Wealth Inequality in the United States since 1913

Emmanuel Saez (UC Berkeley)
Gabriel Zucman (LSE)

October 2014

Introduction

US Income inequality has increased sharply since the 1970s

Mixed existing evidence on wealth inequality changes

$\Rightarrow$ Is inequality increase driven solely by labor income?

We capitalize income tax return data to estimate new annual series of US wealth concentration since 1913

Key result: Wealth inequality has surged but phenomenon is concentrated mostly within the top .1% (=wealth above $20m)

U-Shaped Wealth Concentration

Top 0.1% wealth share in the United States, 1913-2012
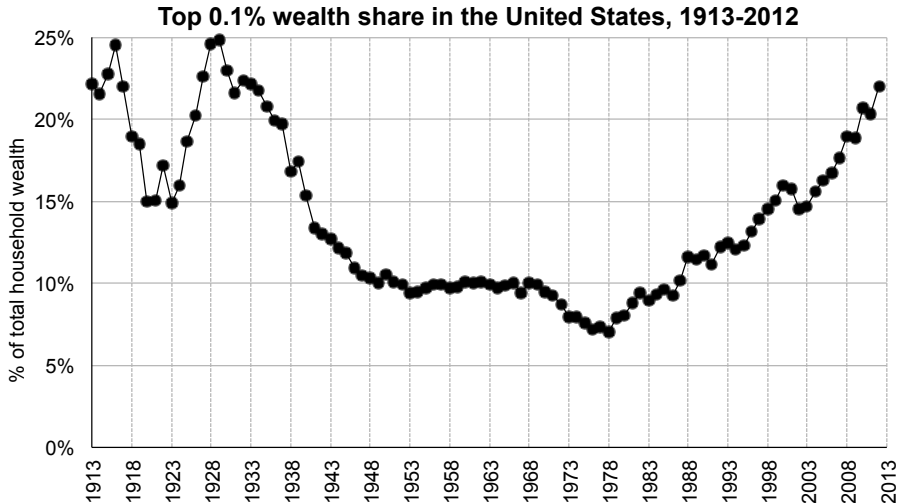
This figure depicts the share of total household wealth held by the 0.1% richest families, as estimated by capitalizing income tax returns. In 2012, the top 0.1% includes about 160,000 families with net wealth above $20.6 million. Source: Appendix Table B1.

Surge in top wealth shares concentrated in top 0.1%

Top wealth shares: decomposing the top 1%

Top 0.5%-0.1%

Top 0.1%-0.01%

Top 0.01%

Top 1%-0.5%

% of total household wealth
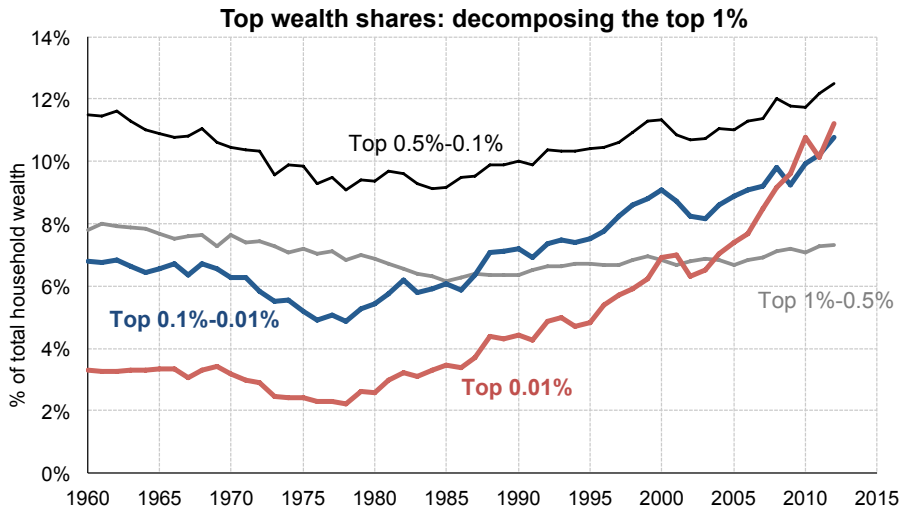
Outline of the talk

I- The capitalization method

To obtain wealth, we divide capital income by the rate of return

How the capitalization technique works:

Start from each capital income component reported on individual tax returns

Compute **aggregate** rate of return for each asset class (using Flow of Funds and aggregate tax data)

Multiply each individual capital income component by 1/rate of return of corresponding asset class

Simple idea, but lot of care needed in reconciling tax with Flow of Funds data

Key assumption: uniform return within asset class

$\Rightarrow$ Need detailed income components to obtain reliable results

Aggregate income and wealth

Aggregate wealth

W = Total assets minus liabilities of households at market value

Excludes durables, unfunded DB pensions, non-profits

Source: Flow of Funds since 1945, Goldsmith, Wolff (1989), Kopczuk and Saez (2004) before

Aggregate income

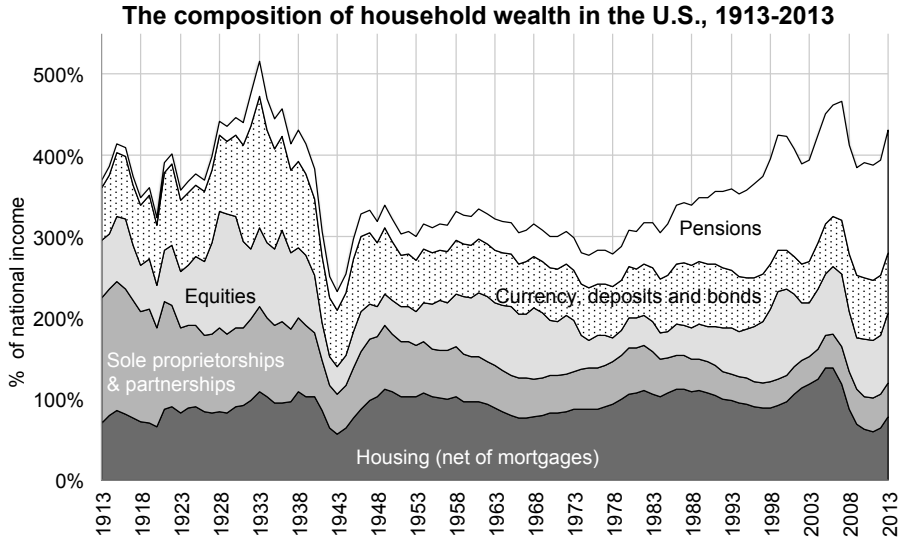NIPA since 1929, Kuznets (1941) and King (1930) before 1929

Family unit

Top 1% = Top 1% of all family units [as in Piketty and Saez]

A U-shaped wealth-income ratio

The composition of household wealth in the U.S., 1913-2013

Distributional data: income tax returns

Consistent, annual, high quality data since 1913:

Composition tabulations by size of income 1913-

IRS micro-files with oversampling of the top 1962-

Various additional IRS published stats (estates, IRAs, trusts, foundations)

Detailed income categories:

Dividends, interest ($+$ tax exempt since 1987), rents, unincorporated business profits (S corporations, partnerships, sole prop.), royalties, realized capital gains, etc.

A lot of income "flows to" individual income tax returns

Mutual funds, S corporations, partnerships, holding companies, trusts, etc.

Concentration of reported capital income has increased dramatically

The top 0.1% taxable capital income share
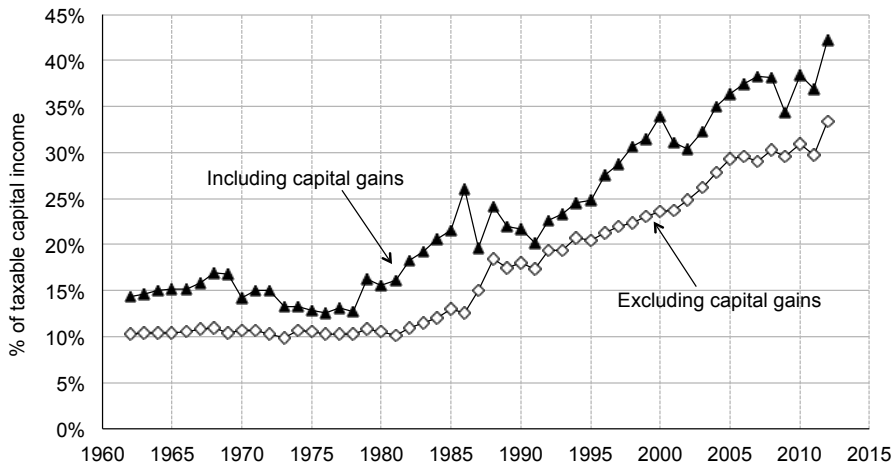
How we deal with non-taxable components

Owner-occupied housing

Home values set proportional to property tax paid

Home mortgages set proportional to mortgage interest paid

We assume (based on SCF) that itemizers have 75% of home wealth and 80% of home mortgages

Pensions

Pension wealth set proportional to pension distributions and wages above 50th percentile

Consistent with SCF and with direct information on IRA wealth from IRS (IRAs $\approx$ 30% of pension wealth)

$\Downarrow$

Only matters for top 10% but irrelevant for top 1% and above, because pensions and housing very small there

How we deal with avoidance and evasion

Tax avoidance:

Systematic reconciliation exercise with national accounts to identify potential gaps in tax data ▸ kinc

E.g., trust income $\rightarrow$ imputations on the basis of distributions (Retained trust income $\approx$ 2% of household capital income)

▸ trusts ▸ charitable

Tax evasion:

Third-party reporting means all dividends and interest earned through domestic banks are reported

Offshore wealth: If anything increases the trend in rising wealth top wealth shares by about 2 points ▸ offshore

# Is the return constant within asset class?

Two potential issues:

> Maybe the very rich have higher equity/bond returns (e.g., better at spotting good investment opportunities) → level bias

> Maybe this differential has increased since the 1970s (e.g., due to financial globalization/innovation) → trend bias

$$\Downarrow$$

Two checks show that return within asset class is flat and has remained flat

Check 1: No evidence that the wealthy have higher returns within asset class

**Returns by asset and wealth class, 2007
(matched tabulated estates and income tax data)**
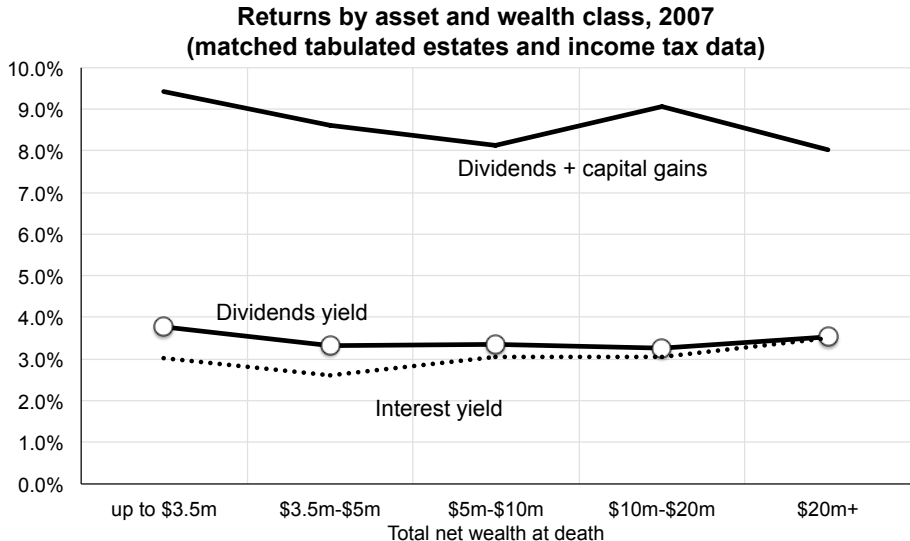
The very rich did collect a lot of dividends in the 1970s

**Dividend yield by wealth class in 1976
(matched micro estate and income tax data)**

Fractiles of the distribution of net wealth at death
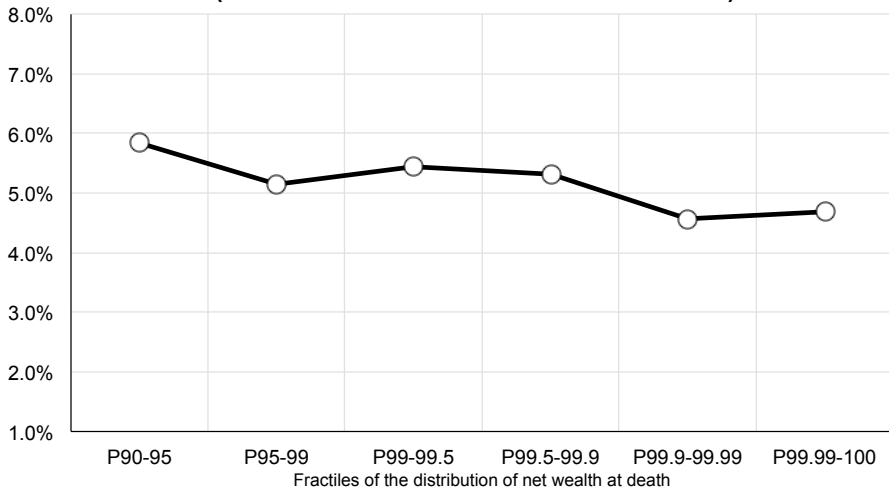
Check 2: The capitalization method works for SCF and foundations

Capitalization method can be checked with joint income and wealth micro-data:

1) SCF Data: provides individual micro-data for both wealth and (tax return) income component by component since 1989
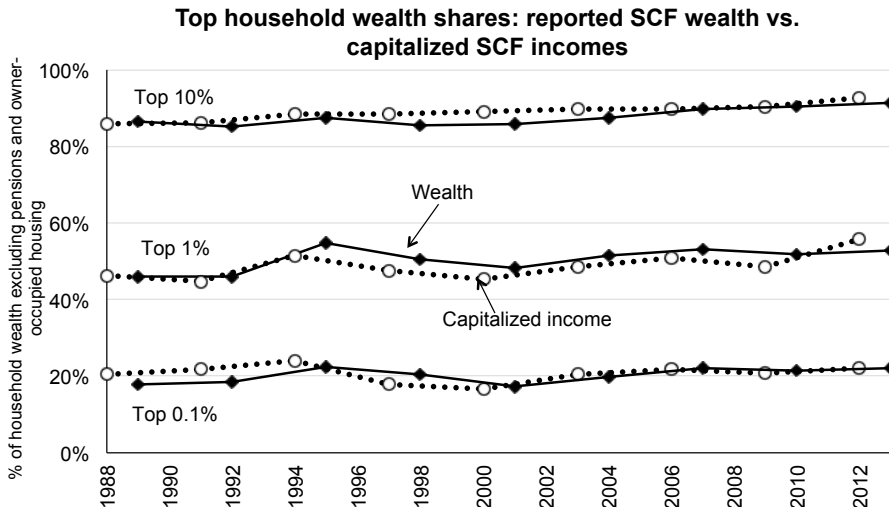
2) Foundation Data: publicly available IRS micro-data with information on both market value wealth and income ▸ returns

We apply same rates of returns & capitalization technique as for individual tax returns

⇓

By capitalizing income we are able to reproduce the correct wealth distribution

Capitalization method works for the SCF

Top household wealth shares: reported SCF wealth vs. capitalized SCF incomes

Top 10%

Wealth

Top 1%

Capitalized income

Top 0.1%

% of household wealth excluding pensions and owner-occupied housing

The figure compares direct SCF wealth shares to wealth shares estimated by capitalizing SCF income. Wealth excludes pensions and owner-occupied net housing. Source: Appendix Table C1.

Capitalization works for foundations

Top foundations wealth shares: reported wealth vs. capitalized income
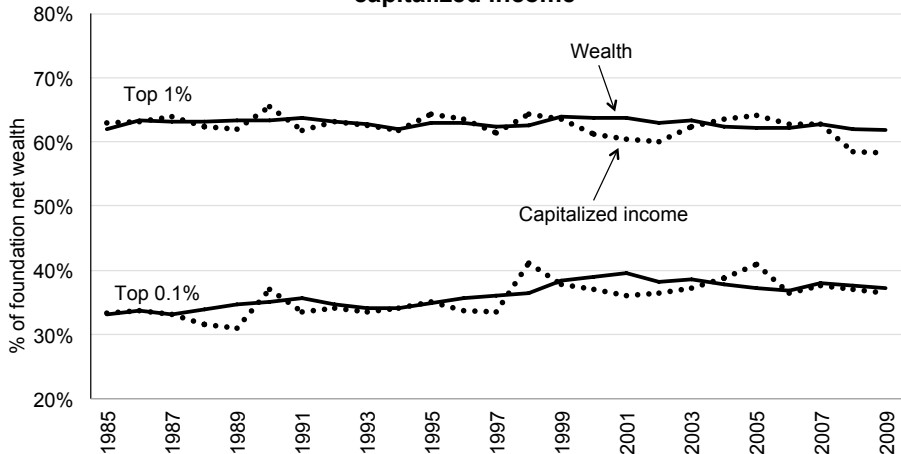
The figure compares top foundation wealth shares obtained by using balance sheet wealth data as reported to the IRS and obained by capitalizing IRS-reported income. Source: Appendix Tables C11 and C13.

II- The US Wealth Distribution, 1913-2012

Wealth in 2012 is very concentrated

Table 1: Thresholds and average wealth in top wealth groups, 2012

Wealth group	Number of families	Wealth threshold	Average wealth	Wealth share
A. Top Wealth Groups				
Full Population	160,700,000		$343,000	100%
Top 10%	16,070,000	$660,000	$2,560,000	77.2%
Top 1%	1,607,000	$3,960,000	$13,840,000	41.8%
Top 0.1%	160,700	$20,600,000	$72,800,000	22.0%
Top .01%	16,070	$111,000,000	$371,000,000	11.2%
B. Intermediate Wealth Groups				
Bottom 90%	144,600,000		$84,000	22.8%
Top 10-1%	14,463,000	$660,000	$1,310,000	35.4%
Top 1-0.1%	1,446,300	$3,960,000	$7,290,000	19.8%
Top 0.1-0.01%	144,600	$20,600,000	$39,700,000	10.8%
Top .01%	16,070	$111,000,000	$371,000,000	11.2%

Wealth inequality is making a comeback

Main long-run trends in the distribution of wealth:

Long run U-shaped evolution for the very rich
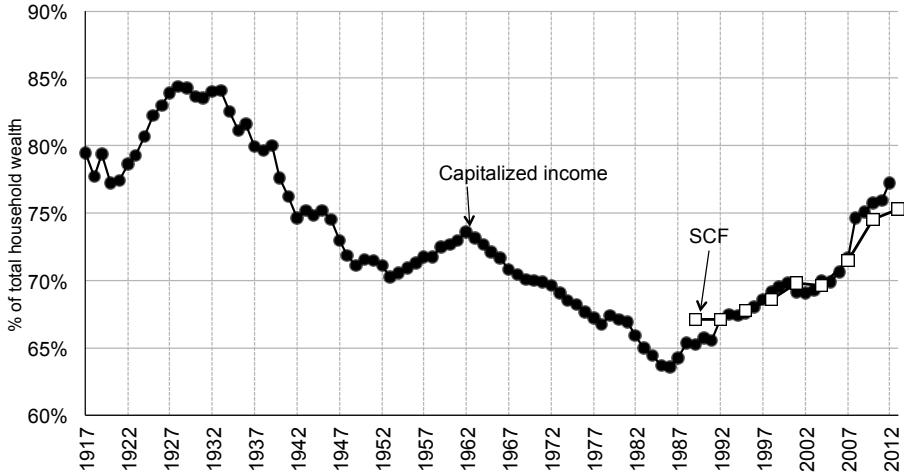(top 0.1%: >$20 million today)

Long run L-shaped evolution for the rich
(top 1% to 0.1%: between $4 million and 20 million today)

Long-run ∩-shaped for the middle-class
(top 50% to 90%: less than $650K today)

(Memo: Bottom 50% always owns ≈ 0 net wealth)

Wealth has always been concentrated

Top 10% wealth share in the United States, 1917-2012

The figure depicts the share of total household wealth owned by the top 10%, obained by capitalizing income tax returns versus in the Survey of Consumer Finances. The unit of analysis is the familly. Source: Appendix Tables B1 and C4.
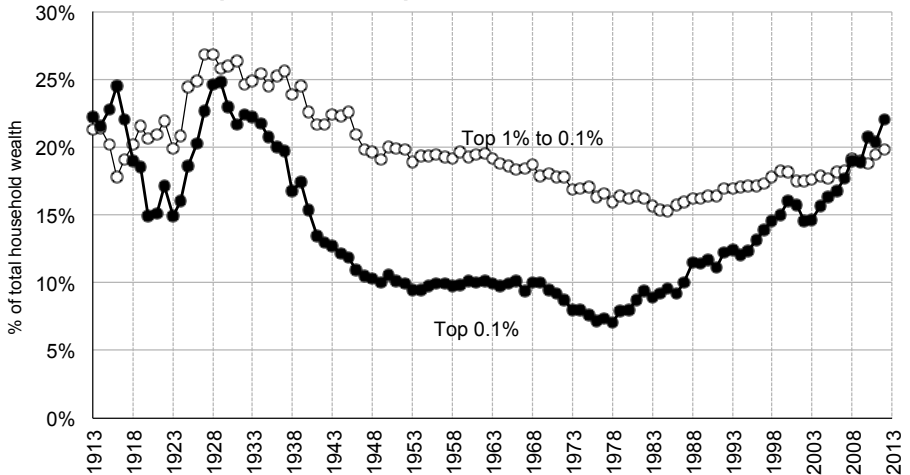
Top 1% has gained more than top 10%

Top 10-1% and 1% wealth shares, 1913-2012

Top 10% to 1%

Top 1%

% of total household wealth
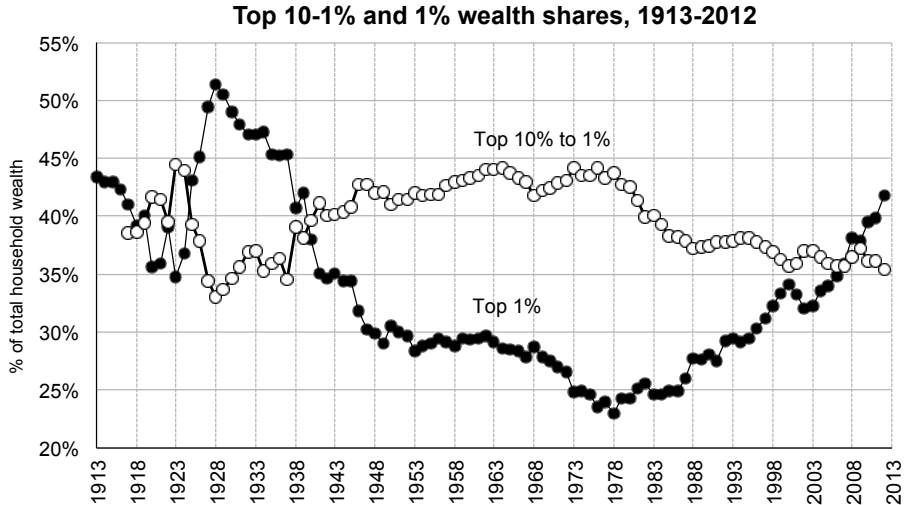
Top 1% surge is due to the top 0.1%

Top 1-0.1% and top 0.1% wealth shares, 1913-2012

Top 1% to 0.1%

Top 0.1%

% of total household wealth

Composition of the top 0.01% wealth share, 1913-2012
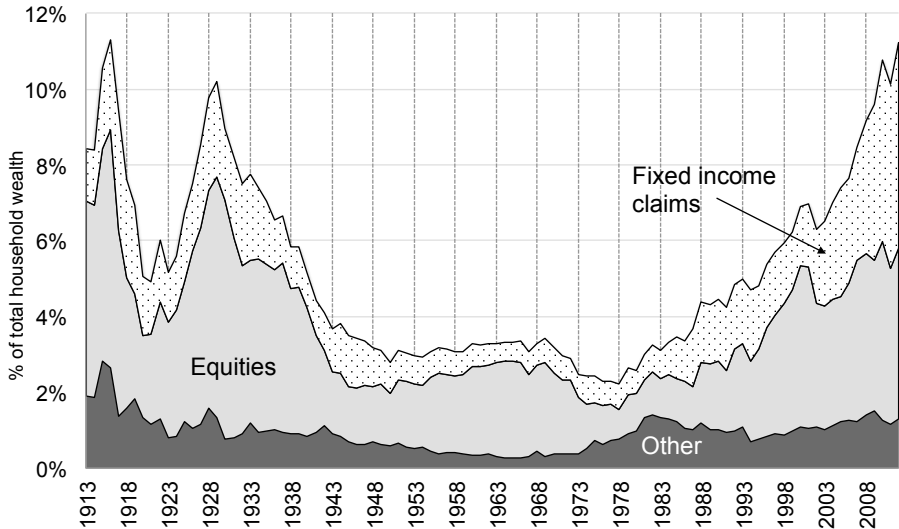
The rise and fall of middle-class wealth

Composition of the bottom 90% wealth share
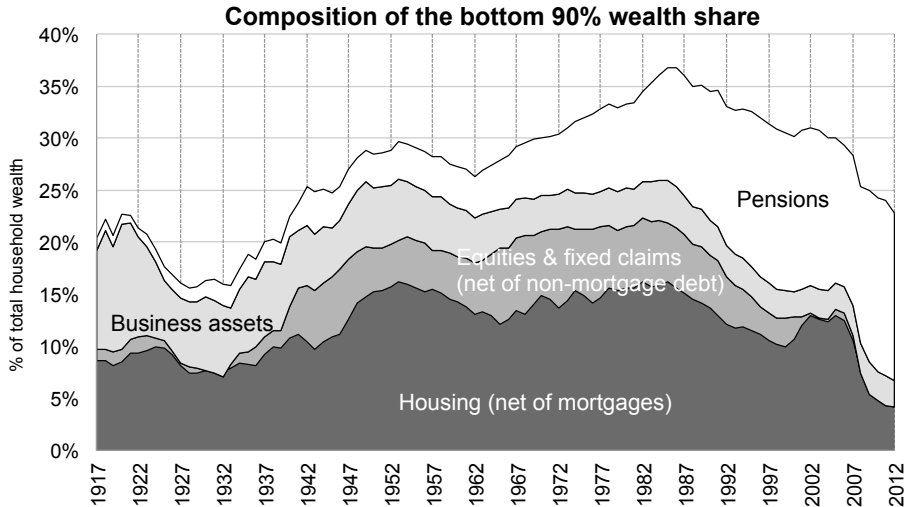
Wealth is getting older, but at the very top remains younger than in the '60s-'70s

Share of wealth held by elderly households (65+)

Top 0.1%

Total population

Bottom 90%

% of each group's total wealth

60%
50%
40%
30%
20%
10%
0%

1960   1965   1970   1975   1980   1985   1990   1995   2000   2005   2010
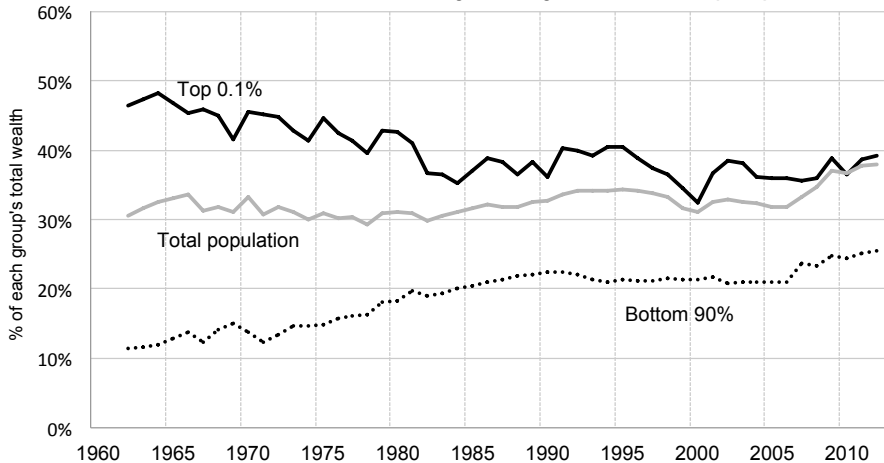
Share of income and labor income of top wealth holders has grown a lot

Share of income earned by top 0.1% wealth-holders
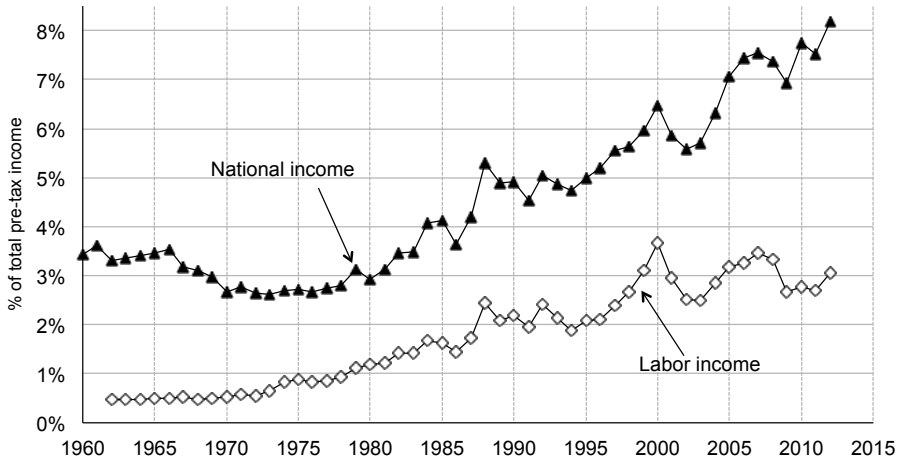
This figure shows the share of total pre-tax national income and pre-tax labor income earned by top 0.1% wealth-holders. Labor income includes employee compensation and the labor component of business income. Source: Appendix Tables B25 and B28.

III- Robustness and comparison with existing estimates

Findings are robust to different methodological choices

Robustness checks:

Different treatment of capital gains

Capitalizing dividends only (Bill Gates world)

Capitalizing dividends plus capital gains (Warren Buffet world)

Capitalizing dividends plus capital gains for shares but not ranking (the best of both worlds)
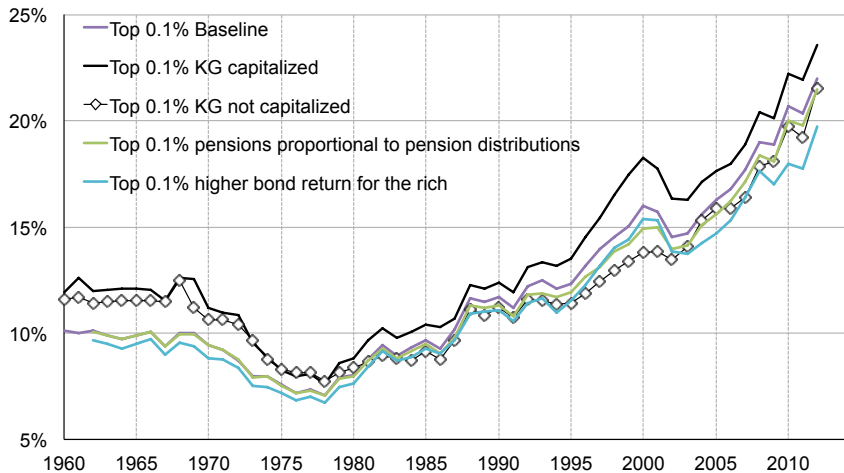
Allowing for bond yield rising with wealth

Different imputations for pension wealth

⇓

All show wealth inequalities rising fast at the very top, but not below the top 0.1%

Results robust to alternative treatment of pensions, capital gains, bond returns

Figure B27: Top 0.1% wealth share, all methods

Legend:
- Top 0.1% Baseline
- Top 0.1% KG capitalized
- Top 0.1% KG not capitalized
- Top 0.1% pensions proportional to pension distributions
- Top 0.1% higher bond return for the rich

Link with previous studies using alternative data

Forbes 400 rich list: large increase in wealth concentration

Surveys: SCF shows increase in top 10% but less in top 1%

SCF excludes Forbes 400 and under-estimates capital income concentration increases since 1989

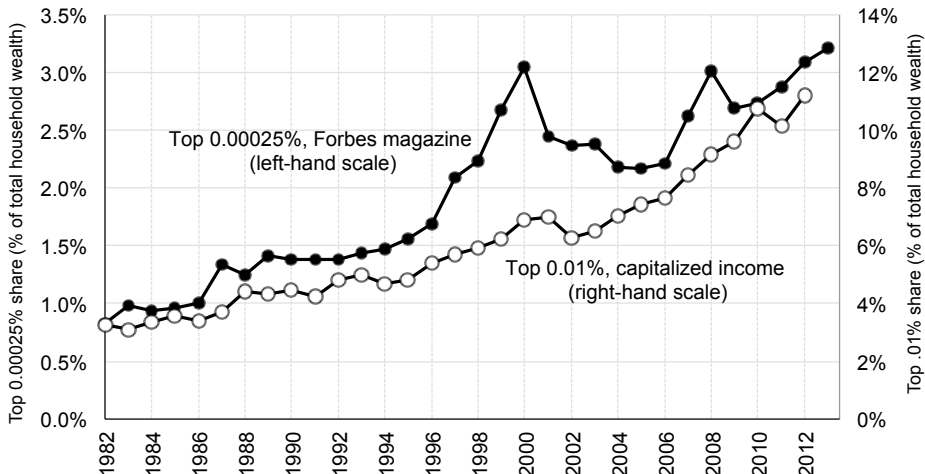**Estate tax multiplier**: No increase in top 1% wealth share since 1980s (Kopczuk-Saez 2004, SOI studies)

Estate tax multiplier method fails to take into account widening mortality differential by wealth class

⇓
Our capitalization analysis can help SCF weights and estate multiplier weights

Our estimate for top 0.01% is consistent with Forbes rankings

Forbes 400 (top .00025%) and top .01% Wealth Shares

Top 0.00025%, Forbes magazine (left-hand scale)

Top 0.01%, capitalized income (right-hand scale)

The figure depicts the top .00025% wealth share as estimated from the Forbes 400 list on the left axis. For comparison, the figure reports our top 0.01% wealth share obtained by capitalizing income tax returns (on the right axis). Source: Appendix Table C3.

Estate tax returns fail to capture rising top wealth shares

Top 0.1% wealth share: comparison of estimates
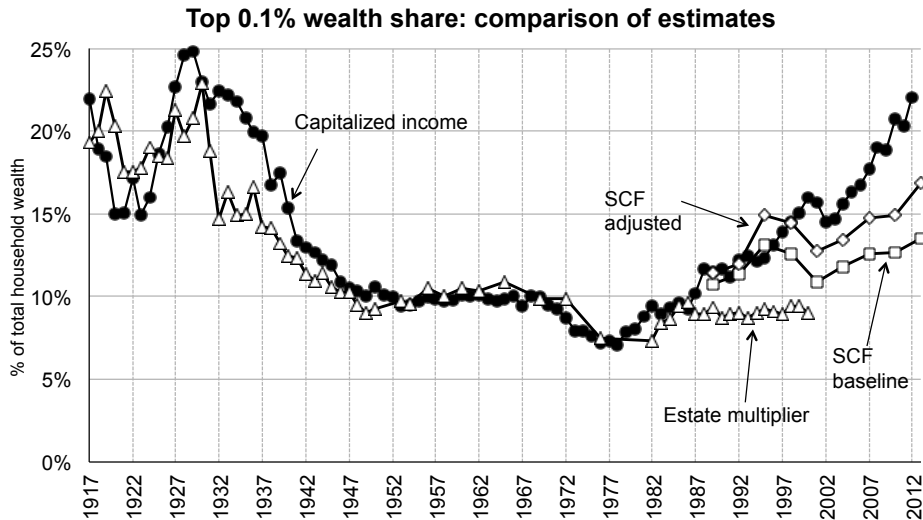
The figure depicts the top 0.1% wealth share obained by capitalizing income, by using the Survey of Consumer Finances (SCF baseline and adjusted), and by using estate tax data (Kopczuk and Saez, 2004). Source: Appendix C4 and C4b.

SCF does not fully capture rising top capital income share

**Top 0.1% Capital Income Share in the SCF and Tax Data**
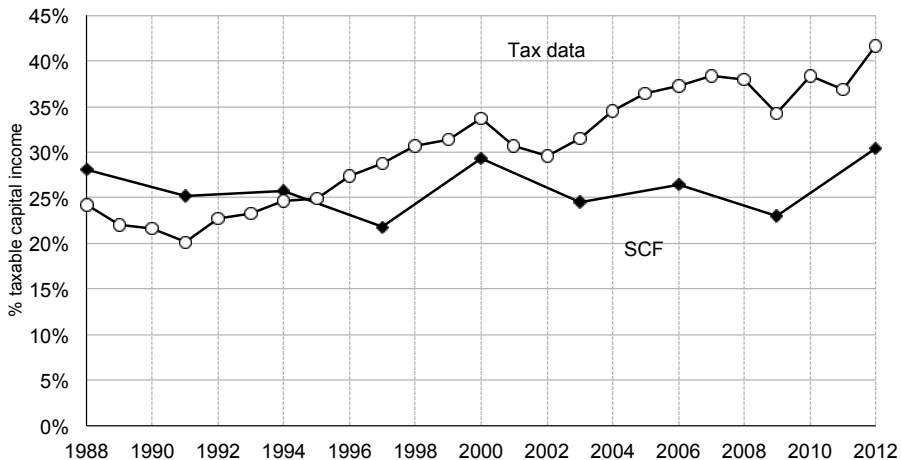
The figure compares the top 0.1% capital income shares estimated with the SCF data vs. the income tax data. Capital income includes realized capital gains, dividends, interest, net rents, and business profits. Source: Appendix Table C2.

Estate multiplier issue: mortality gradient by wealth within top 10%

Relative Mortality by Age and Wealth Group, Men, 1999-2008
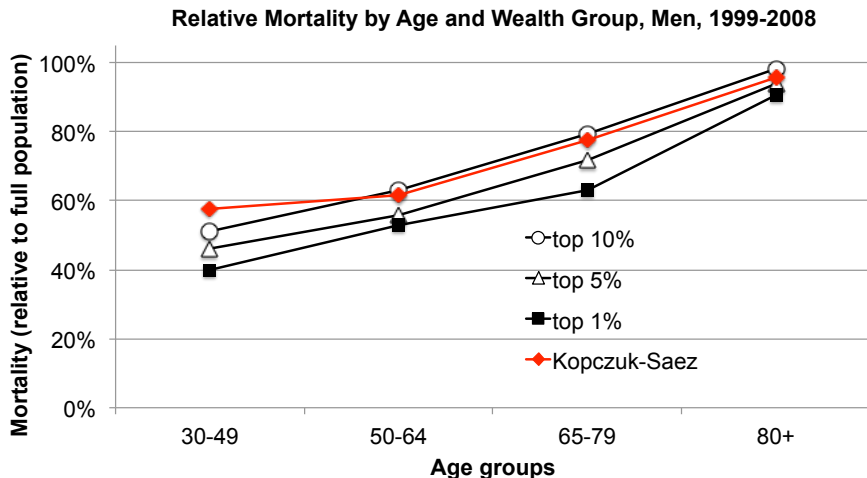
The figure depicts the relative mortality rate by age and wealth group for men in 1999-2008. E.g., male top 1% wealth holders aged 30-49 mortality rate is 40% of males aged 30-49 population wide. Kopczuk-Saez is based on the mortality of white college goers relative to population in the 1980s. The graph shows that mortality decreases with wealth (even within the top 10%) and that the wealth mortality advantage decreases with age. Source: Appendix Table C7.

Estate multiplier issue: mortality gradient by wealth widens over time

Evolution of Mortality Advantage, Men, Aged 65-79
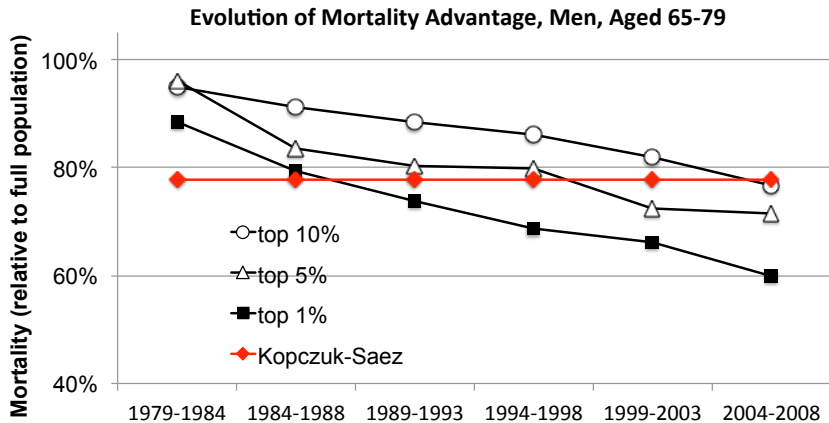
The figure depicts the relative mortality rate for men aged 65-79 by wealth group and period. E.g., male top 1% wealth holders aged 65-79 mortality rate is 90% of males aged 65-79 population wide in 1979-1984. Kopczuk-Saez is based on the mortality of white college goers relative to population in the 1980s. The graph shows that the wealth mortality advantage increases overtime and more so for the top 1% wealthiest. Source: Appendix Figure C7.

IV- Decomposing Wealth Accumulation: Saving Rates and Income Shares of Top Wealth Holders

Top 1% vs. bottom 90% wealth growth

Real average wealth of bottom 90% and top 1% families
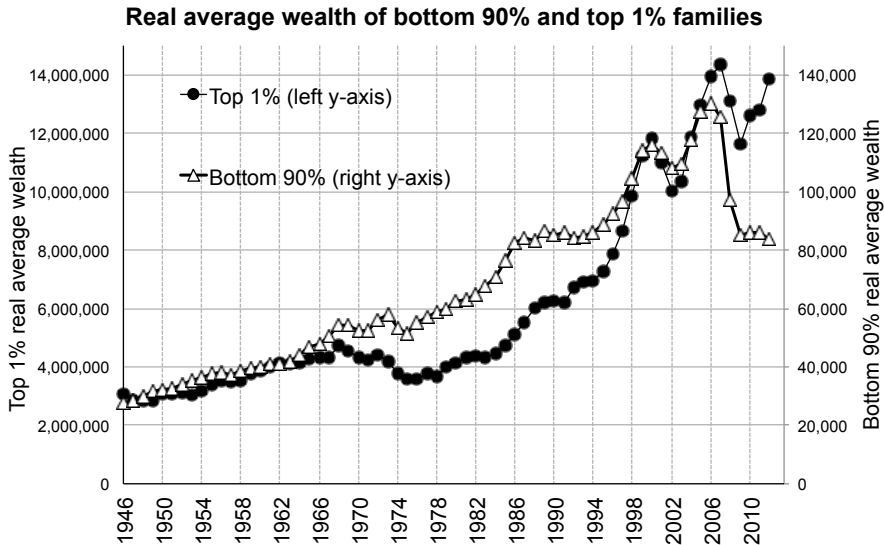
Real values are obtained by using the GDP deflator, 2010 dollars. Source: Appendix Tables B3.

Wealth distribution Dynamics

Individual *i* wealth accumulation can always be written:

$$W_{t+1}^i = (1 + q_t^i) \cdot (W_t^i + s_t^i \cdot Y_t^i)$$

where W_t^i is wealth, Y_t^i is income, s_t^i is net savings rate, $1 + q_t^i$ is pure price effect on assets in year *t*

We define **synthetic** savings rate s_t^p for fractile *p* (e.g., top 1%):

$$W_{t+1}^p = (1 + q_t^p) \cdot (W_t^p + s_t^p \cdot Y_t^p)$$

where $1 + q_t^p$ is price effect for fractile *p* based on W_t^p composition

$$\Rightarrow \textbf{long-run steady state: } sh_W^p = sh_Y^p \cdot \frac{s^p}{s}$$

where sh_W^p is fractile *p* share of wealth, sh_Y^p is fractile *p* share of income, and s^p/s is relative savings rate of fractile *p*

Saving rates typically rise with wealth

Saving rates by wealth class (decennial averages)
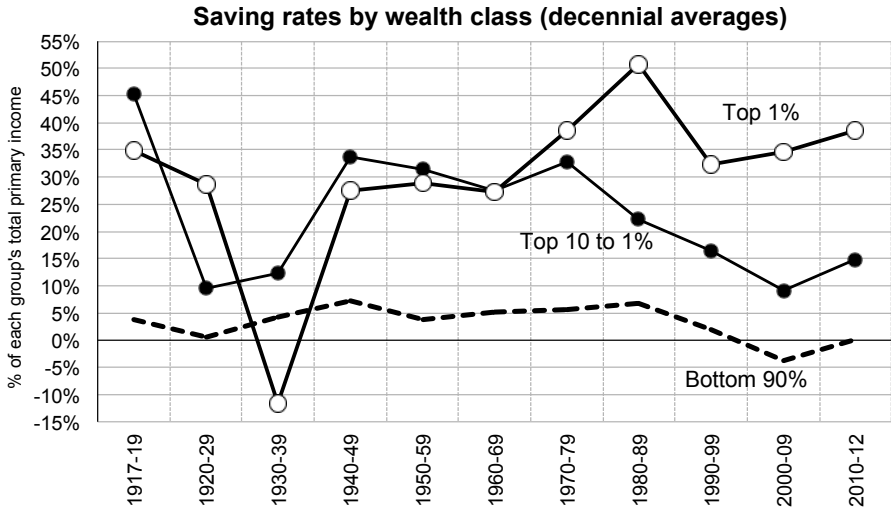
The bottom 90% massively dis-saved in the decade preceding the crisis

Saving rate of the bottom 90%

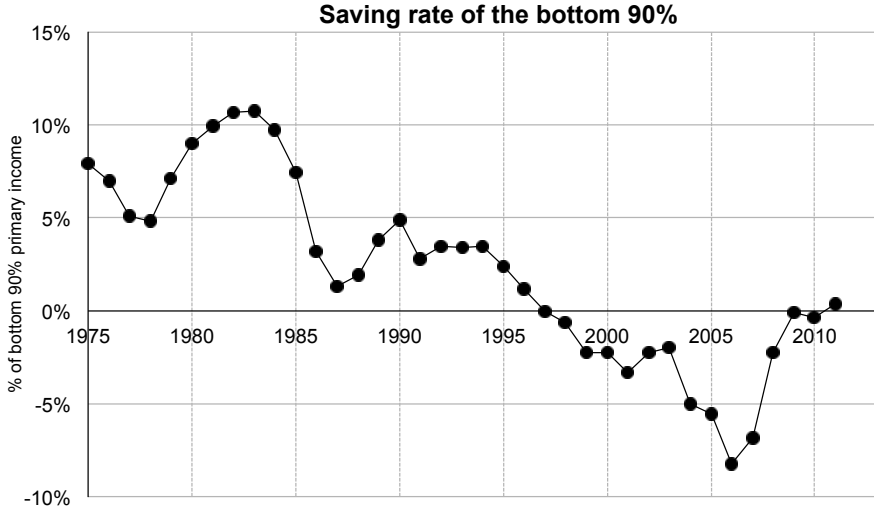# Bottom 90% wealth share decline due to (a) savings collapse, (b) income share fall

Share of income and wealth of bottom 90% wealth holders
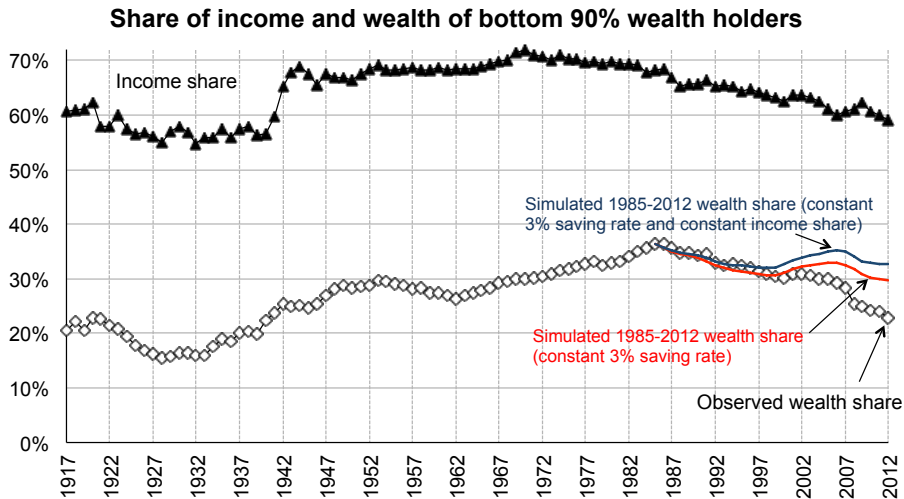
Since the 1980s the share of total household wealth owned by families in the bottom 90% of the wealth distribution has fallen proportionally more than the share of total pre-tax national income earned by these families. Source: Appendix Tables B1, B25 and B33c.

Table 2: Rates of growth, saving and return by wealth group

	Real growth rate of wealth per family	Real growth rate of income per family	Private saving rate (personal + retained earnings)	Real rate of capital gains	Total pre-tax rate of return
	g_{wf}	g_{yf}	$s = S/Y$	q	r + q
1917-1929					
All	**1.8%**	0.5%	10%	0.9%	9.0%
Bottom 90%	**-0.4%**	0.0%	1%	0.2%	7.9%
Top 10%	**2.3%**	1.2%	23%	1.0%	9.2%
Top 1%	**3.6%**	1.4%	28%	1.5%	10.5%
1929-1986					
All	**1.5%**	2.0%	12%	-0.6%	6.6%
Bottom 90%	**3.0%**	2.3%	6%	-0.2%	6.2%
Top 10%	**1.0%**	1.4%	24%	-0.9%	6.8%
Top 1%	**0.3%**	0.5%	24%	-1.1%	7.2%
1986-2012					
All	**1.9%**	1.3%	9%	0.9%	7.5%
Bottom 90%	**0.1%**	0.7%	0%	1.3%	7.5%
Top 10%	**2.7%**	2.3%	22%	0.7%	7.5%
Top 1%	**3.9%**	3.4%	36%	0.9%	7.9%

Effects of Savings and Income Inequality

Bottom 90%: Since mid-1980s, plummeting savings rate s^p for bottom 90% relative to aggregate s [due to surge in debt]

$\Rightarrow$ Decline in bottom 90% wealth share, and expected to continue

Top 1%: Since mid-1970s, surge in income share held by top wealth holders and solid savings rate s^p (relative to aggregate s)

$\Rightarrow$ Short-run: Large increase in top wealth shares, and expected to continue

$\Rightarrow$ Long-run: Self-made wealth could become inherited wealth and lead to the "patrimony society" of Piketty (2014)

Policies to Reduce Wealth Inequality

Top 1%: Progressive taxation (income, wealth, inheritance) is a proven historical tool to reduce income/wealth concentration

Progressive income and wealth tax reduce income and savings incentives at the top

Estate taxation can prevent self-made wealth from becoming inherited wealth

Bottom 90%: Collapse in savings due to surge in debt [due to present bias for consumption? stagnating incomes? financial de-regulation?]

$\Rightarrow$ Middle class income support + financial regulation

$\Rightarrow$ Need to encourage savings / discourage debt [= nudged savings + borrow against yourself?]

Conclusion

A first step toward DINA

We are constructing new, consistent series on the distribution of wealth W and income $Y = Y_K + Y_L$ fully consistent with flow of funds and national accounts

Next step: construct a microfile with individual-level income (pre-tax and post-tax) and wealth consistent with macro flow of funds and national income accounts

$=$ **distributional national accounts (DINA), reconciling macro growth and inequality studies**

Need for better wealth and savings data

Using additional data would enable us to refine our estimates:

E.g., matched property and individual income tax data

Modest additional administrative data collection effort could have high value:

401(k) taccounts balance reporting (and not only IRAs)

Mortgage balances on forms 1098

Market value of portfolio securities on forms 1099

Purchases and sales of securities (to measure saving and consumption)

$\Rightarrow$ **Necessary to obtain fully accurate distributional national accounts**

Supplementary Slides

Wealth categories definition

Equities: corporate equities, including S corporation equities, and money market fund shares (treated as dividend-paying for income tax purposes)

Fixed claims: currency, deposits, bonds, and other interest-paying assets, net of non-mortgage debts

Business assets: sole proprietorships, farms (land and equipment), partnerships, intellectual property products
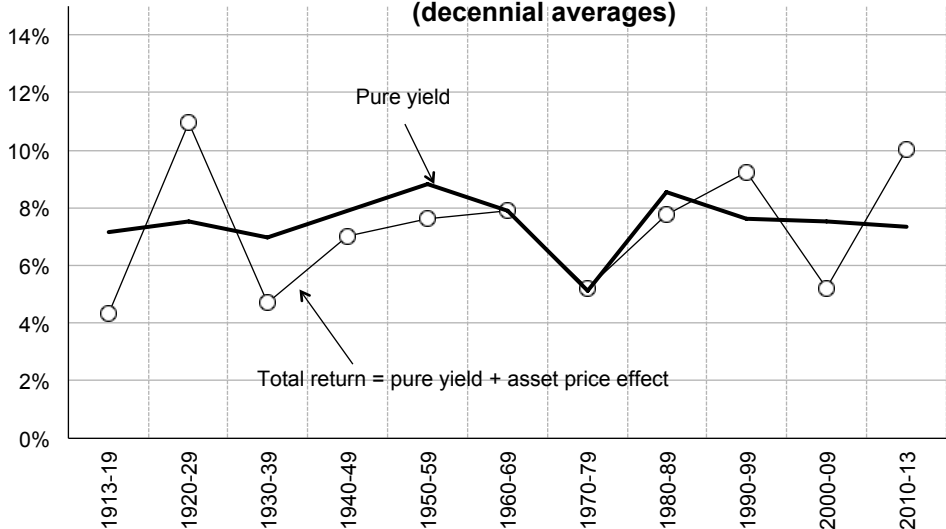
Housing: owner- and tenant-occupied housing, net of mortgage debt

Pensions: funded pension entitlements, life insurance reserves, IRAs. Excludes social security and unfunded defined benefit pensions
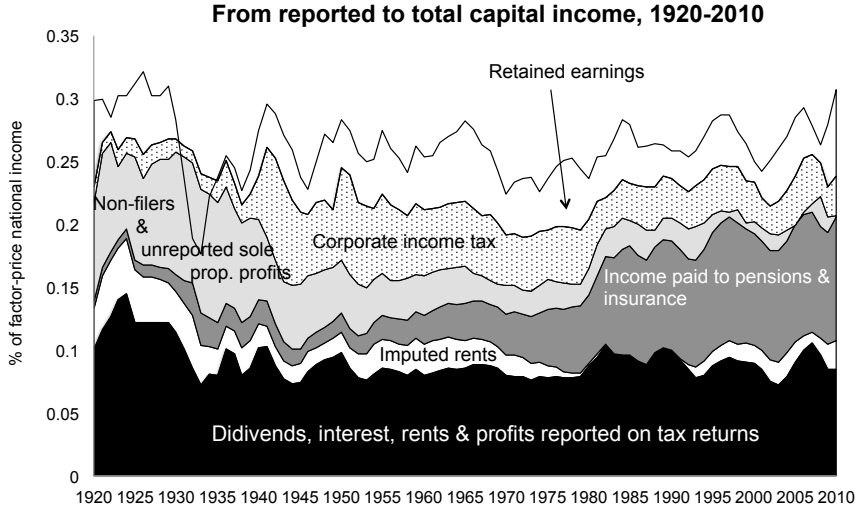
Rates of returns on wealth around 7%
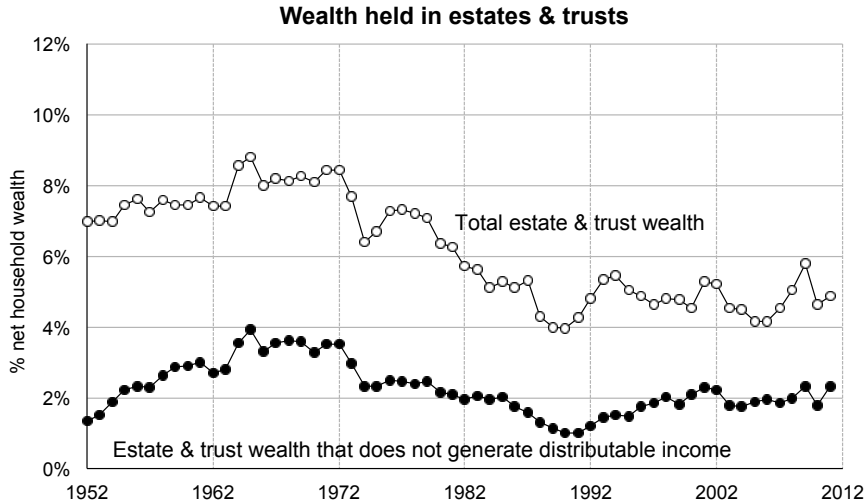## No long-run price effects

Figure A8: Yield and total return on U.S. private wealth (decennial averages)

Pure yield

Total return = pure yield + asset price effect

What tax data miss

From reported to total capital income, 1920-2010

Most trusts generate income taxable at the individual level

Wealth held in estates & trusts

Y-axis: % net household wealth (0% to 12%)

X-axis: 1952 to 2012

Total estate & trust wealth

Estate & trust wealth that does not generate distributable income

Charitable giving follows top incomes ⇒ Surge in top incomes is real

Charitable Giving of Top 1% Incomes, 1962-2012

Legend:
- Mean charitable giving of top 1% divided by mean income [left y-axis]
- Top 1% Income Share [right y-axis]

Left y-axis: Mean charitable giving of top 1% incomes / mean income

Right y-axis: Top 1% income share
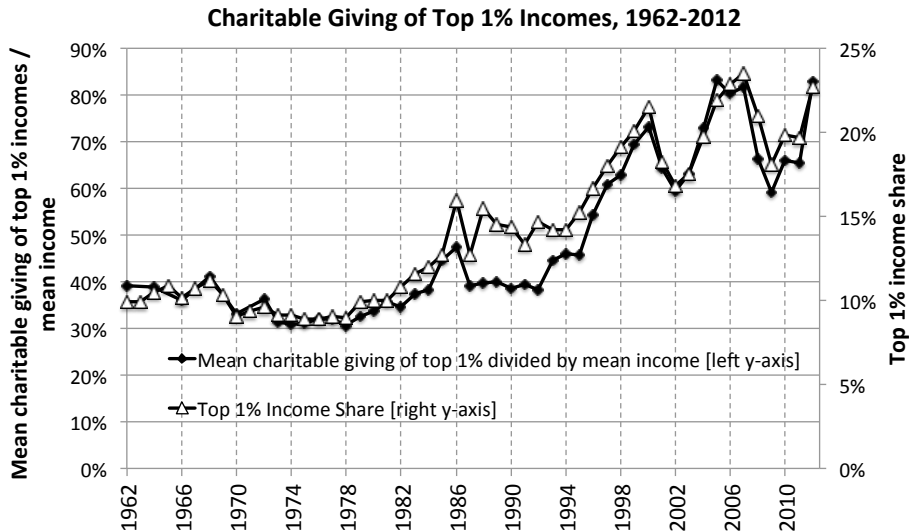
Source: The figure depicts average charitable giving of top 1% inomes (normalized by average income per family) on the left y-axis. For comparison, the figure reports the top 1% income share (on the right y-axis).

▸ back

Off-Shore Tax evasion, if anything, has probably increased since the 1970s

U.S. equities held by tax haven firms and individuals
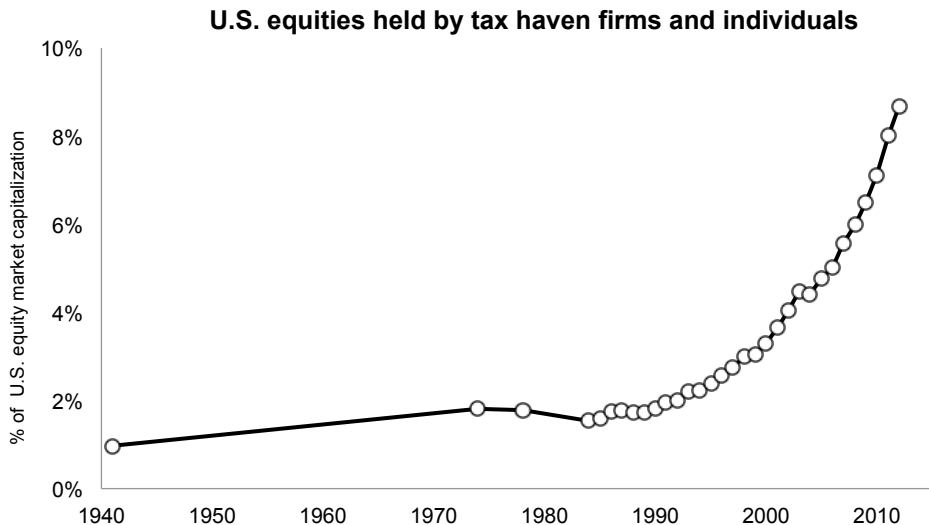
In 2012, 9% of the U.S. listed equity market capitalization was held by tax haven investors (hedge funds in the Caymans, banks in Switzerland, individuals in Monaco, etc.). Source: Zucman (2014) using US Treasury International Capital data.

back

Total returns of foundations grow with wealth but realized returns do not

Figure C4: Return on foundation wealth, 1990-2010 average
Returns including realized & unrealized gains

Legend:
- Realized return
- Unrealized capital gains

X-axis categories: 1m-10m, 10m-100m, 100m-500m, 500m-5bn, 5bn+

Y-axis: 0% to 7%

▸ back