

Distributional National Accounts: Methods and Estimates for the United States

Thomas Piketty (PSE)
Emmanuel Saez (UC Berkeley)
Gabriel Zucman (UC Berkeley)

November 2016

There is a large disconnect today between the study of inequality and macro

Macro: use national accounts, with no distributional information

Inequality: use survey & tax data, inconsistent with macro totals

This gap makes it hard to know **growth is distributed** and to analyze the causes of the rise in inequality

How does growth of bottom 50%, middle 40%, top 10% adults compare to total growth?

What part of rise in inequality owes to change in factor shares vs. changes in the concentration of labor and capital?

How do taxes and gov spending affect the distribution of growth?

This paper: attempt at constructing Distributional National Accounts (DINA)

We construct a **micro database** of income, wealth, taxes and transfers consistent with national accounts totals in the US:

First income inequality series covering 100% of national income

First growth statistics by quantile consistent with macro growth

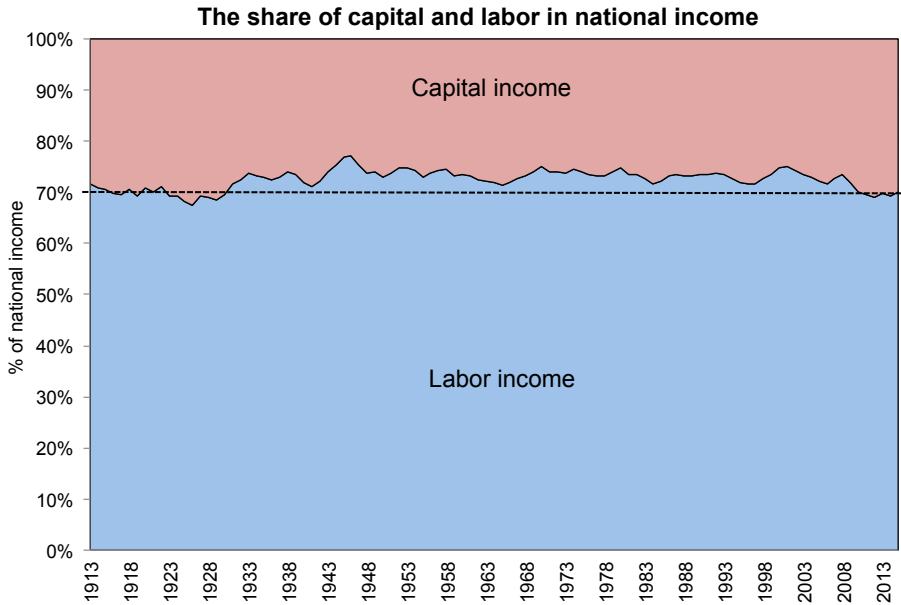
First assessment of total redistributive effects of gov. intervention

→ Getting back to Kuznets' original intent to study growth & inequality jointly, but with more and better data

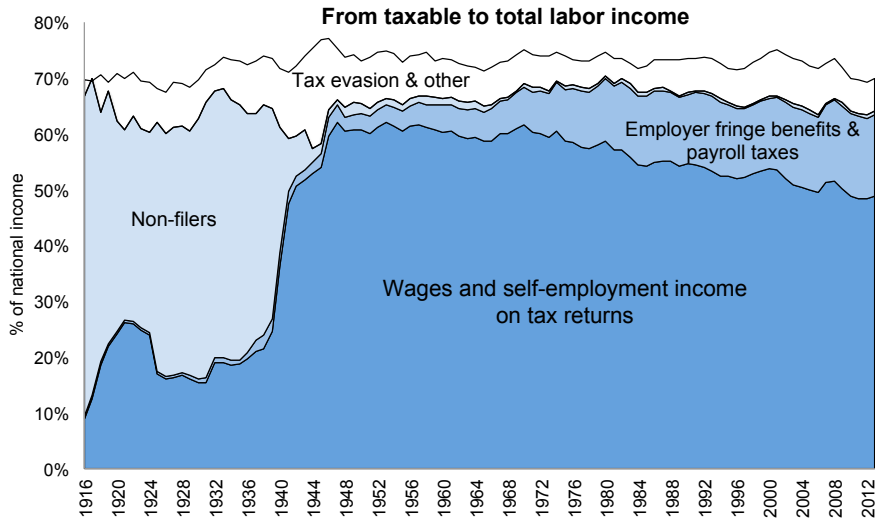
→ Ultimate goal: being able to better compare ineq. across countries

Our objective:
Distribute national income

National income = labor income + capital income

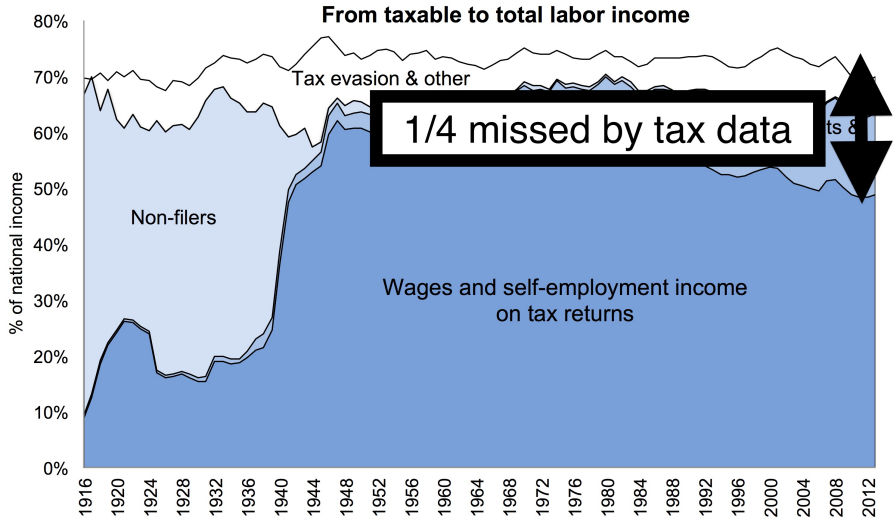


Reconciling national labor income and labor income reported on tax returns



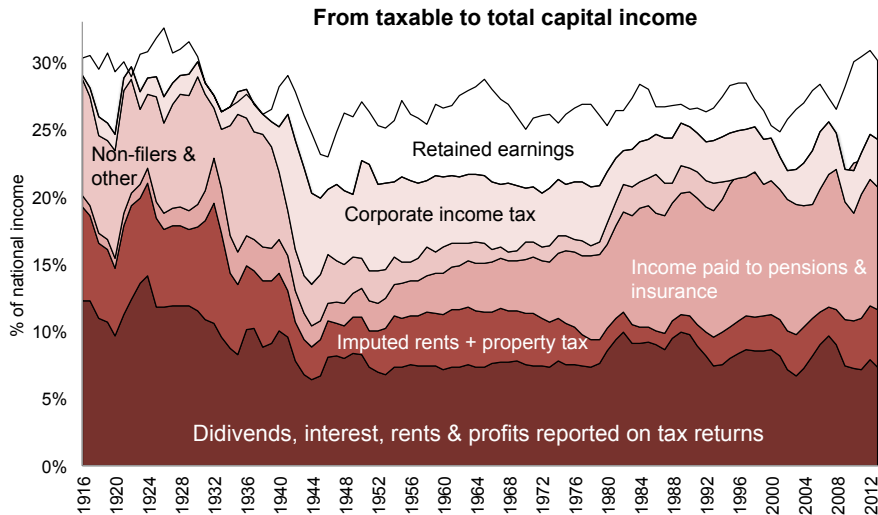
Source: Appendix Table I-S.A8b.

A growing fraction of labor income is missed by tax data



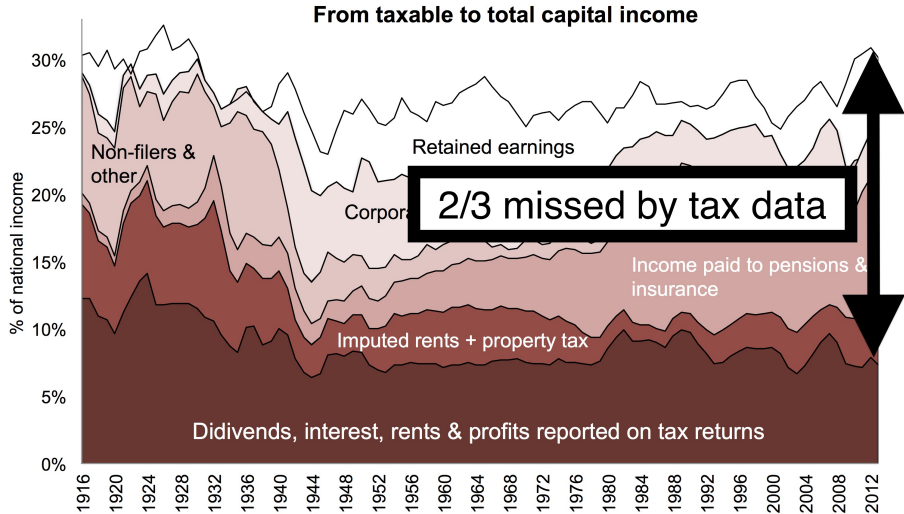
Source: Appendix Table I-S.A8b.

Reconciling national capital income and capital income reported on tax returns



Source: Appendix Table I-S.A8.

Most capital income is missed by tax data



Source: Appendix Table I-S.A8.

Methodology:

How we distribute national income

How we move from fiscal income to total national income

1. Start with public-use samples of tax returns (1962-2010)

High quality, oversamples top

2. Supplement public-use files using additional IRS data

Age and gender information since 1979

Labor split for couples & fringe benefits on W2 since 1999

3. Impute missing income using SCF and CPS

Non-taxable capital income (pension funds, imputed rents): SCF

Monetary transfers: imputed based on CPS distribution by family income deciles and basic demographics

4. Distributionally neutral assumptions for public goods

We consider three main concepts of income matching national income

Factor national income

Sum of all labor income and capital income

Pre-tax national income

Subtracts contributions for pensions and social insurance, adds corresponding benefits (pensions, disability, unemployment)

Post-tax national income

Subtracts all other taxes

Adds back all other forms of government spending (individualized transfers + public goods)



Same national income total for factor, pre-tax and post-tax → gives the broadest view of the redistributive effects of the government

Final product: a new tool for the study of inequality & growth

Annual micro-data set representative of US pop. (1962-present):

Detailed income & wealth variables matching national accounts aggregates

Demographic information: age, gender, marital status, children

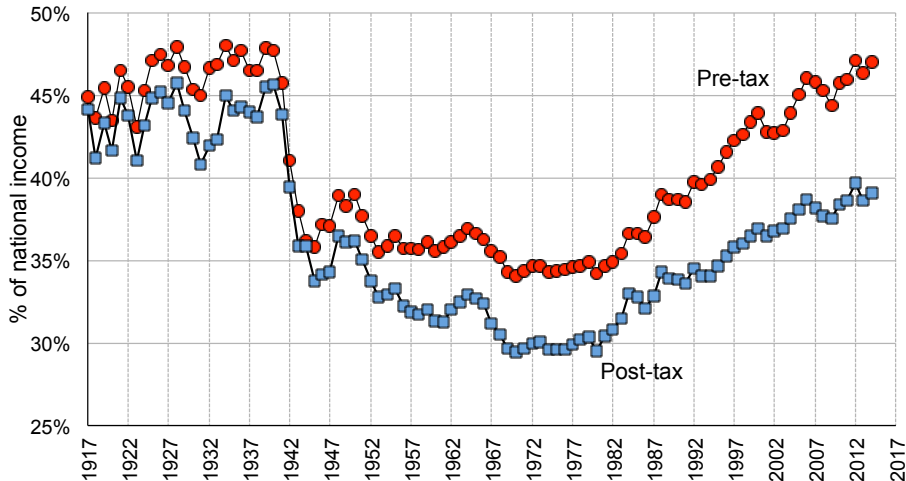
Can be used to compute wide array of growth & inequality stats, and simulate tax and transfer reforms

For 1913-1961: we rely on tabulated tax statistics → produce series for specific income fractiles (top 10% and above)

The distribution of US national
income and growth:
Pre-tax vs. post-tax

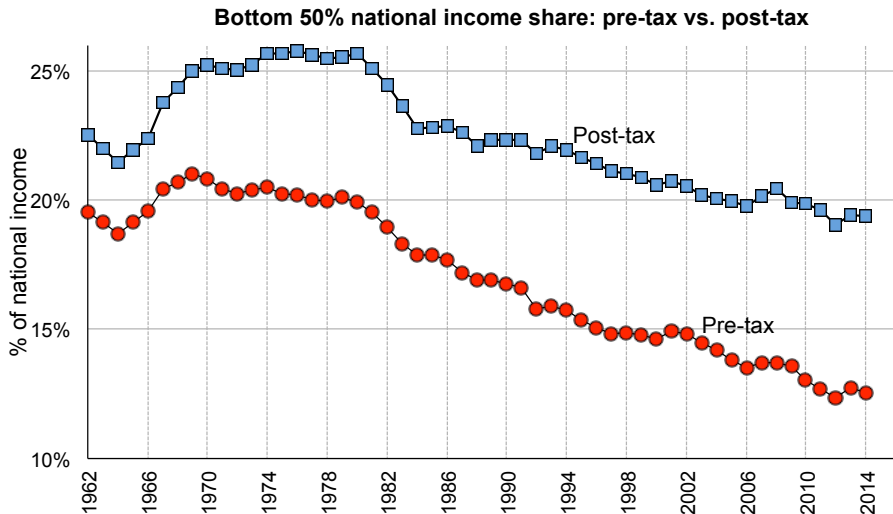
DINA confirm the rise of income inequality, but post-tax inequality ↗ less

Top 10% national income share: pre-tax vs. post-tax



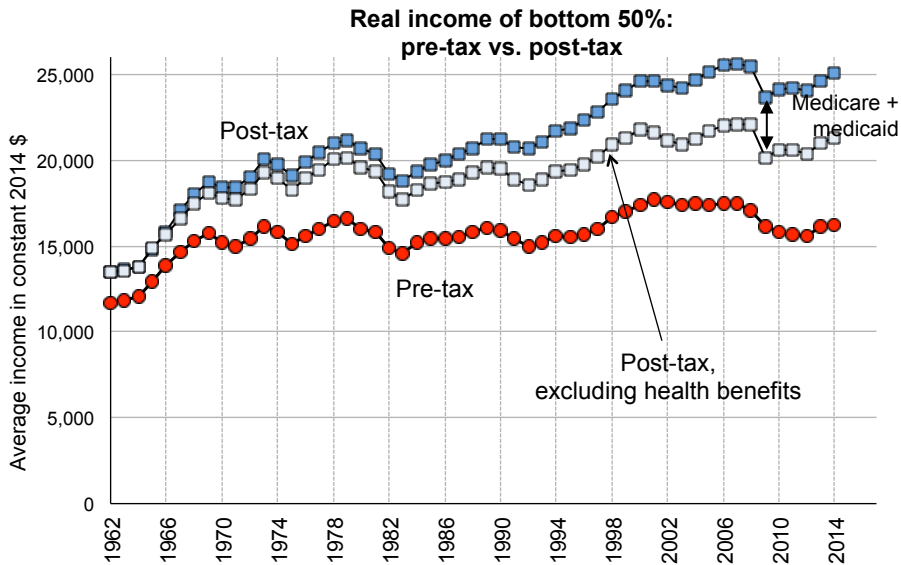
Source: Appendix Tables II-B1 and II-C1

Bottom 50% share has collapsed



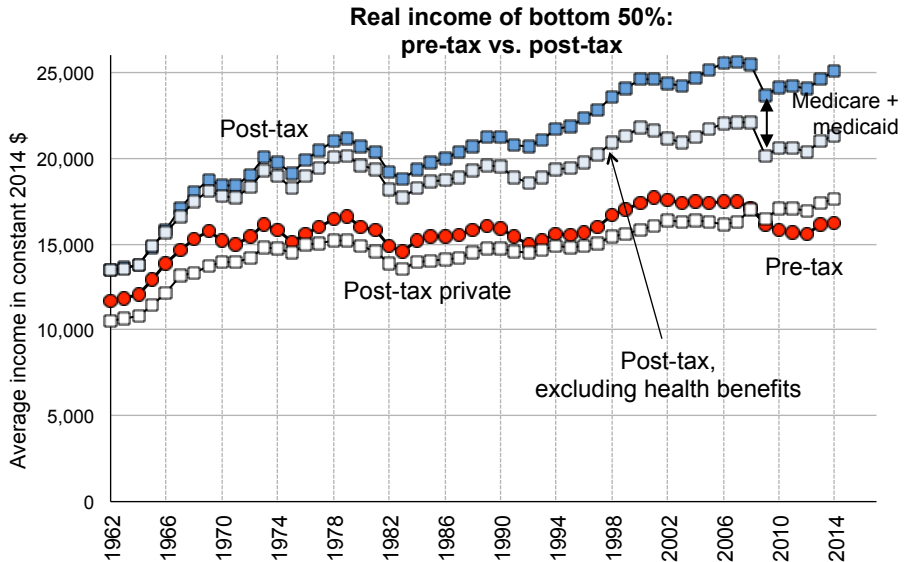
Source: Appendix Tables II-B1 and II-C1

Post-tax growth for bottom 50% has been anemic, and eaten up by health spending



Source: Appendix Tables II-B7, II-C7 and II-C3c.

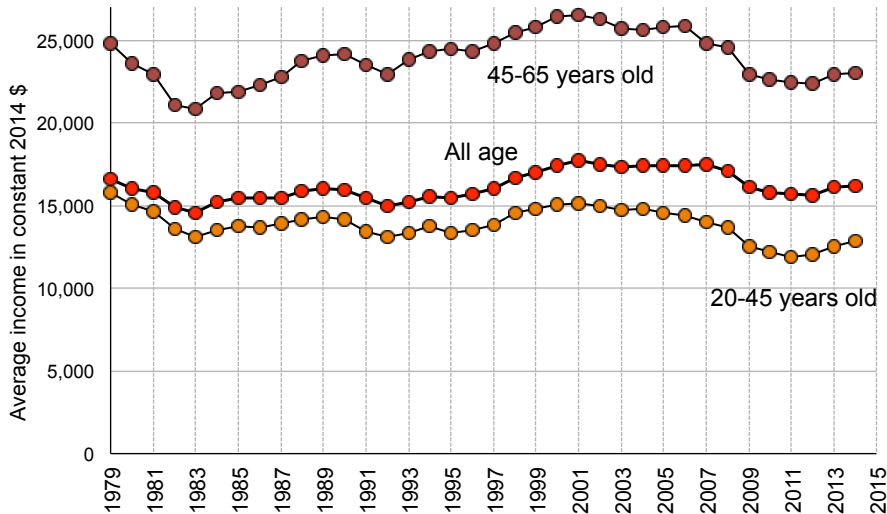
The bottom 50% does not benefit on net from cash redistribution



Source: Appendix Tables II-B7, II-C7 and II-C3c.

For bottom 50% working-age adults, pre-tax income has collapsed since 1979

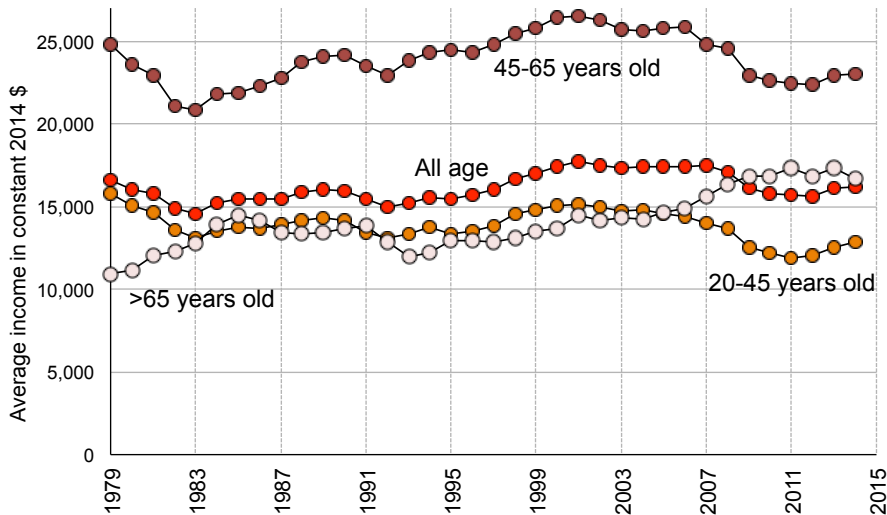
Real pre-tax income of bottom 50%, by age group



Real values are obtained by using the national income deflator and expressed in \$2014. Income is divided equally among spouses.

At the bottom, only retirees' pre-tax income is growing

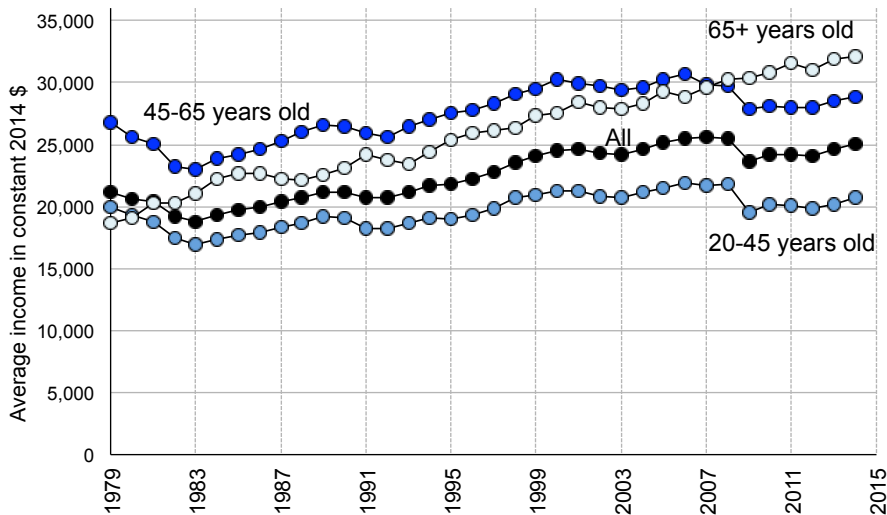
Real pre-tax income of bottom 50%, by age group



Source: Appendix Tables II-B7 and II-B7b.

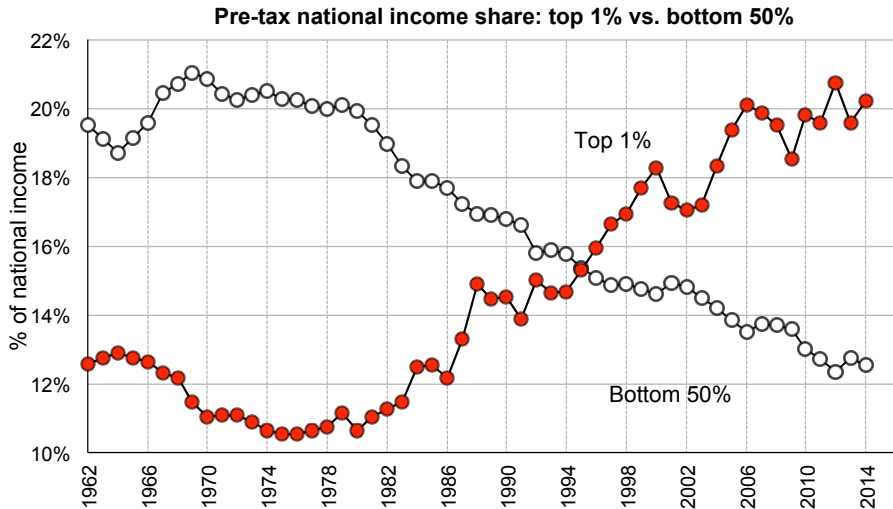
Even after transfers, 0 growth in working-age bottom 50% income since 79

Real post-tax income of bottom 50%, by age group



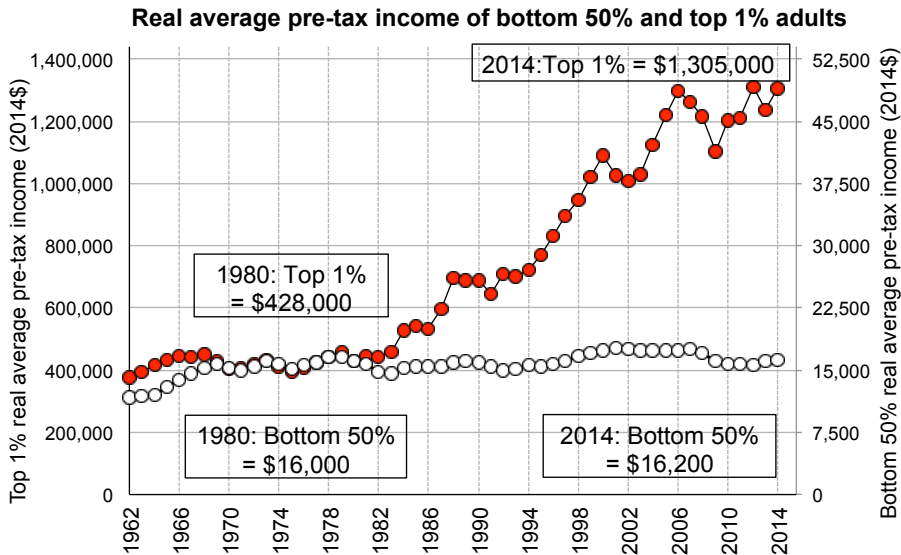
Source: Appendix Tables II-C7 and II-C7b.

The fall of the bottom 50% mirrors the rise of the top 1%



Source: Appendix Table II-B1

1980: Top 1% income = 27 × bottom 50
2014: Top 1% income = 81 × bottom 50



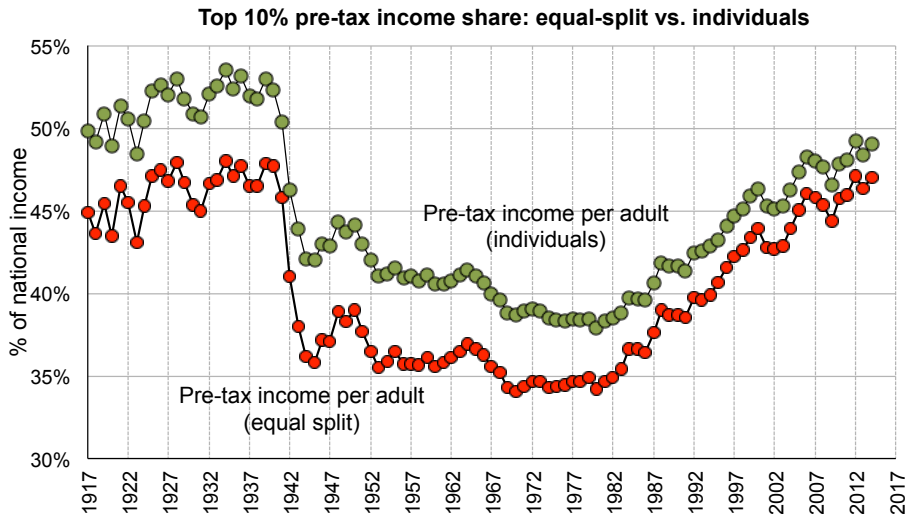
Source: Appendix Tables II-B7 and II-B10

Changes in standards of living in the United States since 1946

Income group	Pre-tax income growth		Post-tax income growth	
	1980-2014	1946-1980	1980-2014	1946-1980
Full Population	61%	95%	61%	95%
Bottom 50%	1%	102%	21%	130%
Middle 40%	42%	105%	49%	98%
Top 10%	121%	79%	113%	69%
Top 1%	205%	47%	194%	58%
Top 0.1%	321%	54%	299%	104%
Top 0.01%	454%	75%	424%	201%
Top 0.001%	636%	57%	617%	163%

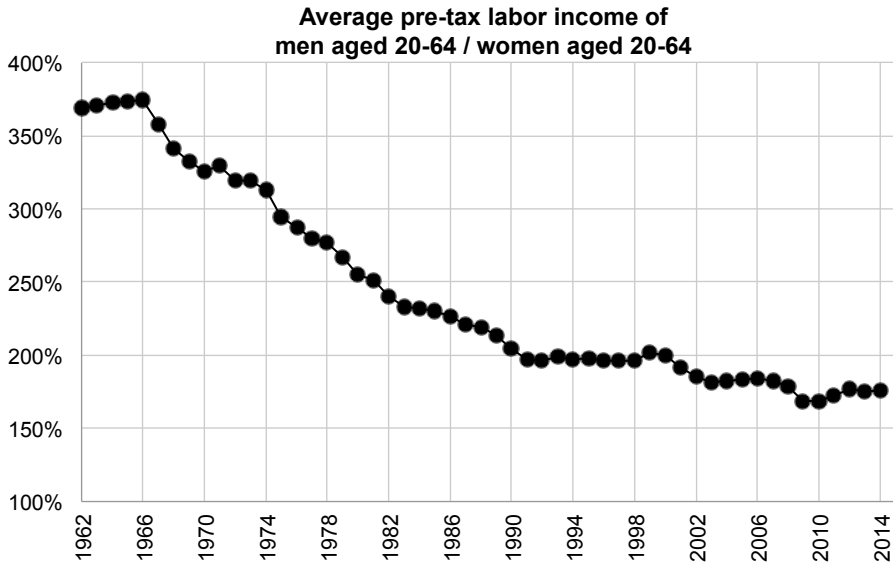
Gender inequality and its effect on individual-level inequality

When assigning each spouse her own labor income, inequality has increased less



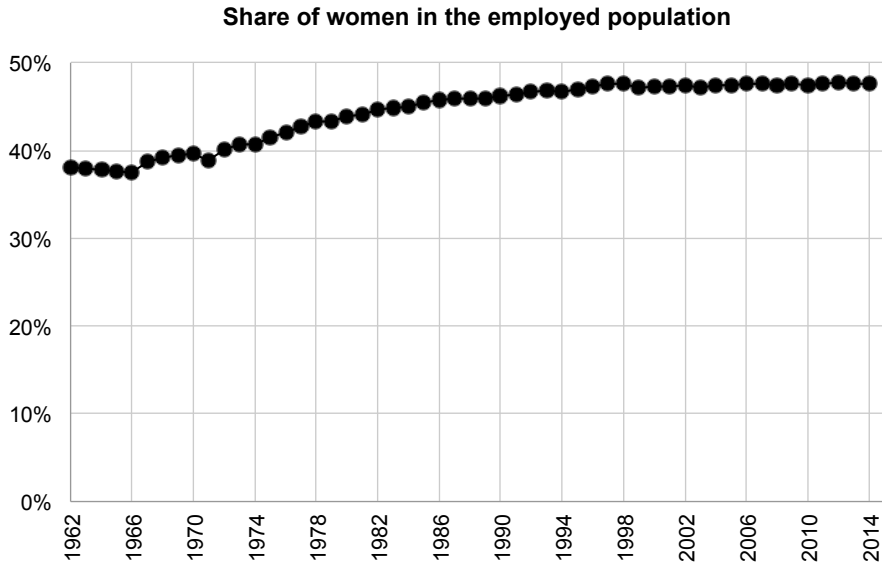
Source: Appendix Table II-B9.

This is due to the decline in the inequality of labor income between genders



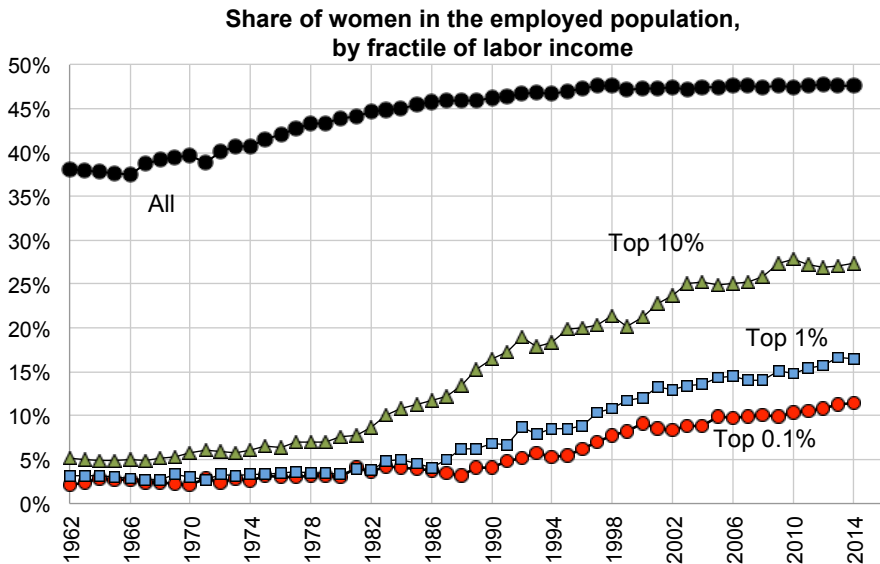
Source: Appendix Table II-F1.

Part of the decline in gender inequality owes to rising female labor force particip.



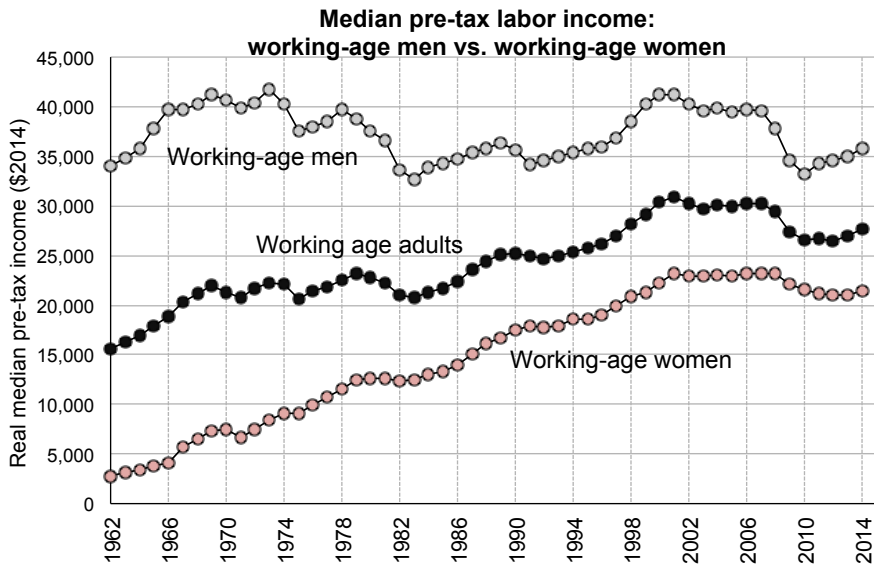
Source: Appendix Table II-F1.

Men still make 85% of the top 1% of the labor income distribution



Source: Appendix Table II-F1.

At the median, no growth for working-age men over half a century

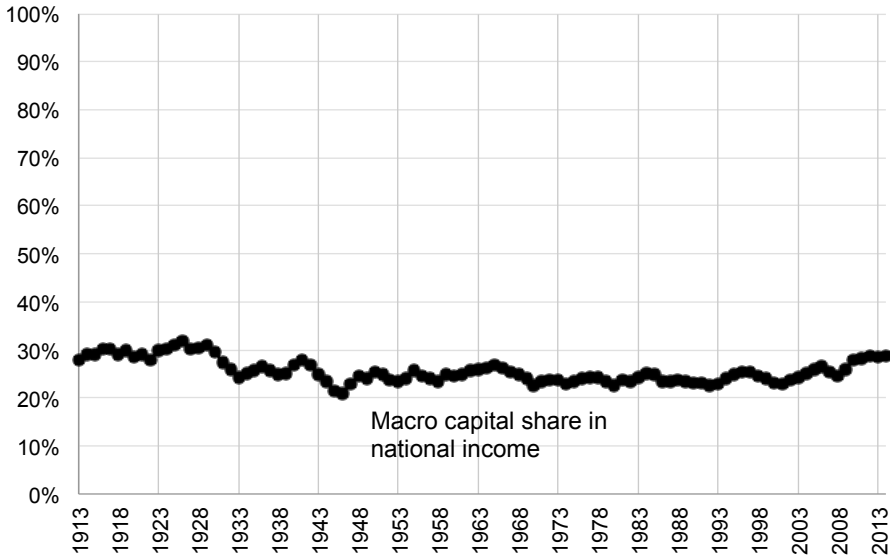


Source: Appendix Table II-B13.

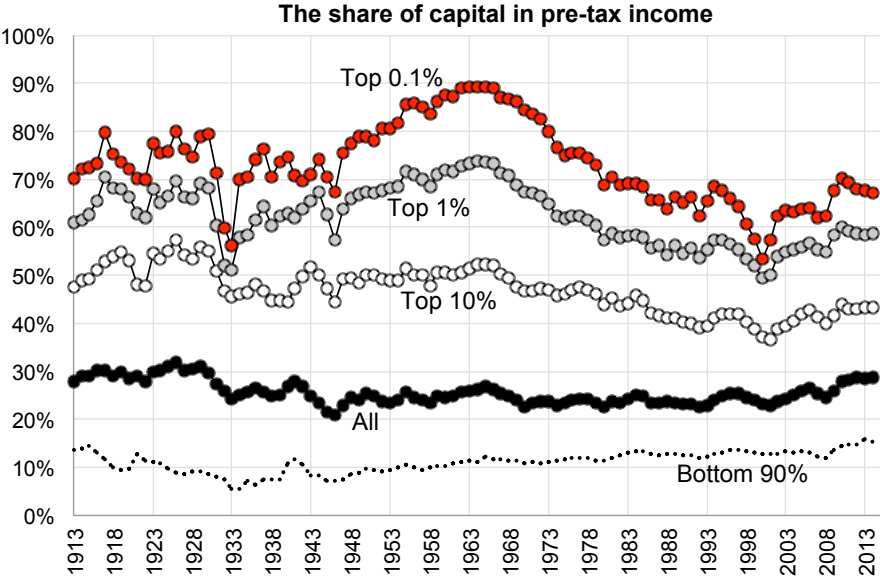
Decomposing inequality: Labor vs. capital

Capital is making a comeback in the US

The share of capital in pre-tax income

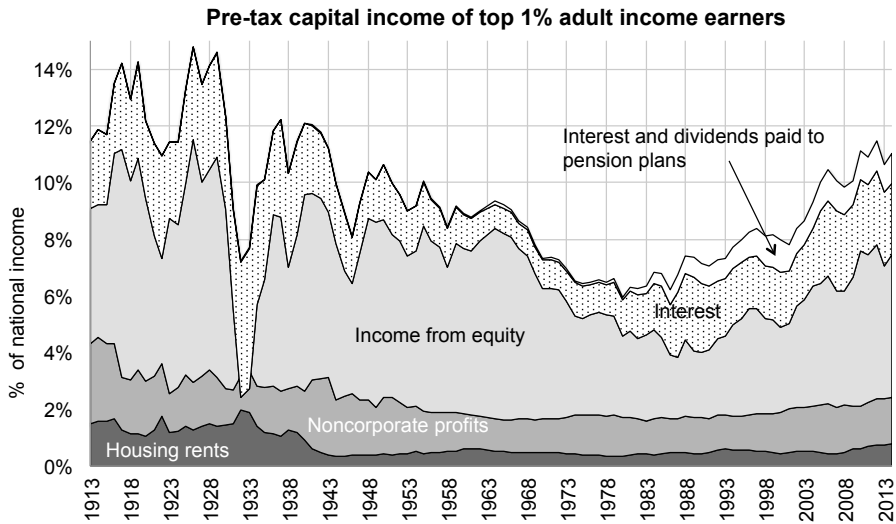


Capital is making a comeback at the top



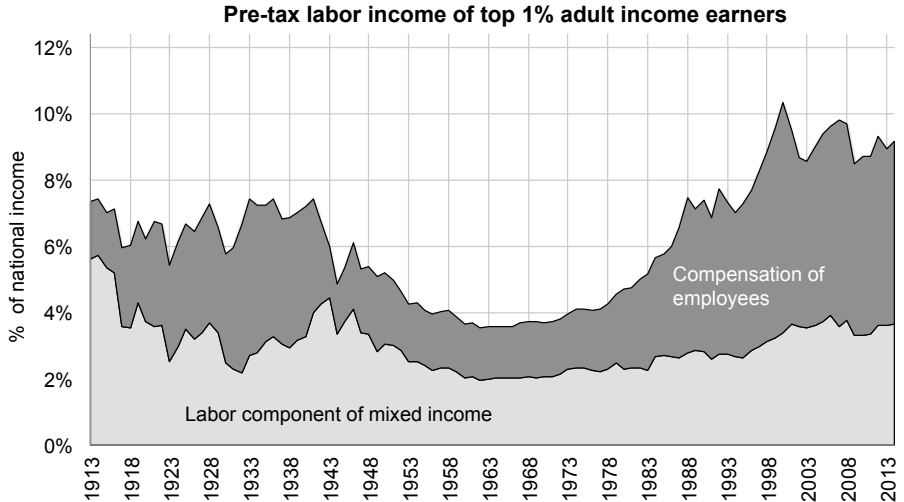
Source: Appendix Table II-B2d.

Since the 1990s, top 1% rises because of capital income



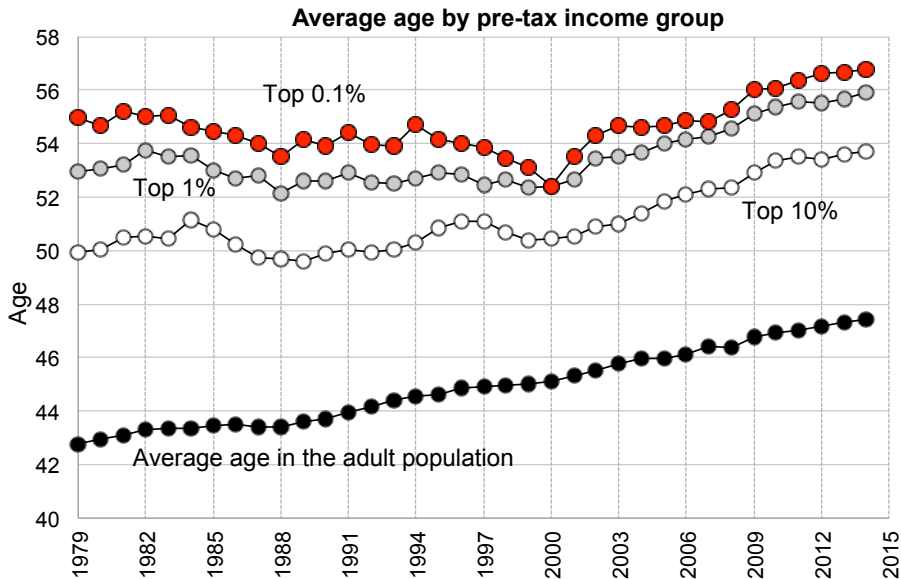
Source: Appendix Table II-B2b

Labor income concentration has stopped rising since the late 1990s



Source: Appendix Table II-B2b.

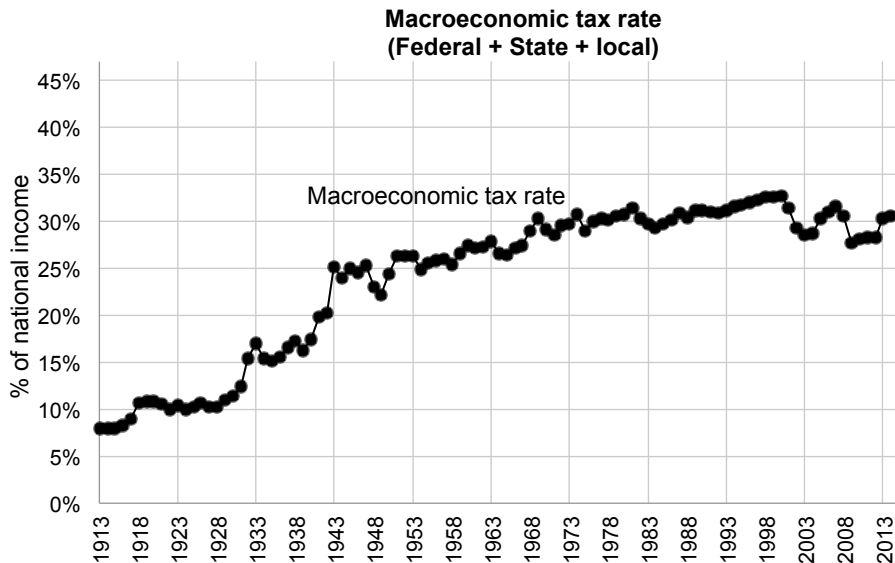
The top became younger in the 1980s and 1990s, since the 2000s is growing older



Source: Appendix Table II-F2.

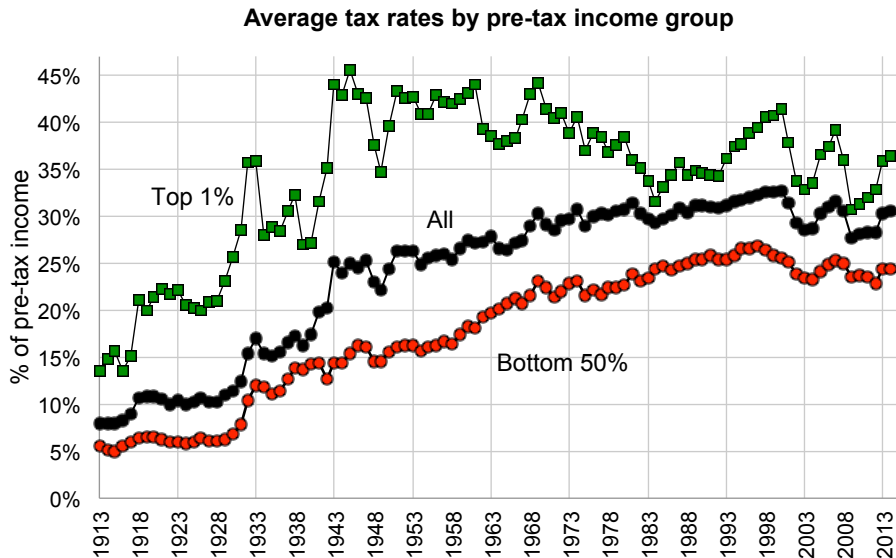
Decomposing inequality: the role of taxes and transfers

The macro rate of tax rose until the 1960s and has been constant since then



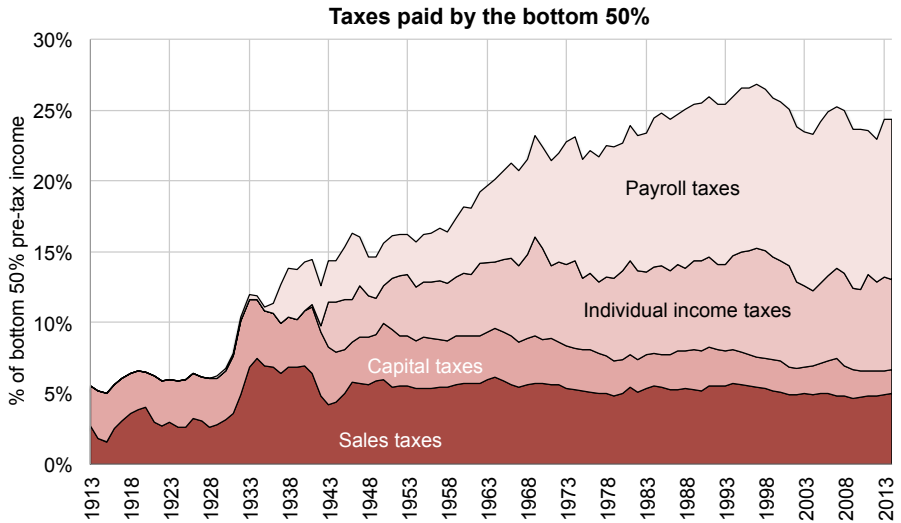
Source: Appendix Table II-G1.

Tax progressivity has declined since the 1960s



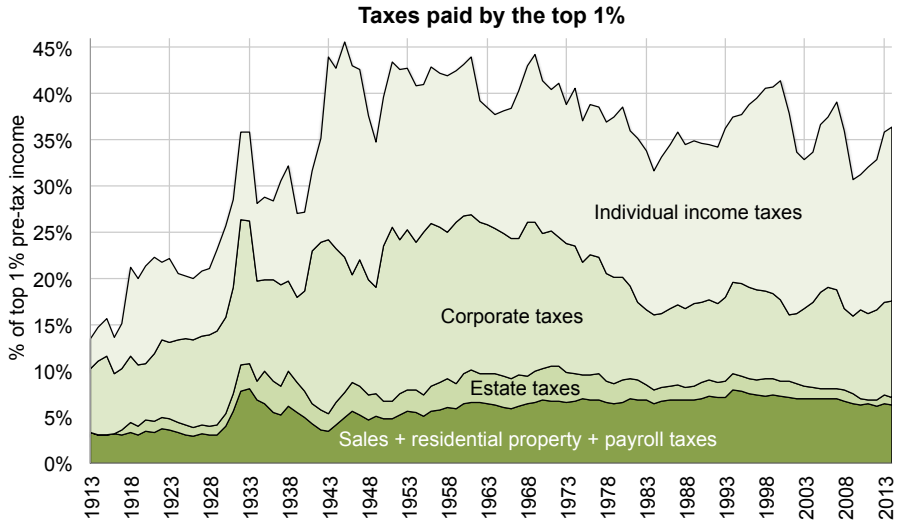
Source: Appendix Table II-G1.

Taxes have increased for the bottom 50% because of payroll taxes



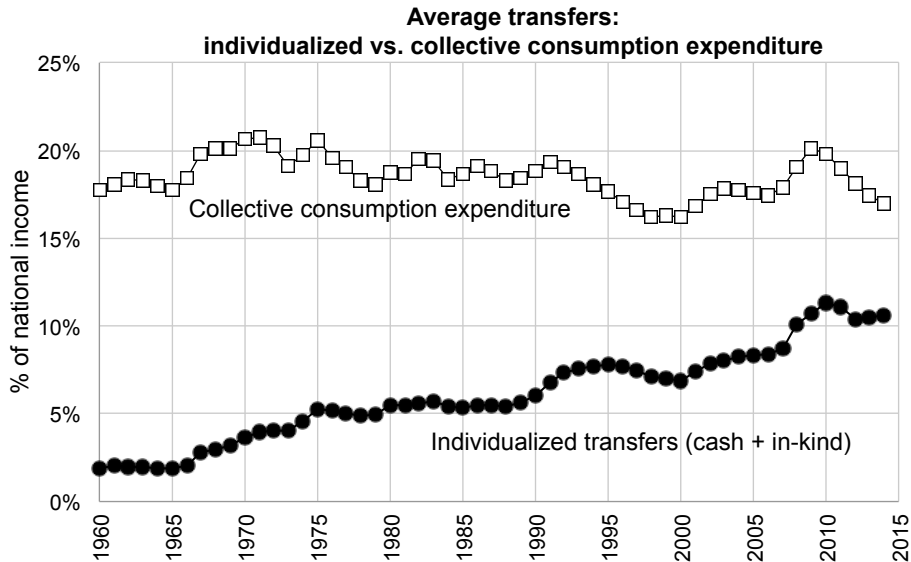
Source: Appendix Table II-G2

Taxes have fallen at the top because of the decline of corporate and estate taxes



Source: Appendix Table II-G2

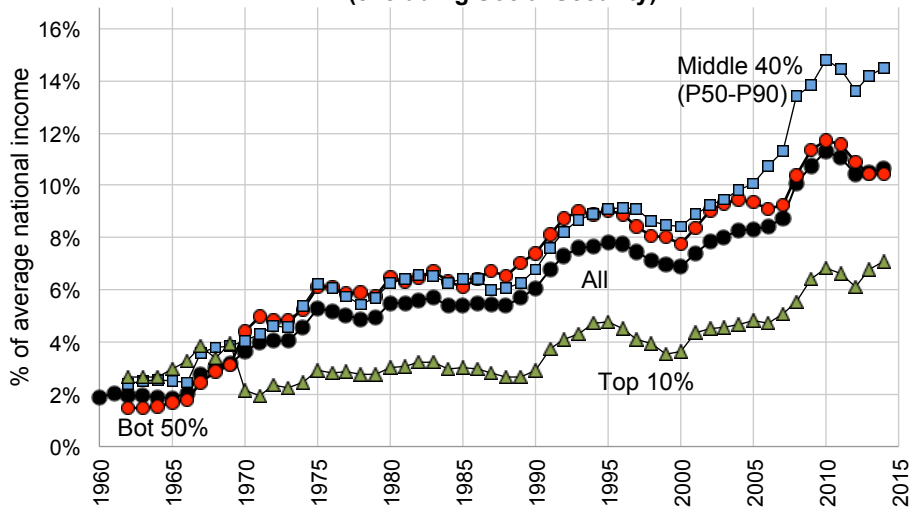
Individualized transfers have increased since the 1960s



Source: Appendix Table G4

More transfers go to the middle class than to bottom 50%

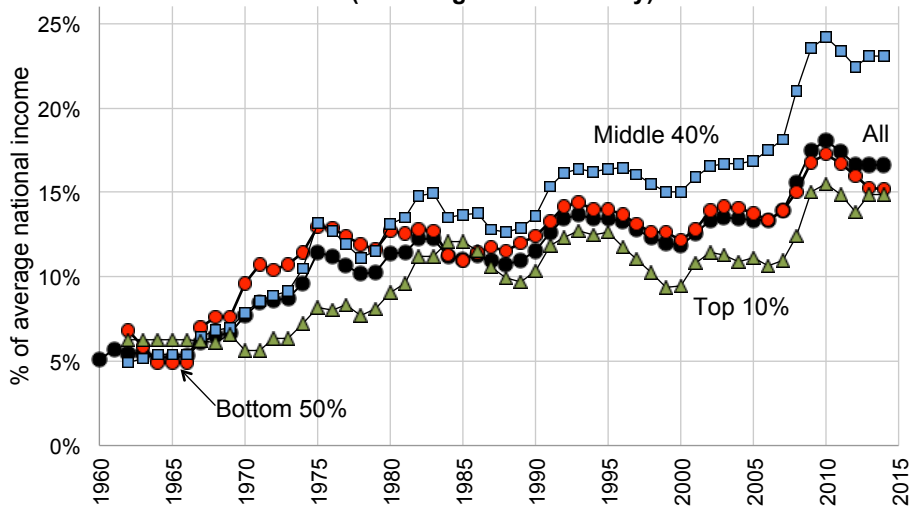
Average individualized transfer by post-tax income group
(excluding Social Security)



Source: Appendix Table II-G4.

More transfers go to the middle class than to bottom 50%, even incl. Social Security

Average individualized transfer by post-tax income group
(including Social Security)

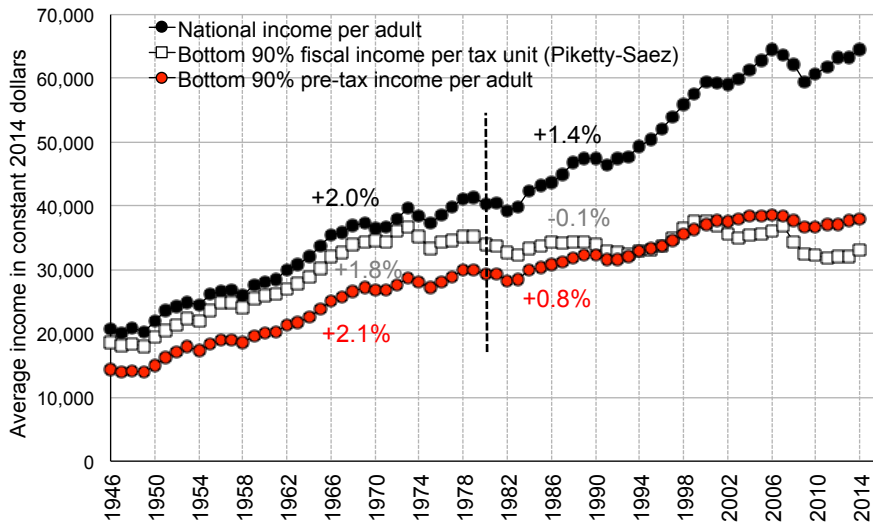


Source: Appendix Table II-G4b.

Comparison with fiscal incomes

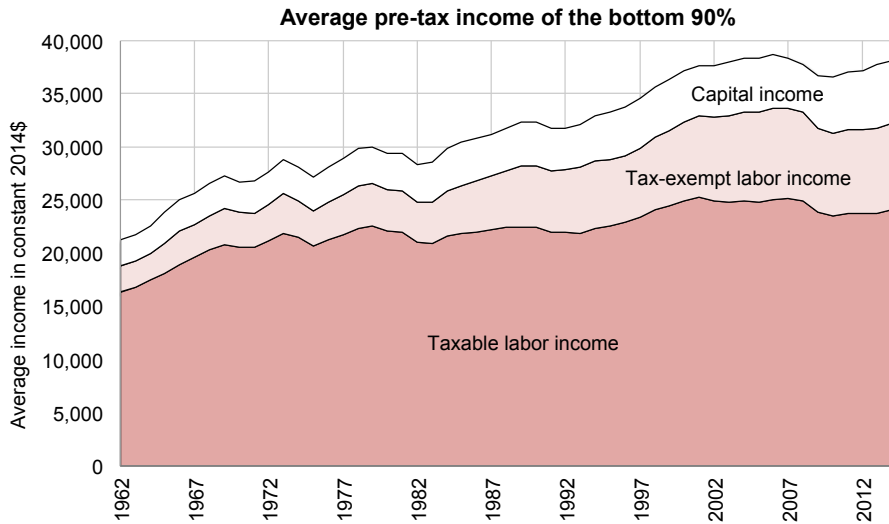
Bottom 90% has grown more than in tax data

Bottom 90% income growth: Pre-tax income vs. fiscal income



Source: Appendix Table II-B3 and Piketty and Saez (2003, updated to 2014)

Without fringe benefits, 0 growth for bottom 90% since 1970s



Source: Appendix Table II-B2e

Conclusion

Combining tax, survey, and national accounts data

The DINA agenda:

Construct new series on the distribution pre- and post-tax income consistent with macro totals

Hope will be adopted by govt agencies down the road

Results for the United States:

Collapse of working-age bottom 50% pre-tax income, 0 growth post transfer

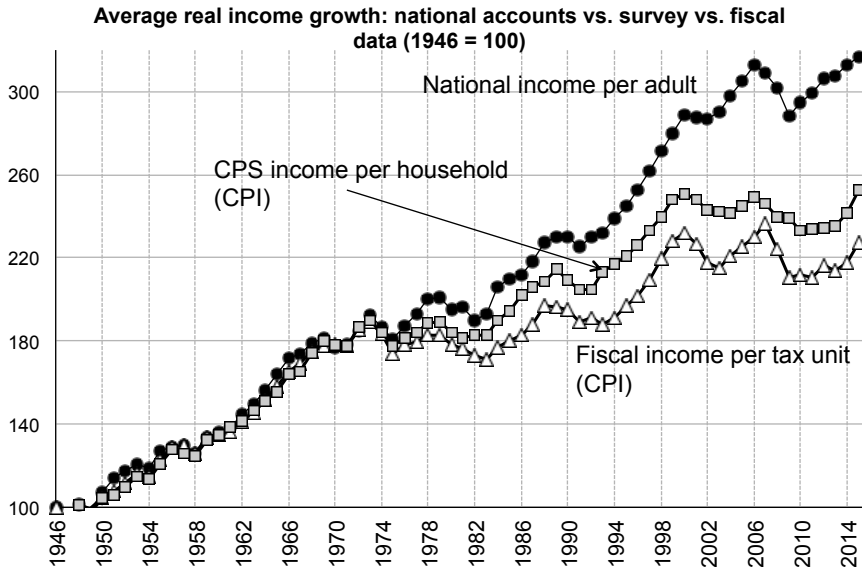
Boom of top-end inequality since late 1990s due to capital

Spectacular gender gap at the top, not shrinking anymore

Gov. has offset only small fraction of the \nearrow in pre-tax inequality, due to \searrow in tax progressivity & limited transfers to bottom 50%

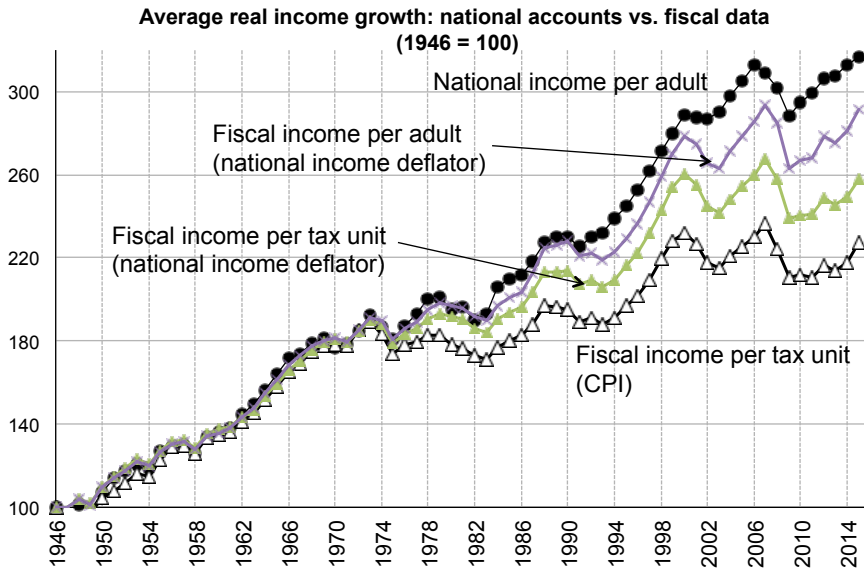
Supplementary Slides

Average income is growing less in tax and survey data than in the economy



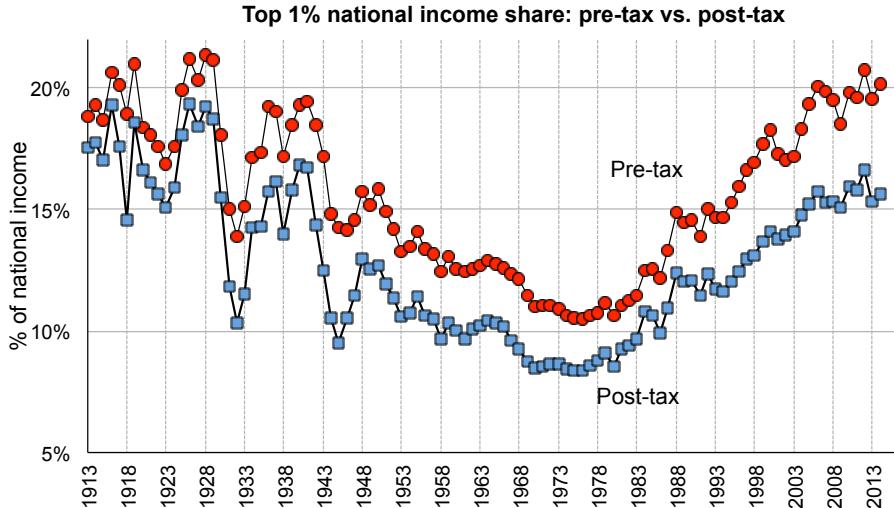
Source: Appendix Table A0 and Census Bureau.

Three culprits: inflation, fewer marriages, rising non-taxable income



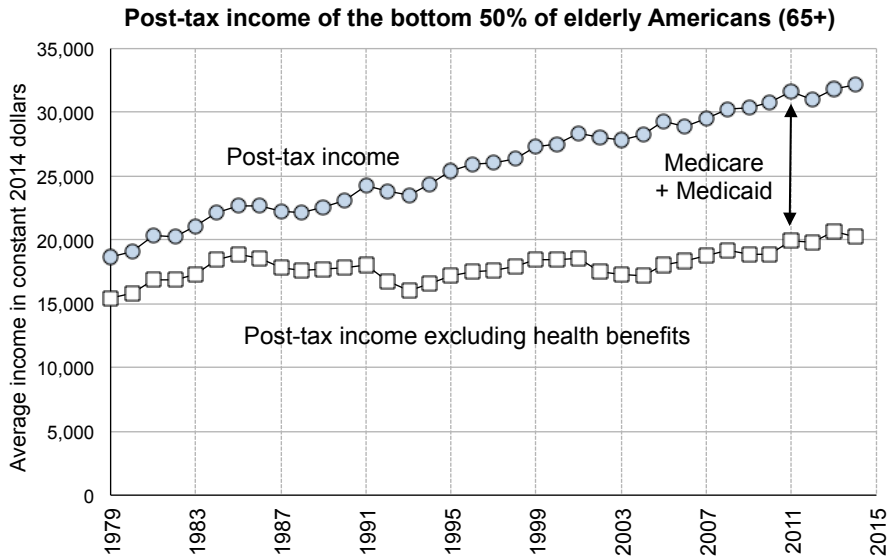
Source: Appendix Table A0.

Top 1% income share: pre-tax vs. post-tax



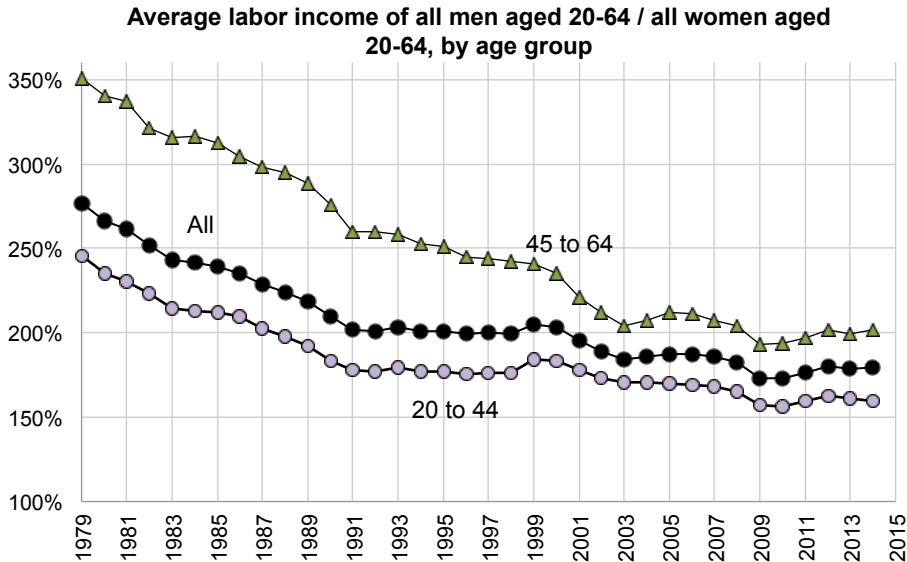
Source: Appendix Tables II-B1 and II-C1

For bottom 50% elderly, all the growth comes from health transfers



Source: Appendix Table II-C7c.

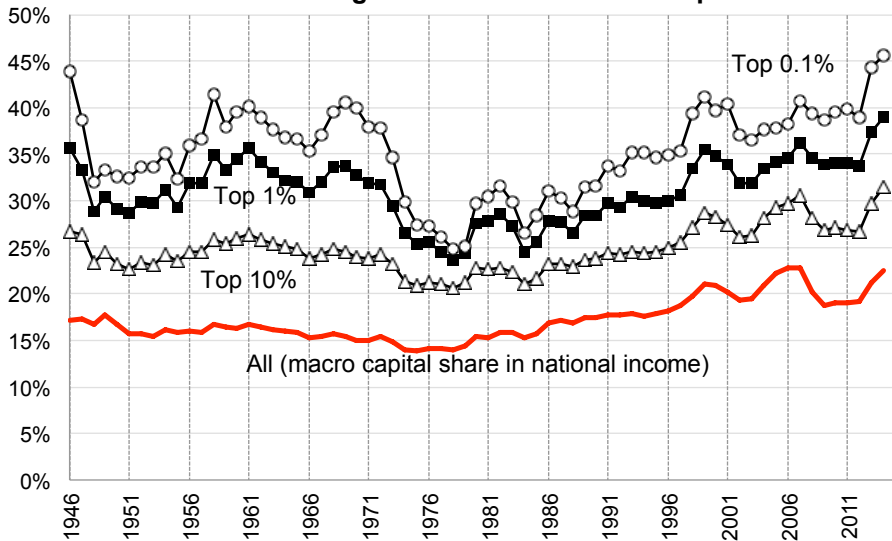
Still a lot of inequality between genders, especially for older workers



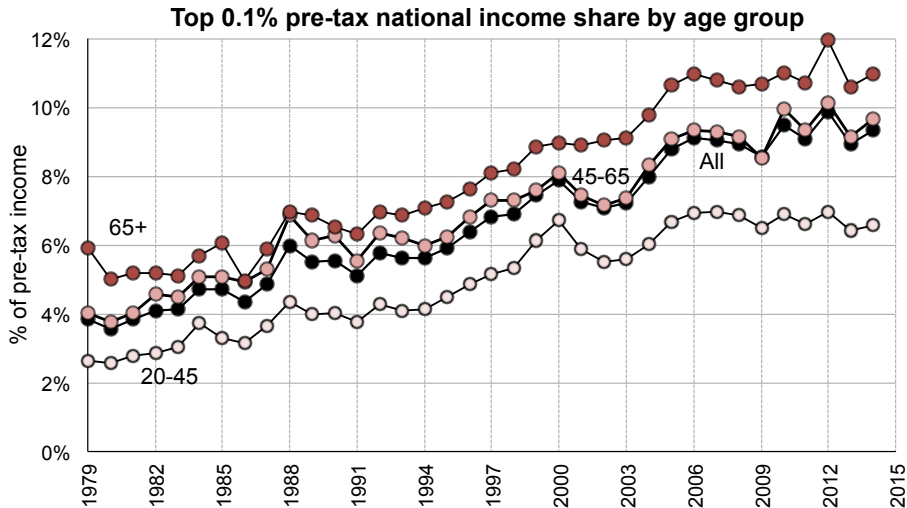
Source: Appendix Table F1.

Capital is making a comeback in the US: robust to assuming fixed return on capital

The share of capital in pre-tax income,
assuming constant 5% return on capital

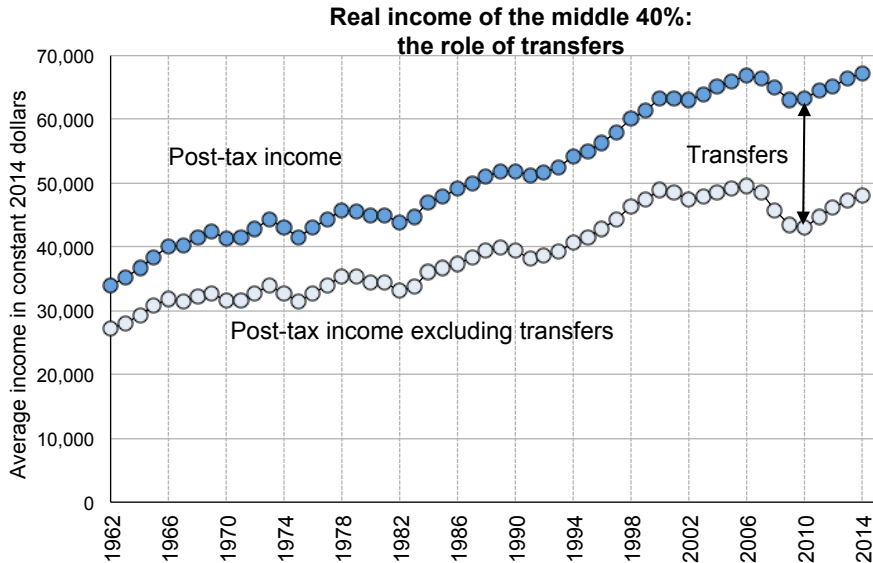


Top-end inequality is high and growing at all ages



Source: Appendix Table II-B11b.

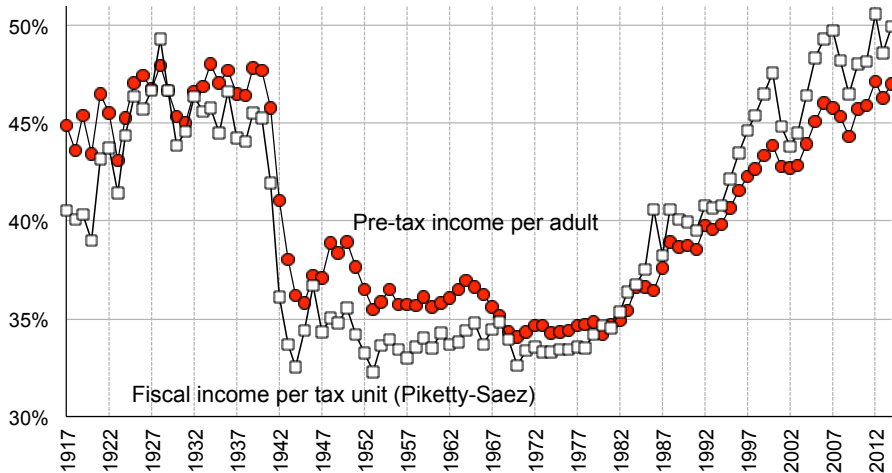
Transfers have softened blow to the middle-class during Great Recession



Source: Appendix Table II-C3b.

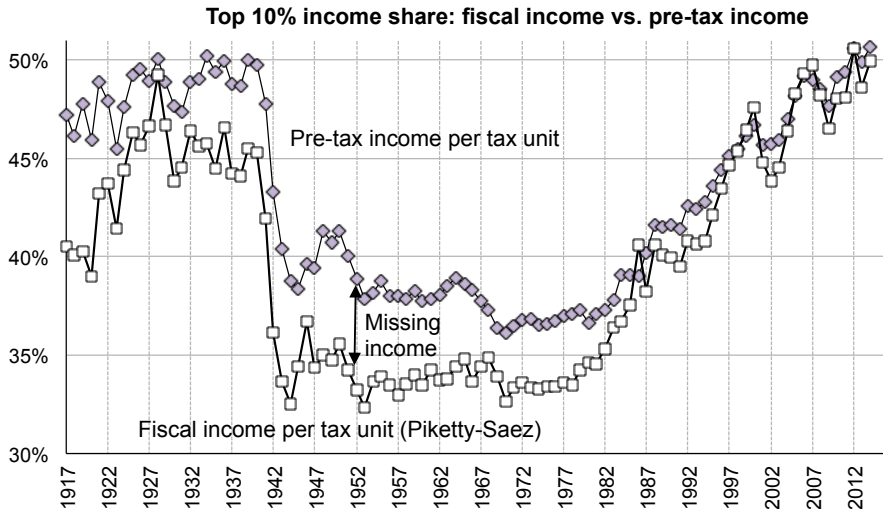
Pre-tax national income inequality has risen less than fiscal income inequality

Top 10% income share: comparison of estimates



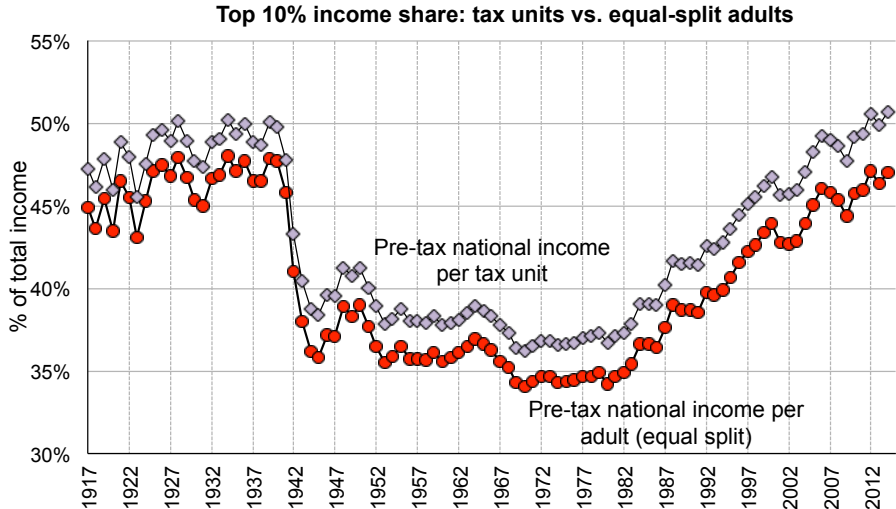
Source: Appendix Table II-B1 and Piketty and Saez (2003, updated to 2014).

Part of the difference owes to income missing from tax returns in 1950s-1970s



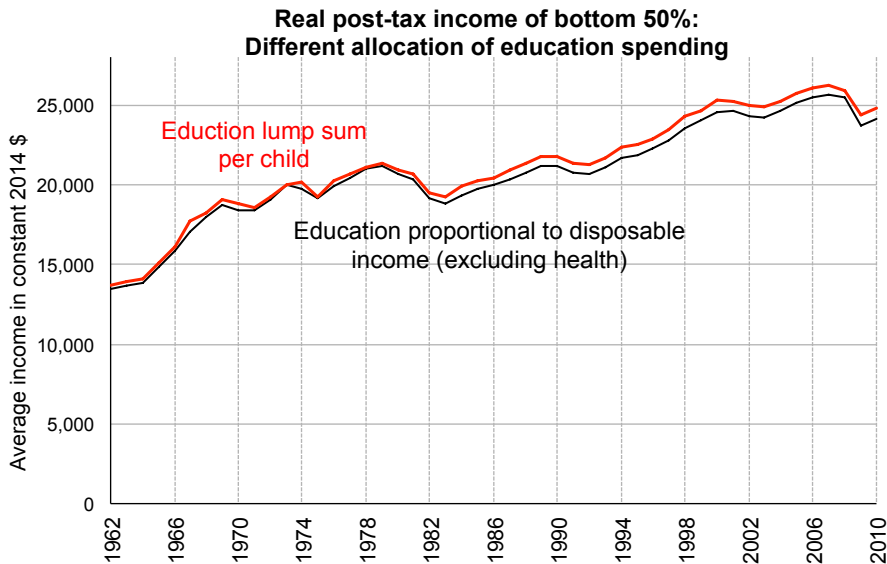
Source: Appendix Tables II-B9 and Piketty and Saez (2003, updated to 2014)

Rest of the difference owes to adults vs. tax units



Source: Appendix Tables II-B1 and II-D1.

Bottom 50% income with different treatment of education spending



Source: Appendix Tables II-C3d.