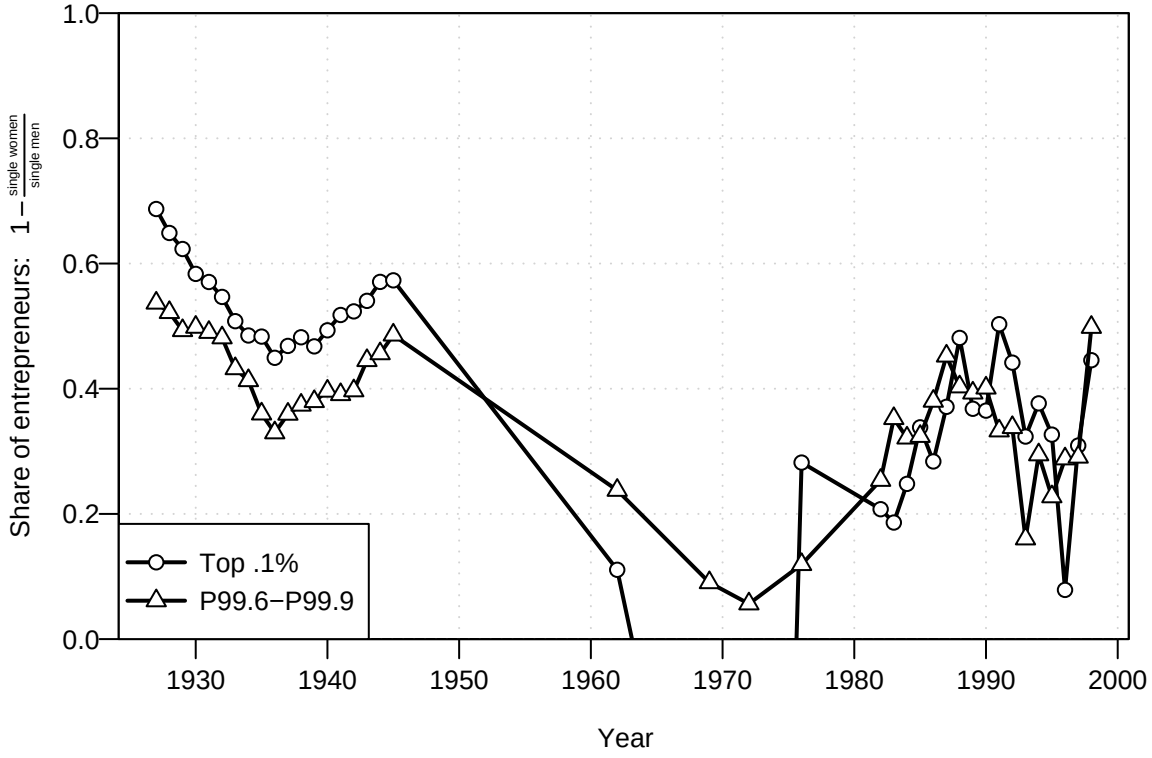
Source: Estate tax tabulations using estate-multiplier methodology. See Data Appendix for details.

Figure 6a: Share of entrepreneurs implied by single men and women among decedents



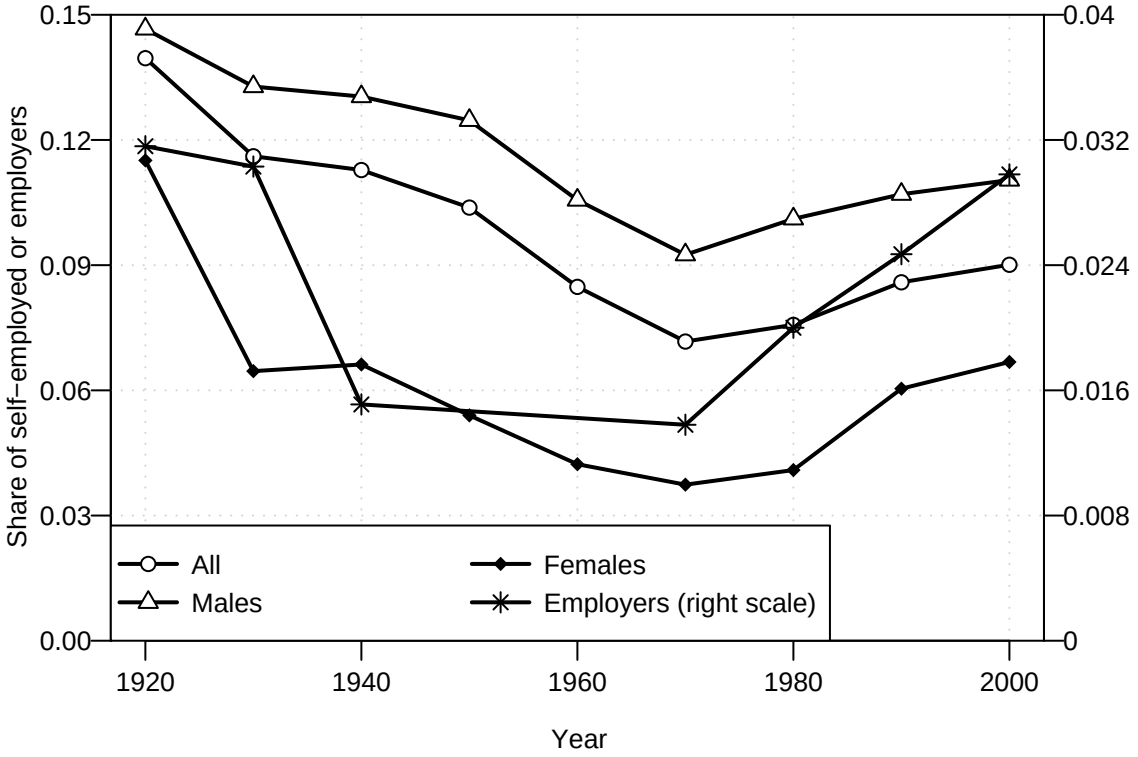
Source: Estate tax tabulations. The share defined as $1 - \frac{\text{single women}}{\text{single men}}$.

Figure 6b: Share of entrepreneurs implied by single men and women among the living population



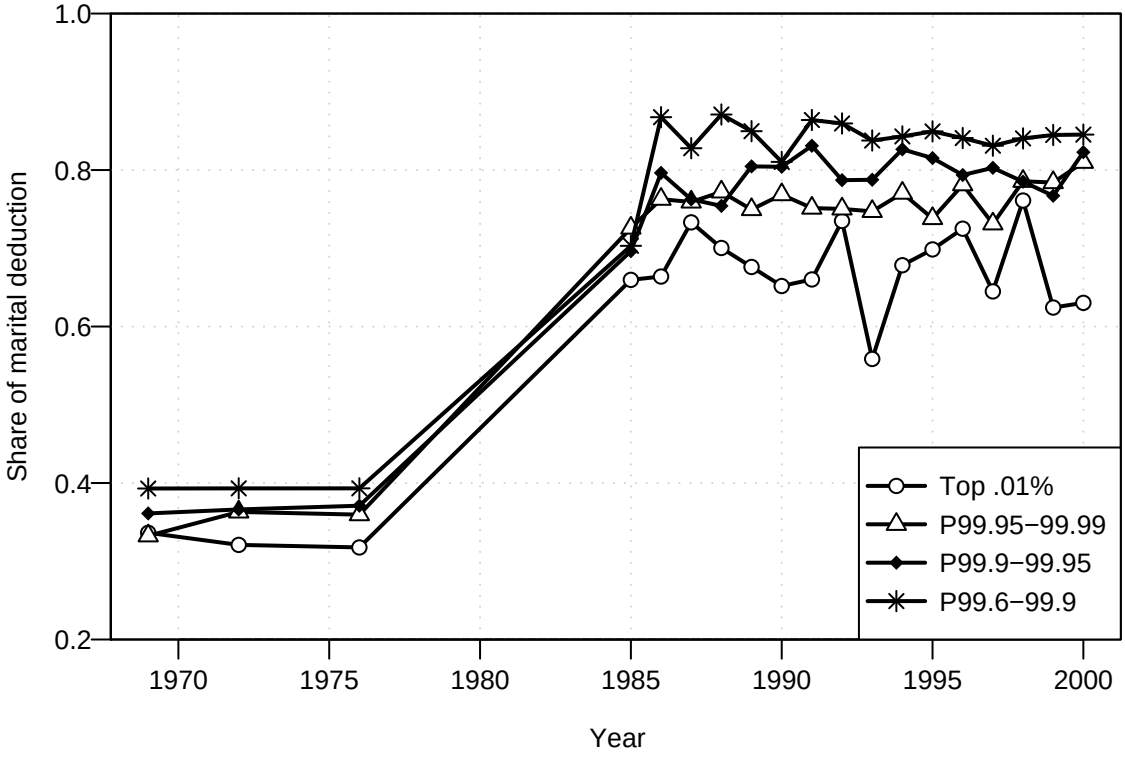
Source: Estate tax tabulations using estate multiplier methodology. The share defined as $1 - \frac{\text{single women}}{\text{single men}}$.

Figure 7: Entrepreneurship measured by self-employment or employers in IPUMS



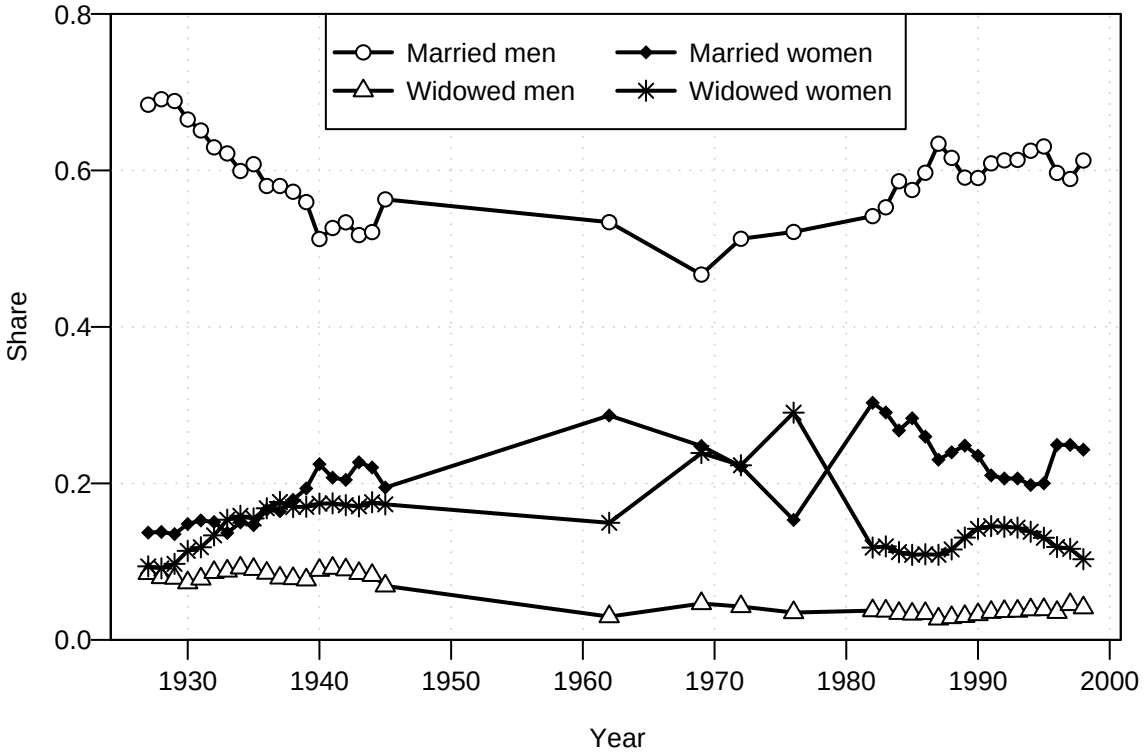
Source: Authors' calculations based on the Integrated Public Use Microdata Series (IPUMS). See Data Appendix for details

Figure 8: Share of marital deduction in net worth above the exemption, by wealth category



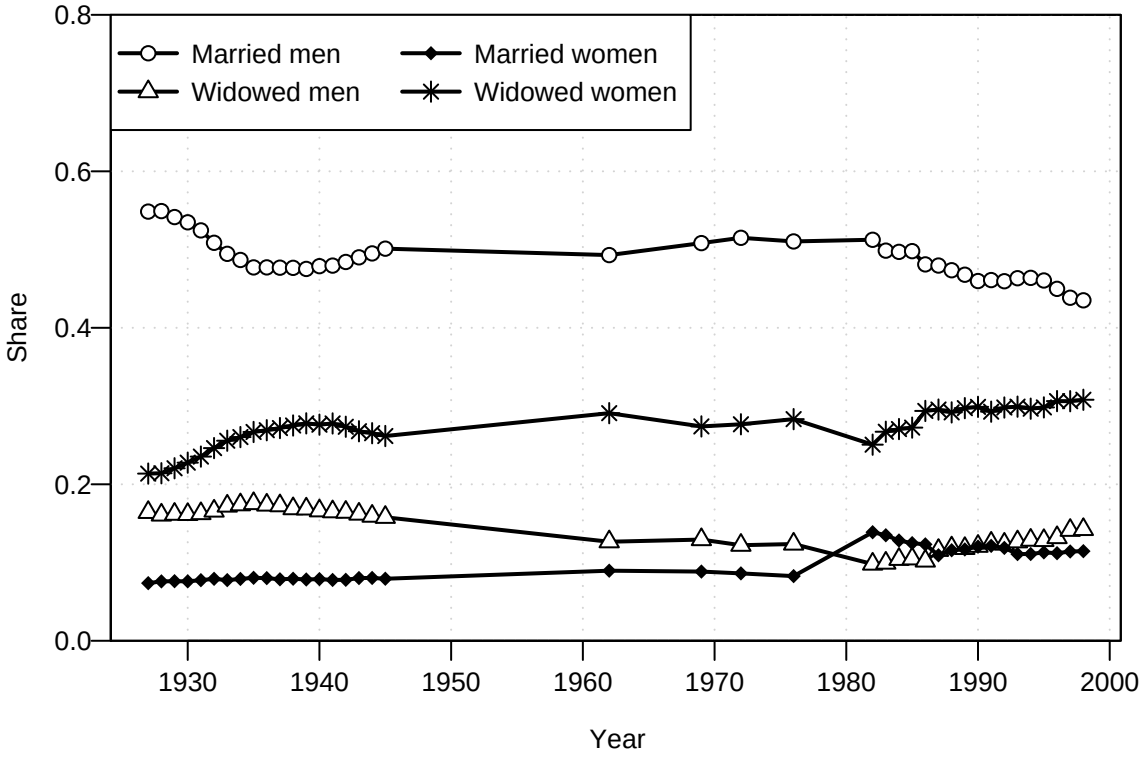
Source: Estate tax tabulations. See Data Appendix for details.

Figure 9: Marital-gender categories in the top 0.01% among the living populations



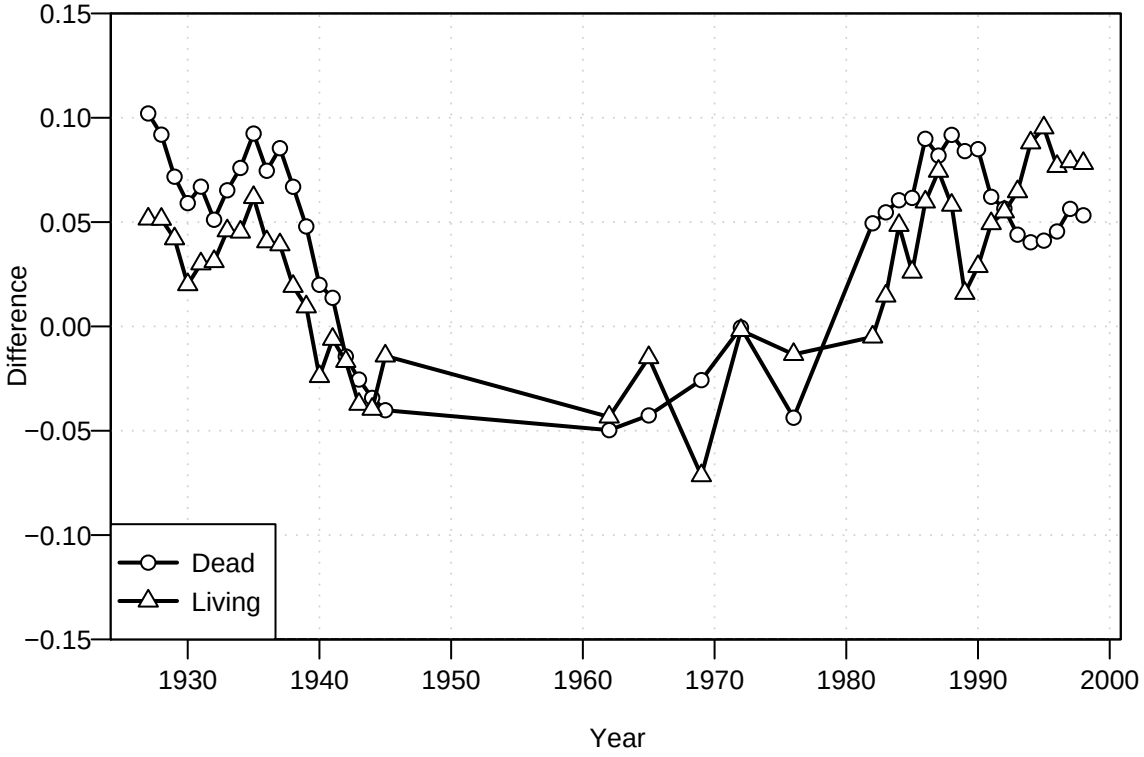
Source: Estate tax tabulations using estate multiplier methodology. See Data Appendix for details.

Figure 10: Marital-gender categories in the 0.01-0.4% category among decedents



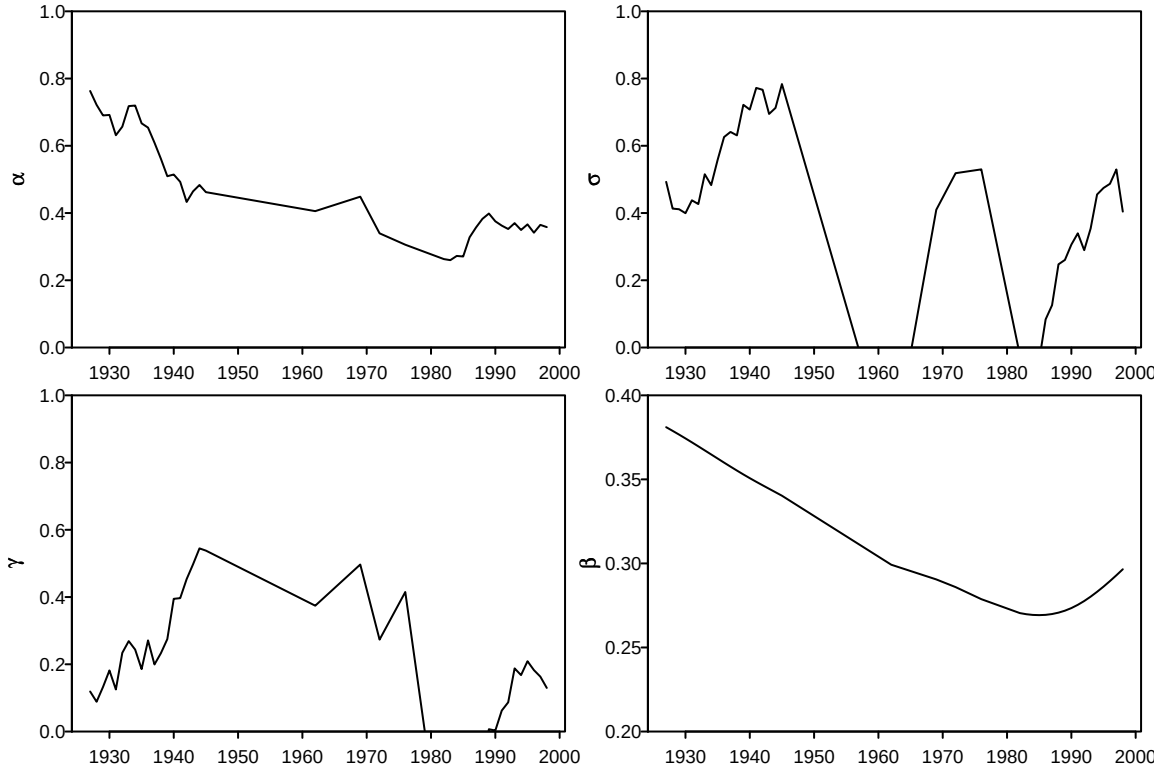
Source: Estate tax tabulations. See Data Appendix for details.

Figure 11: Difference between share of women in P99.6-99.99 and top 0.01%



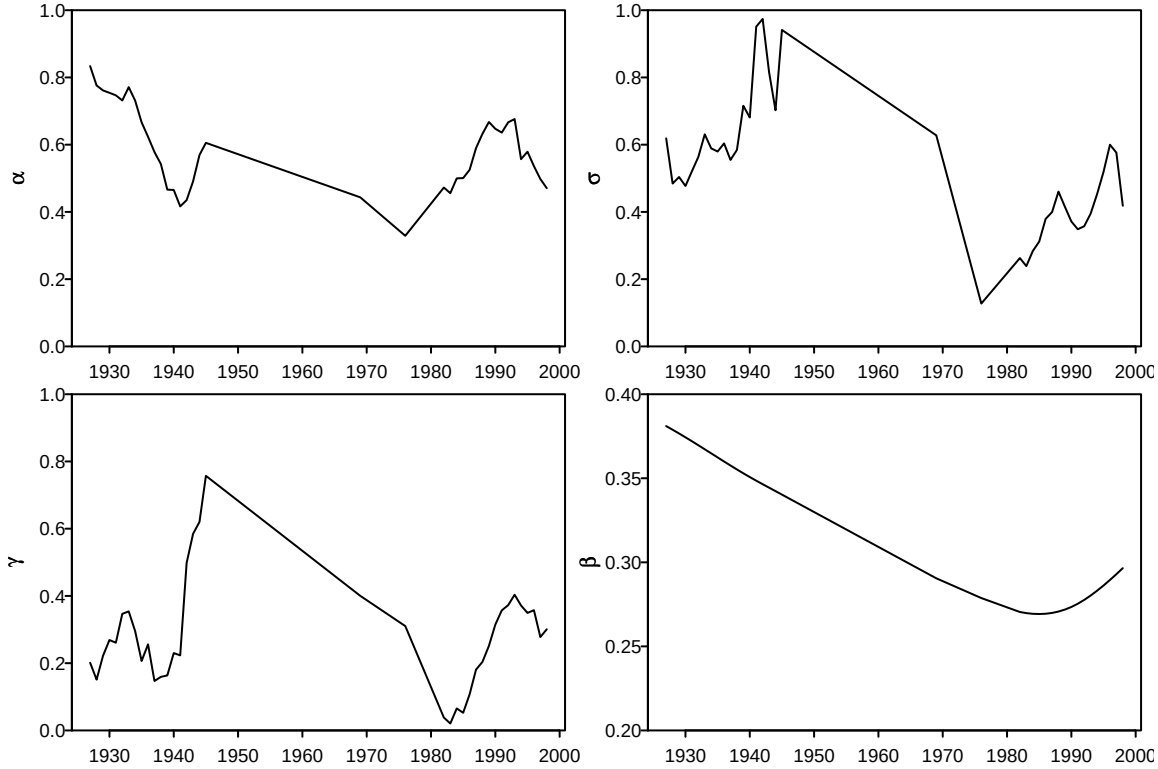
Source: Authors' calculations based on estate tax tabulations for decedents and using estate multiplier methodology. See Data Appendix for details.

Figure A-1a: Model estimates, all states



Source: Estimates of the unrestricted model described in Section 3.1 using data for all states.

Figure A-1b: Model estimates, common law states



Source: Estimates of the unrestricted model described in Section 3.1 using data for common law states.