

Measuring Income Inequality: Survey vs. Tax Data & Fiscal vs. National income

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This work embodies work undertaken for the staff of the Joint Committee on Taxation, but as members of both parties and both houses of Congress comprise the Joint Committee on Taxation, this work should not be construed to represent the position of any member of the Committee.

Why Income?

Welfare_{it} =

f(After-tax income, Transfers, Consum, Wealth, Leisure, HHprod,...)

Unfortunately: all imperfectly measured

Fortunately: income in long-run surveys/tax data

BUT inequality differs by data source & income definition

Plan

- 1. Survey vs. Tax data: Gini, top 5%, poverty**
- 2. Fiscal, CBO, and National Income (AS/PSZ)**
- 3. Annual vs. Multi-year**

Survey vs. Tax Data

Income by Source: isolate reporting differences

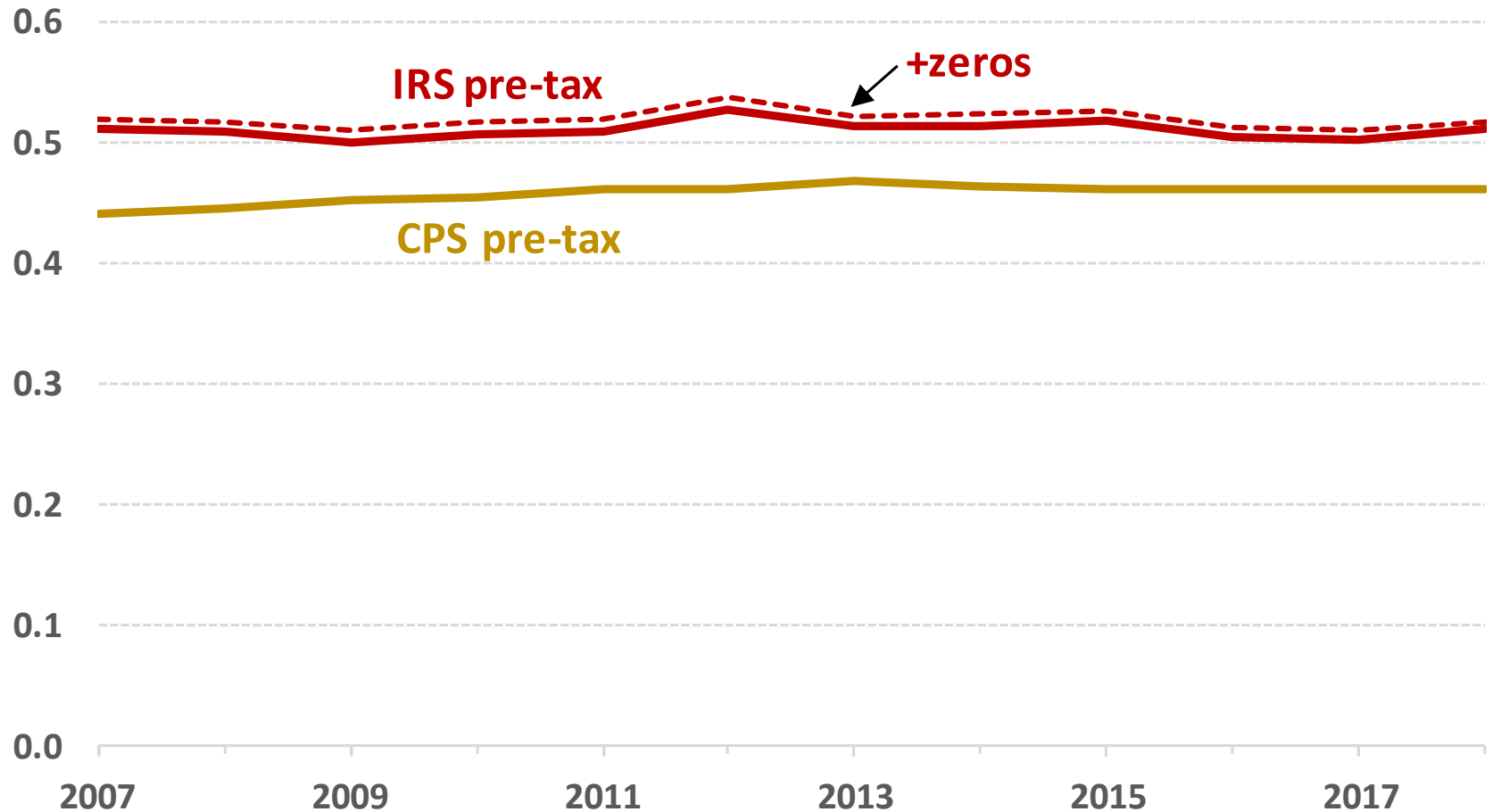
2010, \$Billions	IRS data (fiscal no CGs)	CPS	Difference
Total pre-tax income	8,979	7,859	1,119
Earnings			
Wages and salaries	5,896	6,133	-237
Self-employment and farm income	398	375	23
Other private income			
Partnership/S corp./rent/royalty/estates/trusts	440	---	364
Rent/royalty/estates/trusts + other	---	76	
Interest and Dividends	381	256	126
Pensions, annuities, and IRA distributions	930	369	561
Alimony	9	5	5
Other income in Form 1040 total income	87	---	87
Transfer income included on tax forms			
Unemployment compensation	141	97	43
Social Security and disability benefits	696	594	102
<i>Addenda: Transfer income in CPS excluded here</i>		201	

Source: Larrimore, Mortenson, Splinter (forthcoming JHR)

Notes: See Rothbaum (2015) for CPS vs. national income, and Bee and Mitchell (2017) for retirement income.

Survey vs. Tax Data

Gini Coefficients: higher in tax data

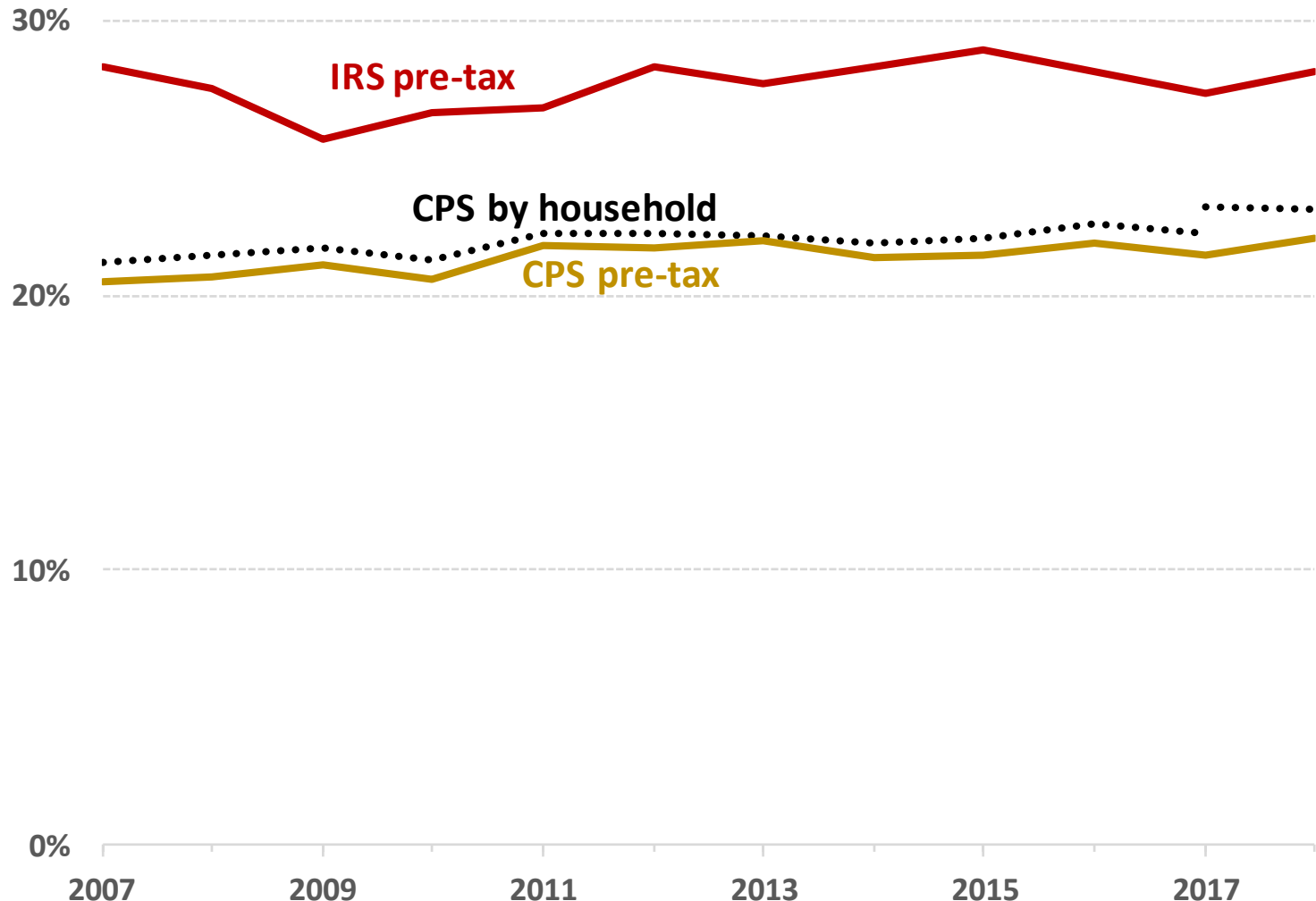


Source: Calculations with CPS and Tax Household Sample (Larrimore, Mortenson, Splinter, NBER)

Notes: IRS and CPS use same income definitions, both ranked by size-adjusted household income & weighted by individuals.

Survey vs. Tax Data

Top 5% Income Shares: higher in tax data

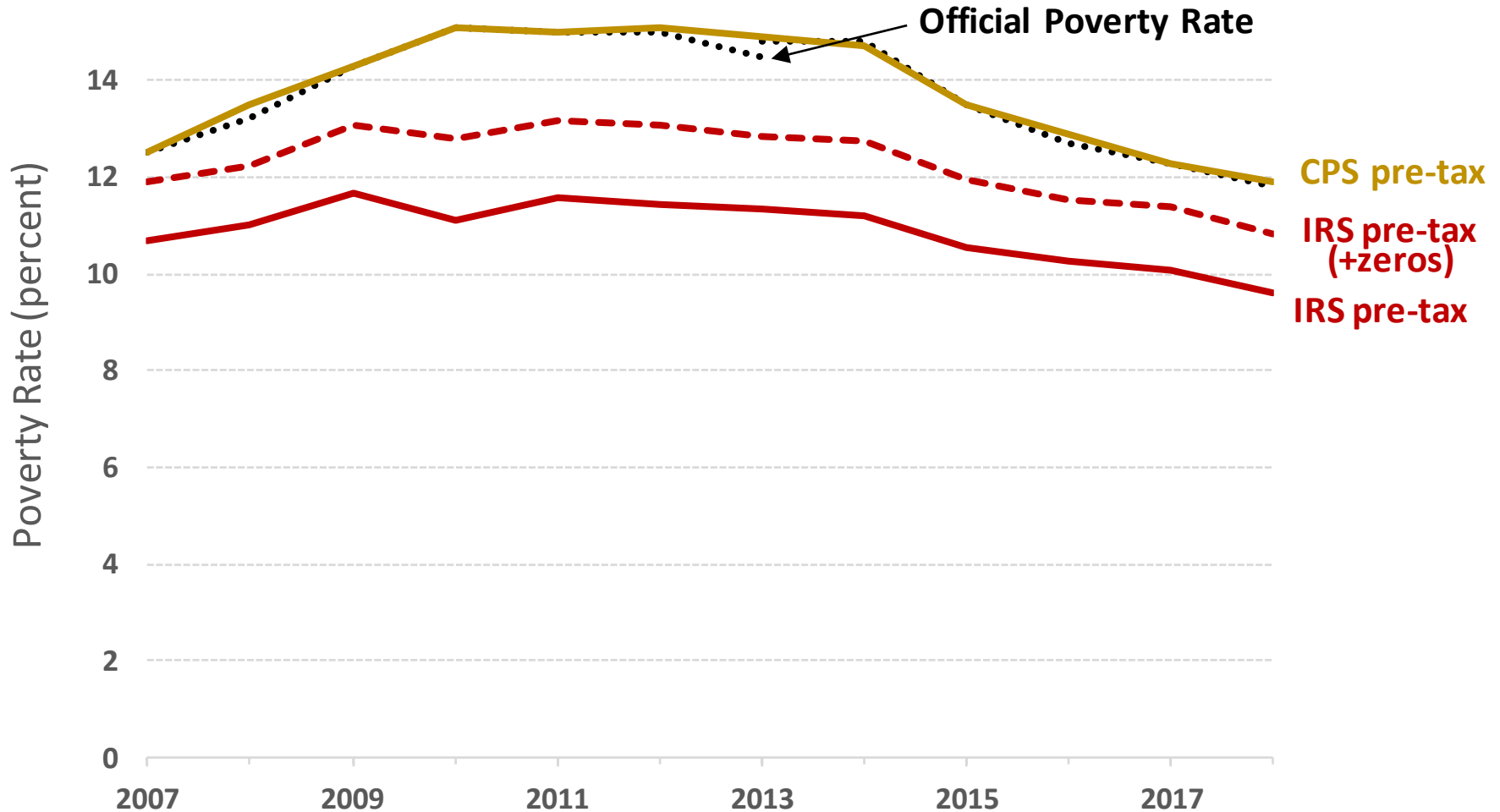


Source: Calculations with CPS and Tax Household Sample (Larrimore, Mortenson, Splinter, NBER)

Notes: IRS and CPS use same income definitions, both ranked by size-adjusted household income & weighted by individuals.

Survey vs. Tax Data

Poverty Rates: lower in tax data



Source: Calculations with CPS and Tax Household Sample (Larrimore, Mortenson, Splinter, NBER)

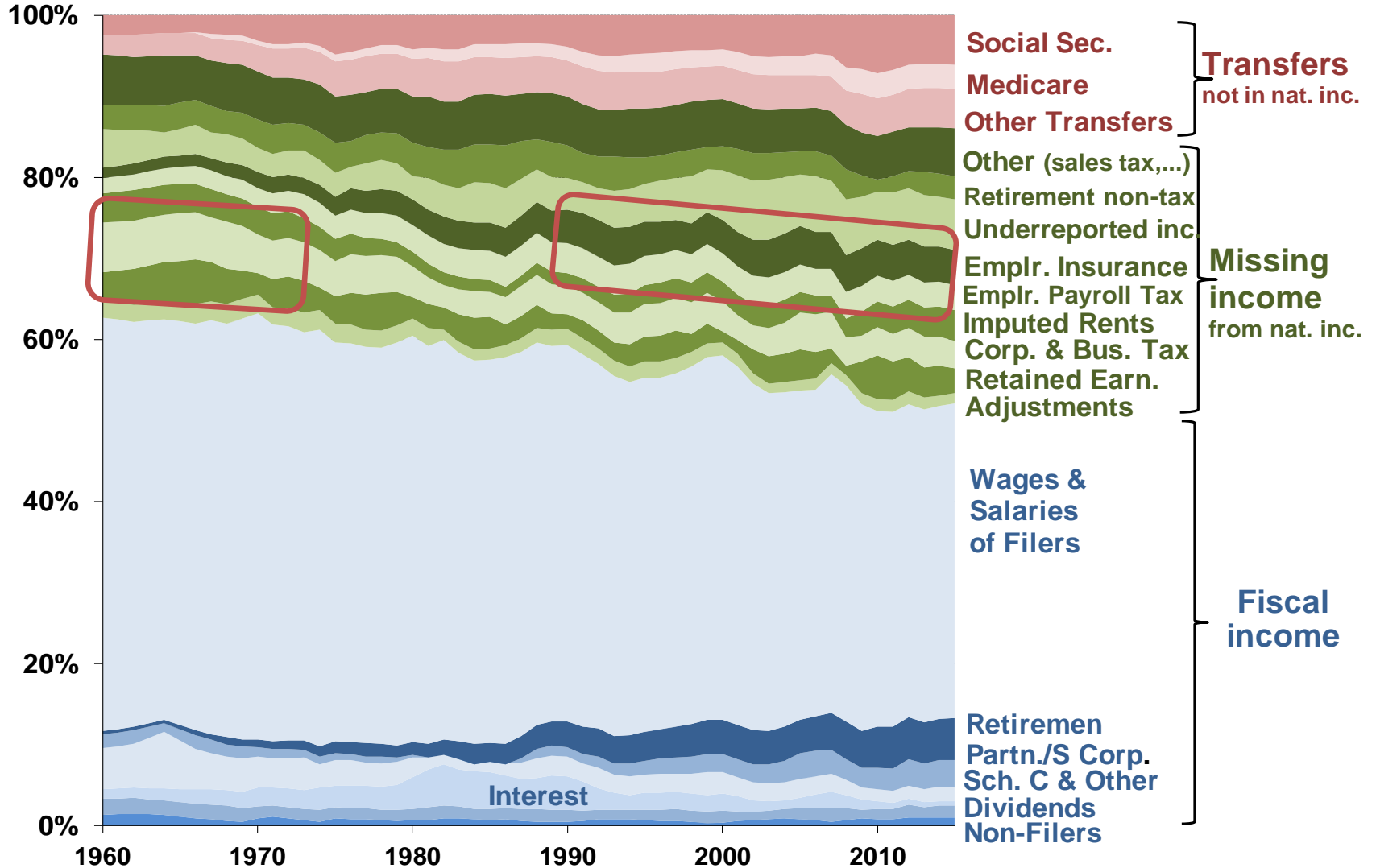
Notes: IRS and CPS use same income definitions, both ranked by size-adjusted household income & weighted by individuals.

Meyer, et al. (2019) decrease in extreme poverty from 2.1 to 0.2 percent in CPS for 2011.

Fiscal vs. National Income

National income >50% larger than fiscal income

Equalizing effects: missing income went from capital to labor & transfers grew



Share of pre-tax/after-transfer income from Auten and Splinter (2019). Transfers not in national income.

Fiscal vs. National Income

Income by Source, 2014 (\$billions)

	Fiscal Income	CBO Income	National Income	
			Pre-tax	After-tax/trans.
Total Income	9,747	12,652	15,144	15,144
Wages and salaries	6,831	6,831	7,123	7,123
Employer-sponsored insurance	---	435	754	754
Employer-paid payroll taxes	---	460	548	---
Passthrough business income (taxable)	838	838	838	838
Underreported business income	---	---	781	781
Interest and Dividends	381	444	521	521
Retirement: Taxable Distributions	950	950	950	950
Retirement: Other	---	262	496	496
Capital Gains Realizations	708	708	---	---
Corporate Retained Earnings	---	---	765	765
Other income/Sample differences	39	120	317	317
Corporate Taxes (no Fed. Res.)	---	336	408	---
Other Taxes (mostly sales, bus. prop. tax)	---	---	1,002	---
Imputed Rent (w/prop taxes)	---	---	640	420
Social Insurance Benefits (SS, DI, UI, & WC)	---	821	---	920
Other Cash Transfers (ref. tax credits, SNAP, TANF, etc.)	---	---	---	257
Medicare (net of premium)	---	448	---	551
Other Transfers (Medicaid is ~\$550)	---	---	---	694
Government Consumption less deficit	---	---	---	1,979
Less Other Taxes	---	---	---	-2,223

Sources: Author's calculations and Auten and Splinter (2019, AER P&P)

Capital Gains vs. Retained Earnings

Census/Personal Income: no retained earnings, no cap gains

Fiscal/CBO income: no retained earnings, include cap gains

Issue: only observe realized gains, inequality too high and cyclical

Accrued gains: Larrimore et al. (2019) suggests (to me) problematic

National Income: include retained earnings, no cap gains

Reasons

- National inc. measures annual production/consumption → independent of CGs
- Some CGs result from expected future income → double counts that income

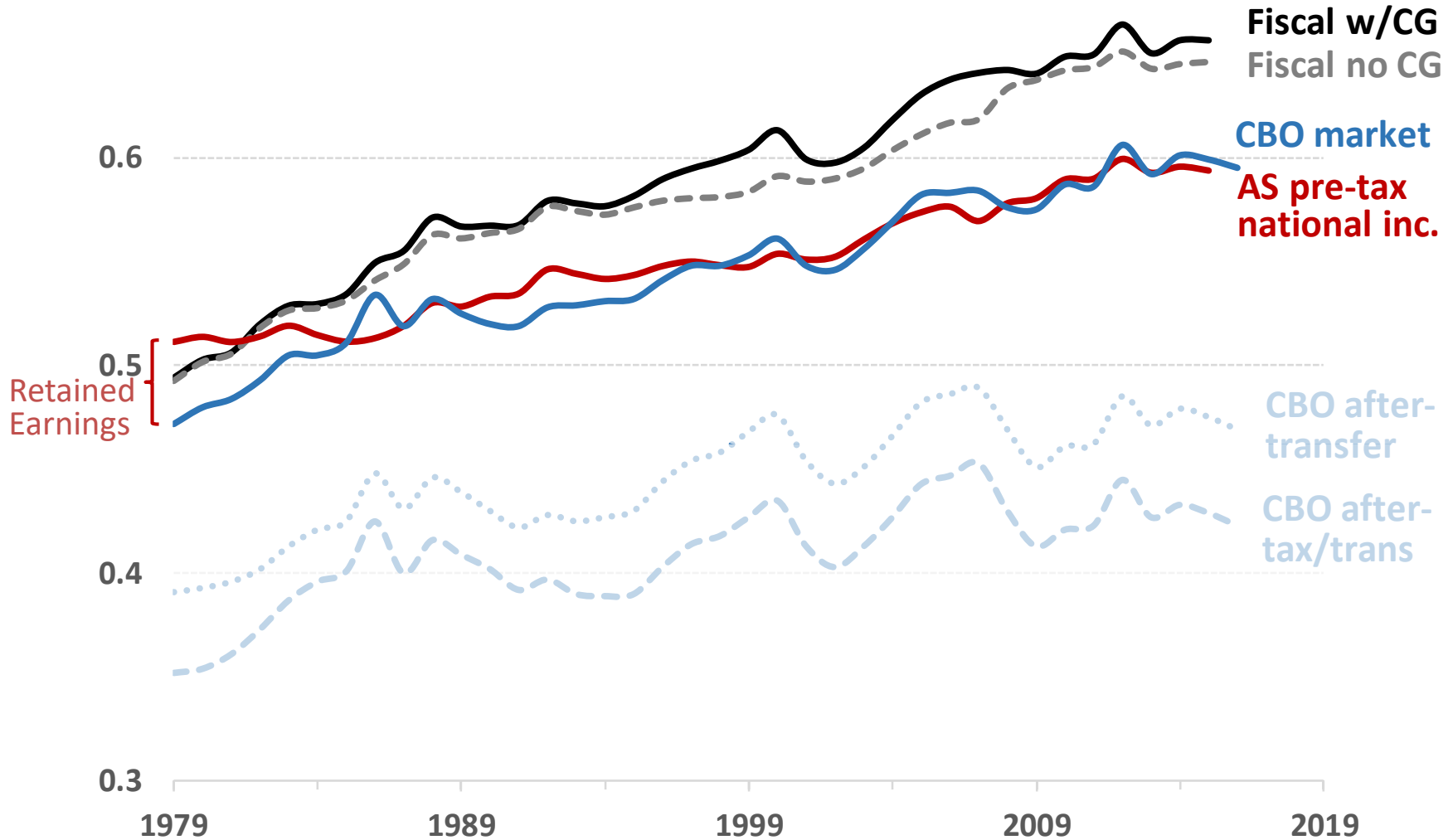
Exception: founders equity

Recent IPOs <\$100B founder equity → ~\$10B/year, <0.1pp of \$15T nat. inc.

<https://priceconomics.com/how-much-equity-do-founders-have-when-their/>

Fiscal vs. National Income

Gini Coefficients: CBO/National income lower than fiscal income

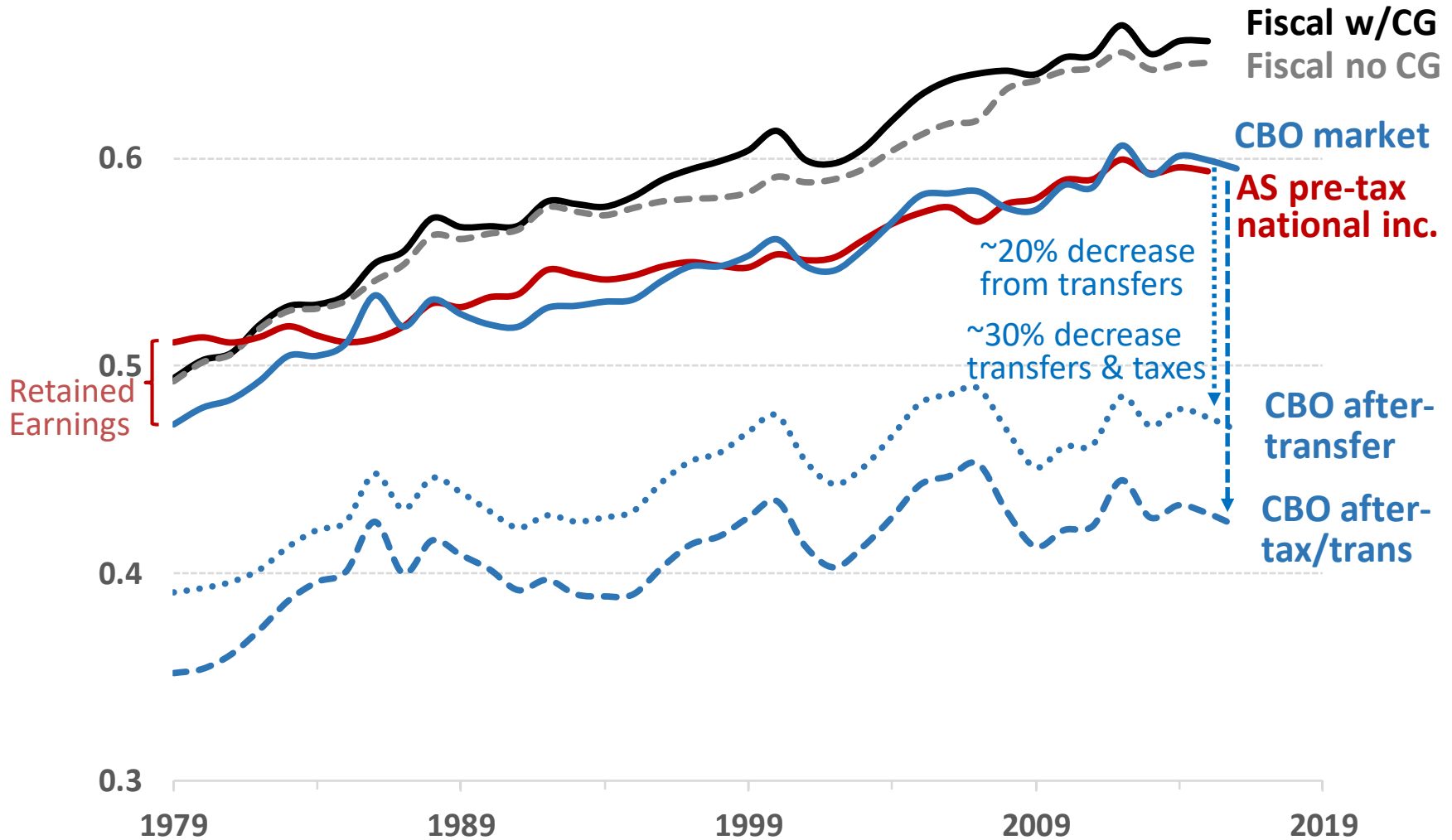


Sources: Author's calculations from Auten and Splinter (2019) and CBO (2019).

Notes: Fiscal income is weighted by tax units, but CBO and AS weighted by individuals.

Fiscal vs. National Income

Gini Coefficients: Transfers & Taxes lower inequality

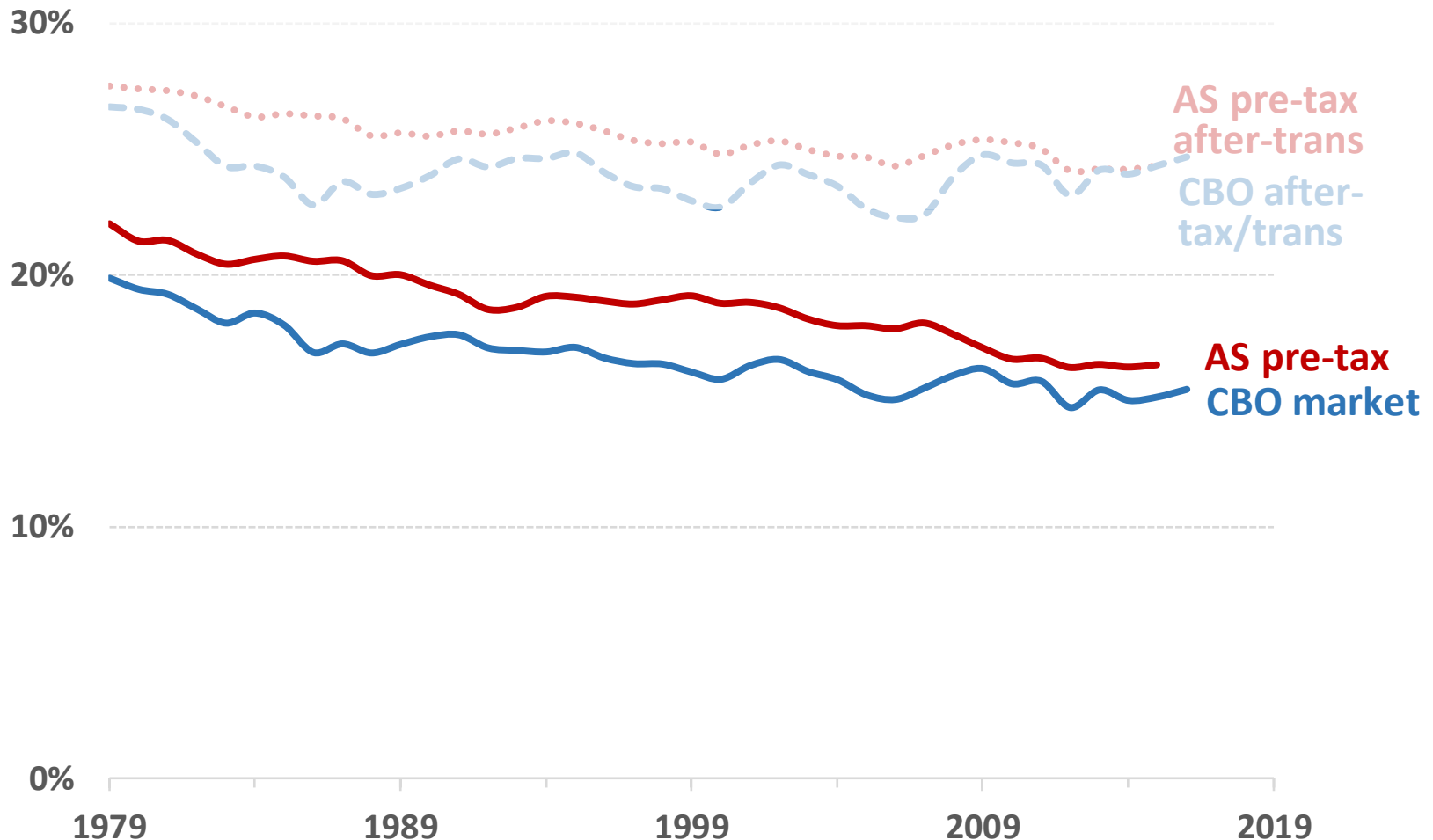


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Fiscal vs. National Income

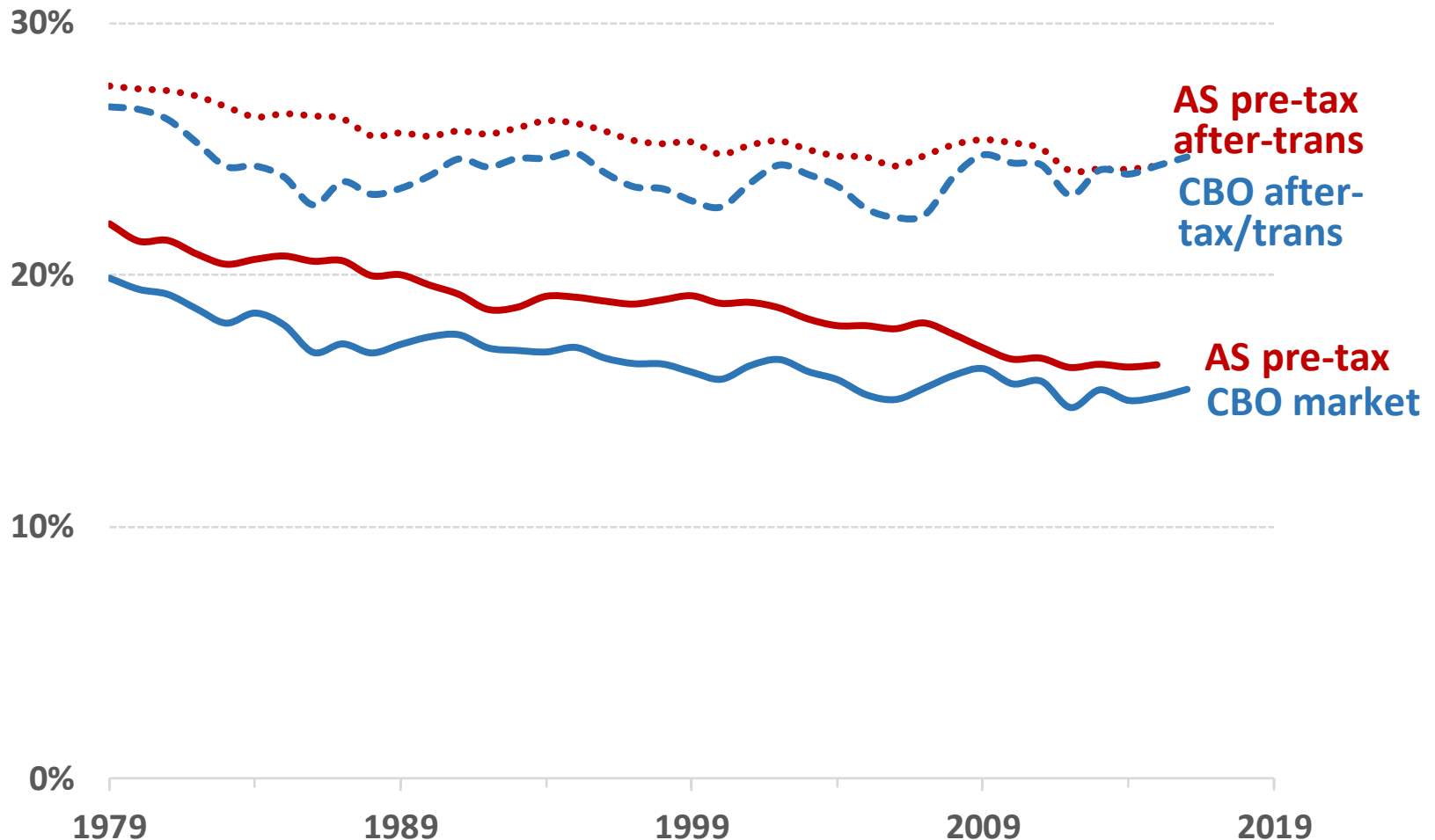
Bottom 50% shares: fall for market income



Sources: Auten and Splinter (2019) and calculations using CBO (2019) that include 40% of 3rd quintile.

Fiscal vs. National Income

Bottom 50% share: Transfers/taxes increase level & flatten trend

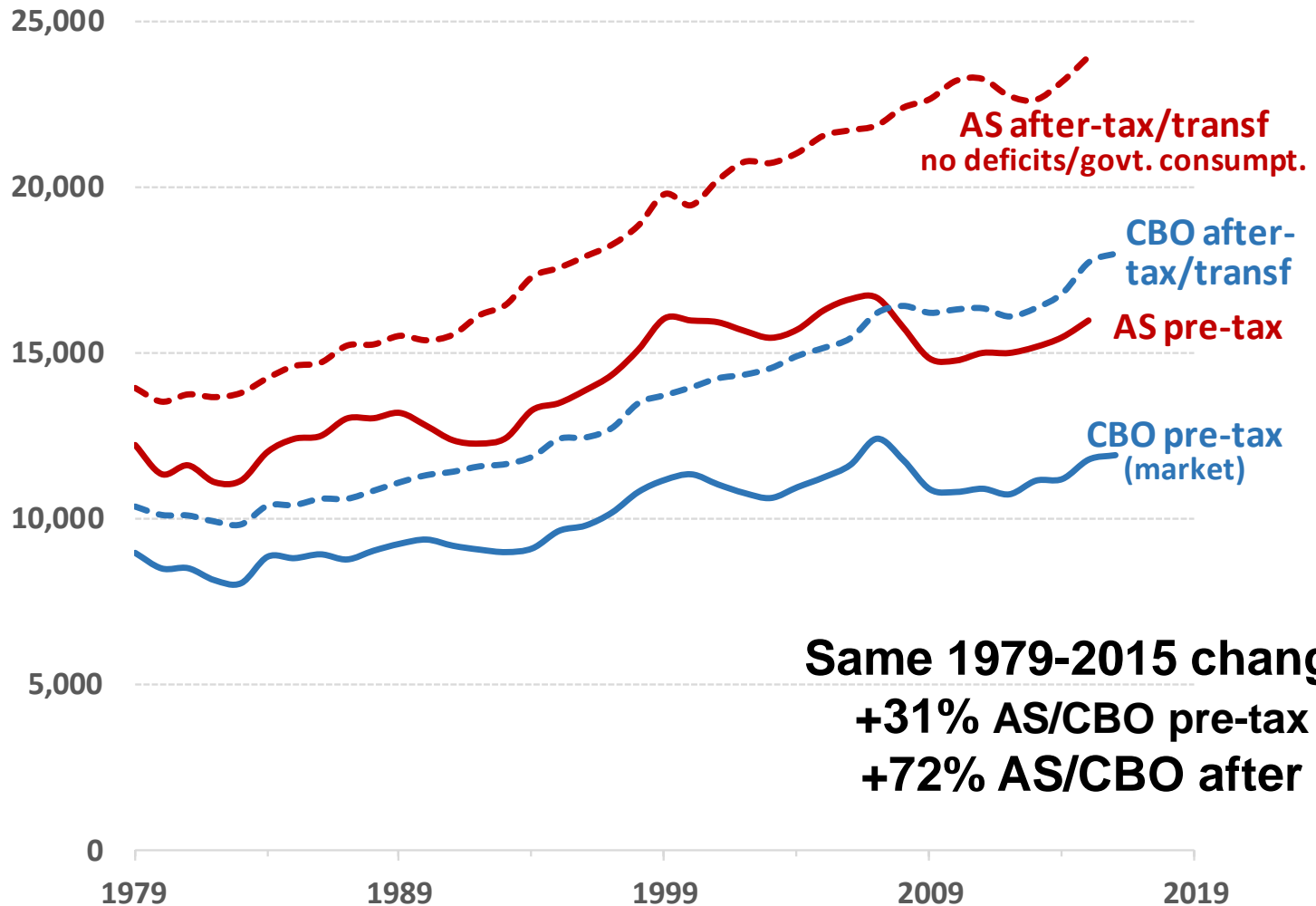


Sources: Auten and Splinter (2019) and calculations using CBO (2019) that include 40% of 3rd quintile.

Fiscal vs. National Income

Bottom 50% average real income

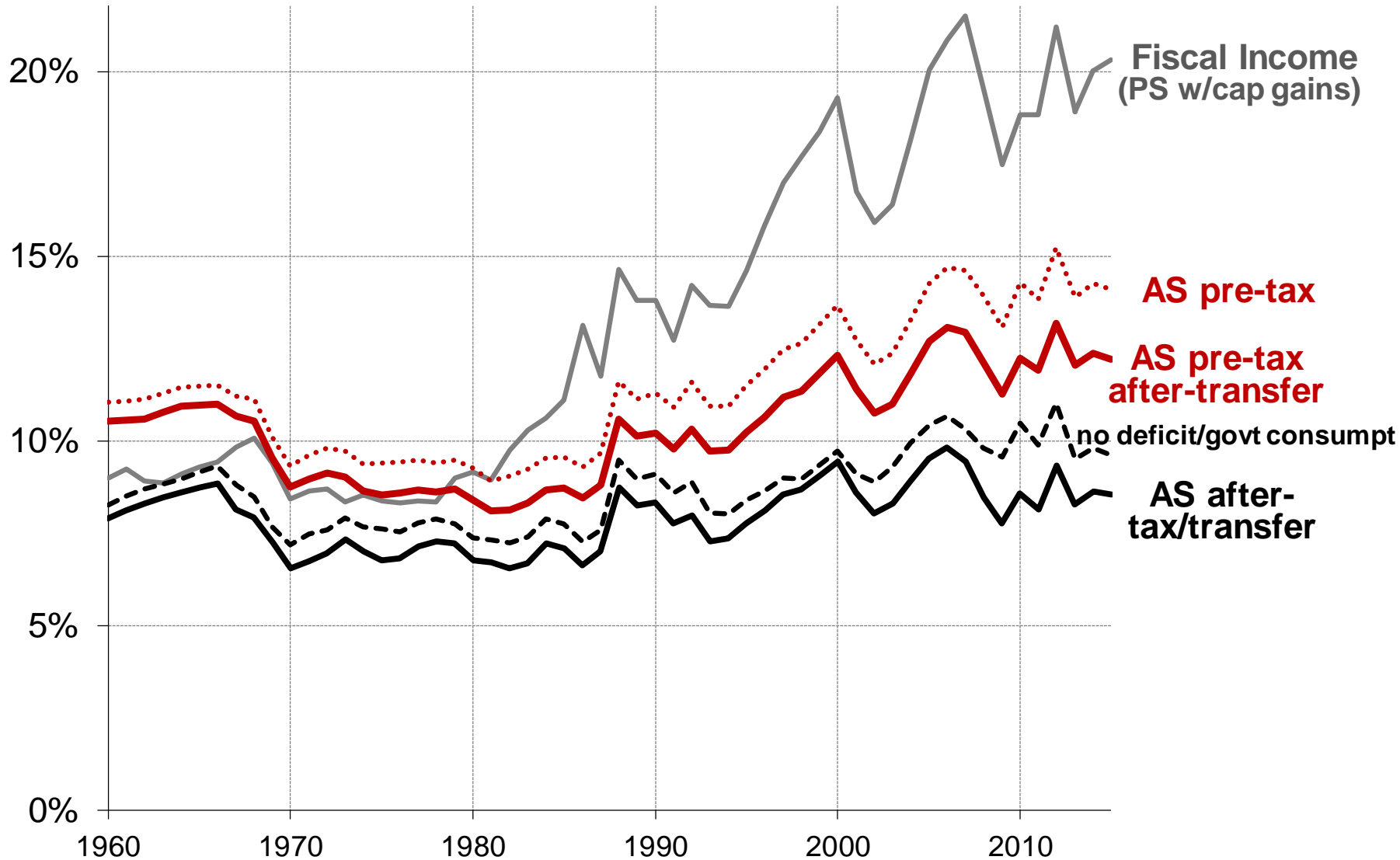
AS/CBO same %change, but AS levels higher b/c national income larger



Sources: Auten and Splinter (2019) and calculations using CBO (2019) that include 40% of 3rd quintile.

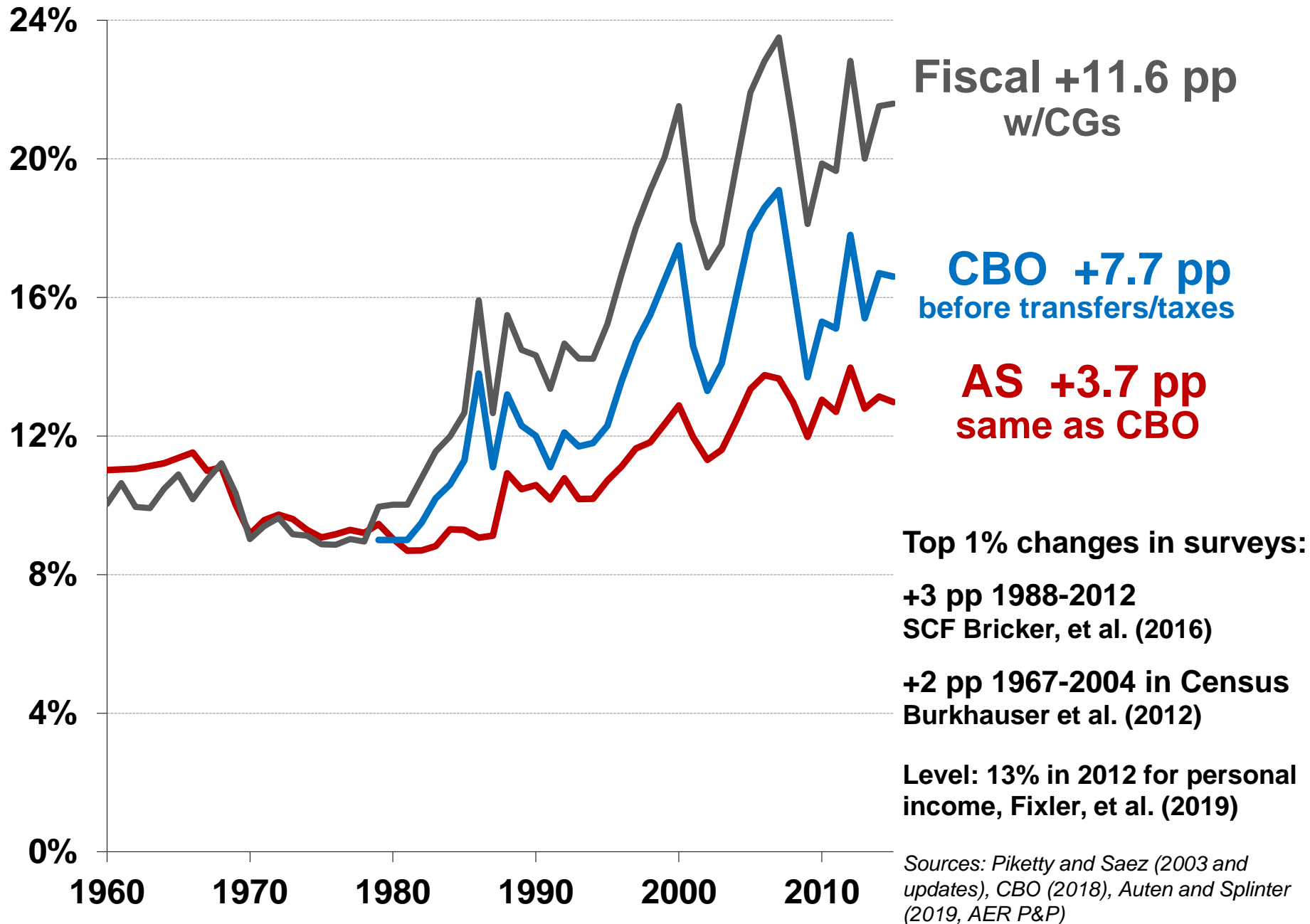
Fiscal vs. National Income

Top 1% Shares: Transfers and Taxes

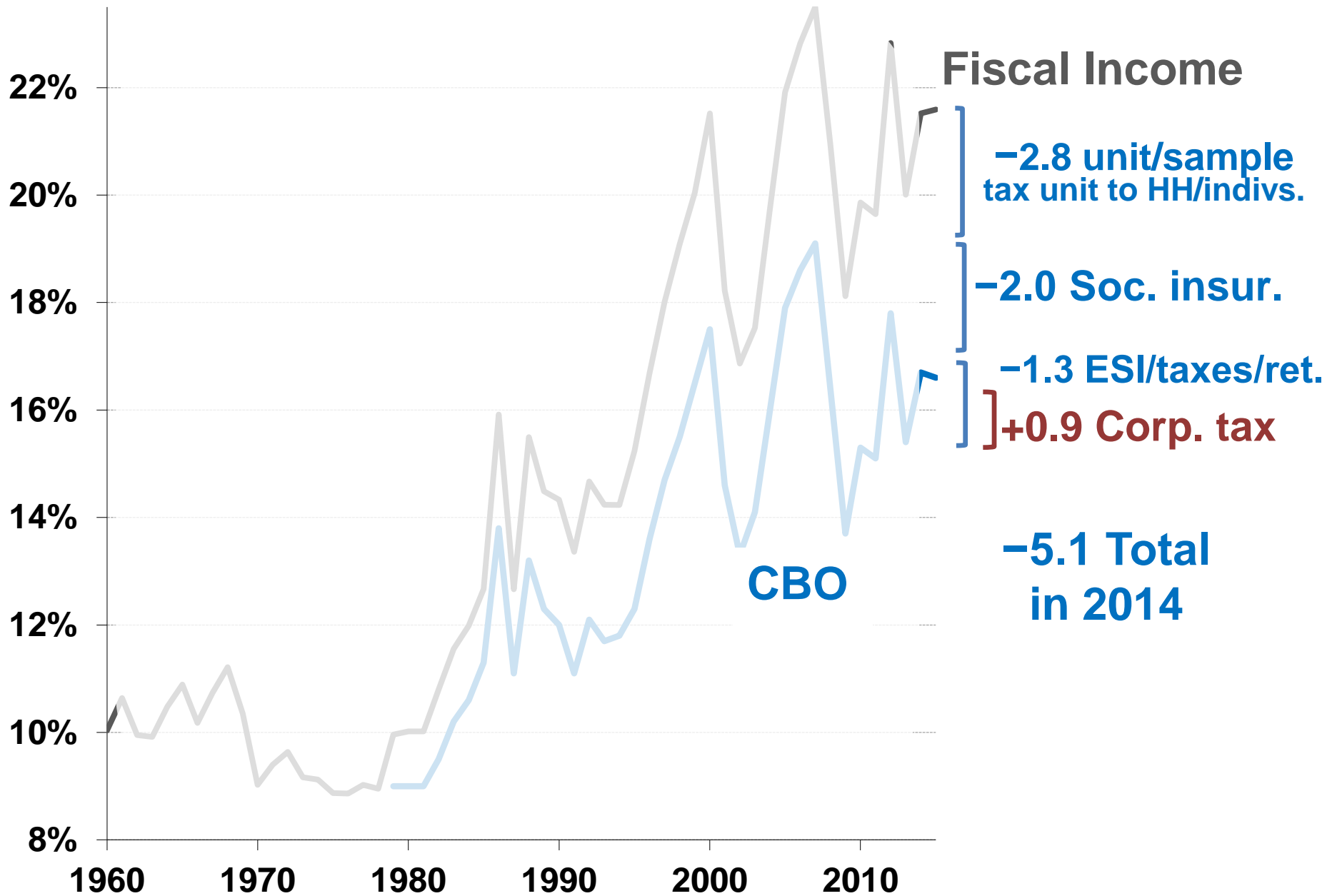


Source: Auten and Splinter (2019)

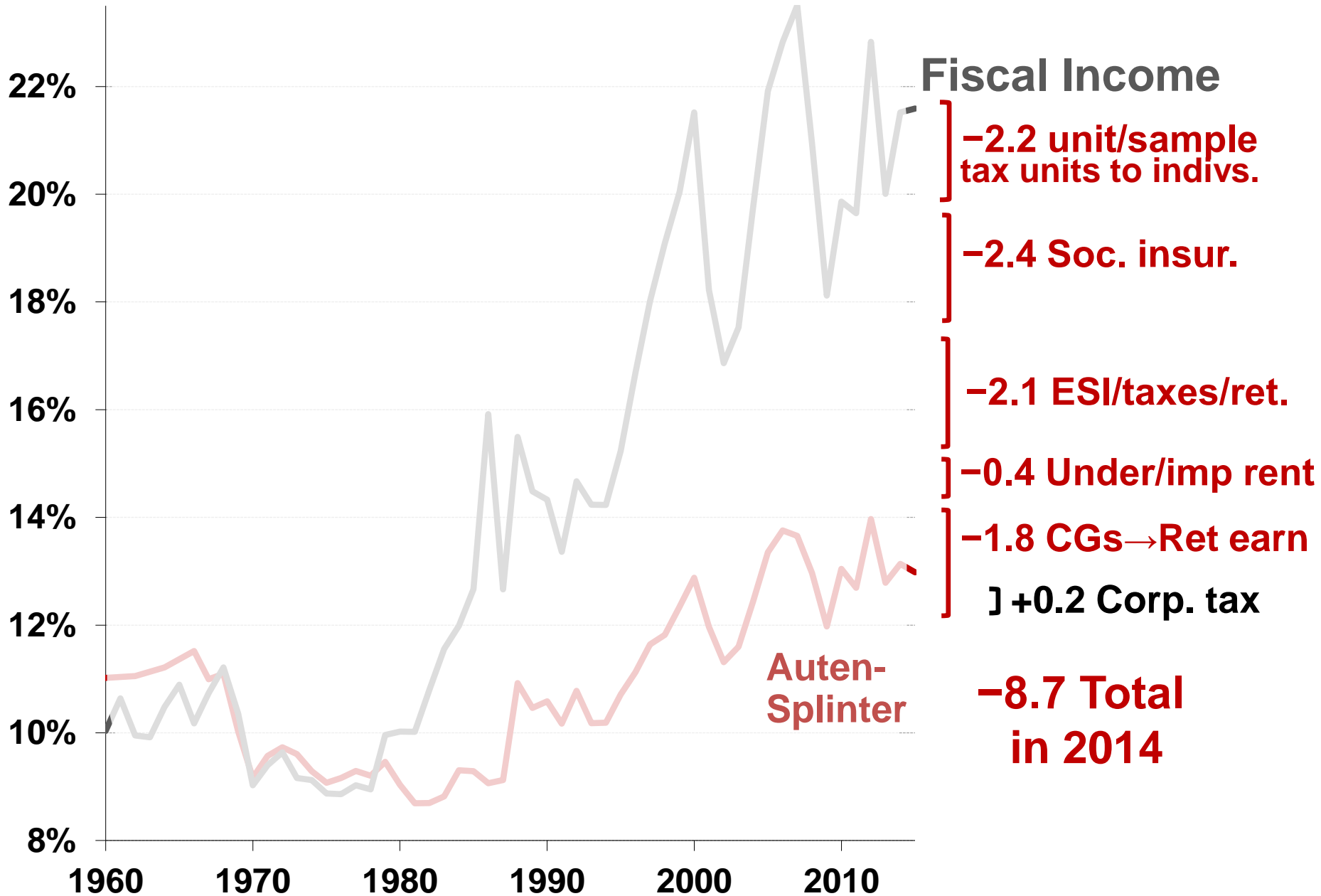
Top 1% Pre-tax Income Shares: 1979-2014 changes



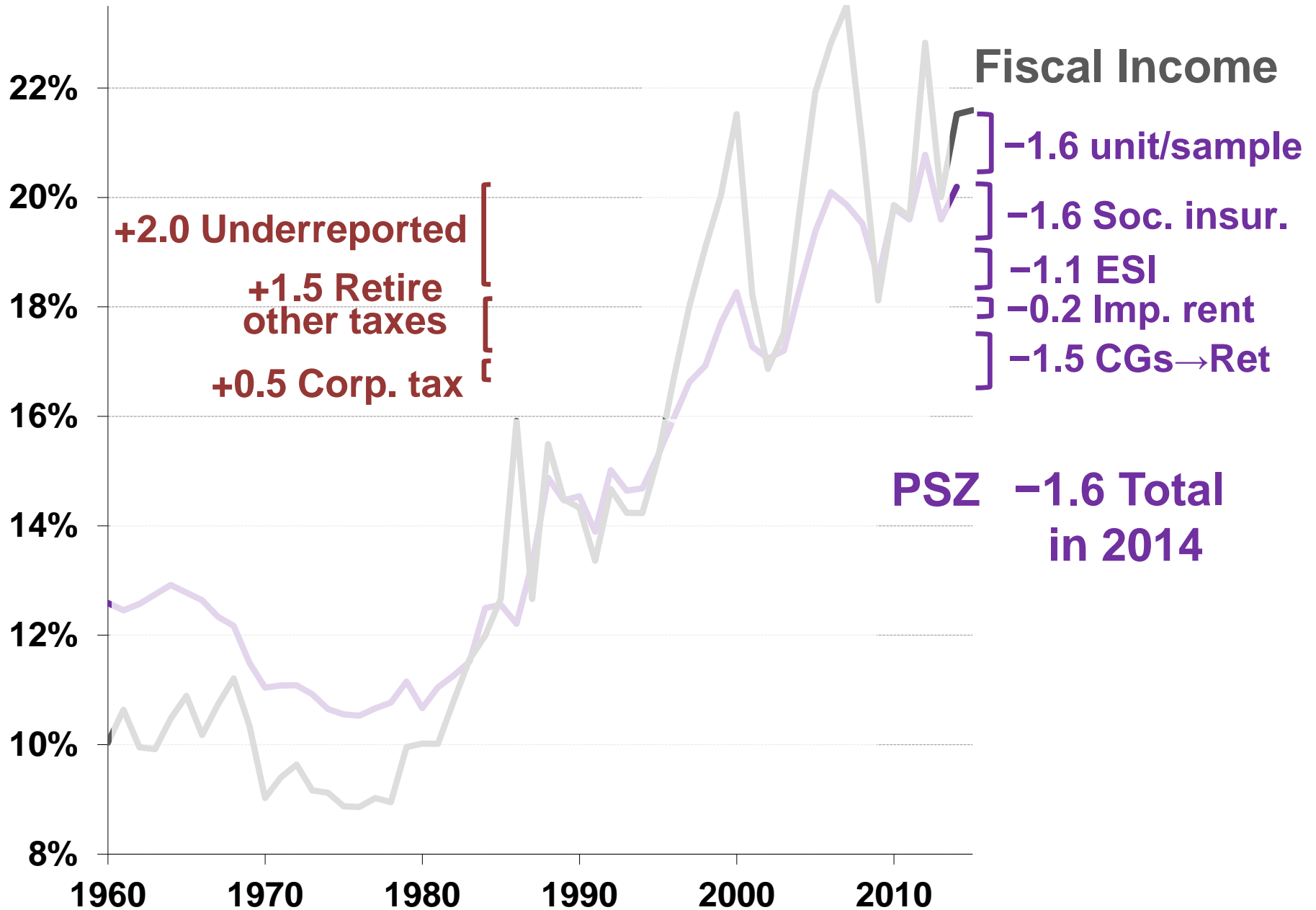
Top 1% Income Shares: Fiscal income to CBO before tax/transfer



Top 1% Income Shares: Fiscal income to Auten-Splinter



Top 1% Income Shares: Fiscal income to PSZ national income



AS/PSZ Differences: Top 1% shares

Auten-Splinter approach	PSZ approach	Percentage point level difference			Percentage point difference in changes	
		1962	1979	2014	1979–2014	1962–2014
<i>Pre-tax income</i>						
Underreported income by IRS audit data	Underreported income by reported income	0.4	1.0	2.2	1.2	1.8
Include distributed & other retirement income	PSZ private retirement distribution	0.5	0.1	1.3	1.2	0.9
Other taxes by disposable inc. less savings	Other taxes by factor income less savings	0.3	0.2	0.7	0.5	0.4
Non-retirement pre-tax corporate income	PSZ non-retirement pre-tax corp. income	0.5	0.2	0.7	0.5	0.1
Various corrections to tax income definition	Use uncorrected tax return market income	-0.1	-0.1	0.4	0.6	0.5
Imputed rent by property tax deductions	Imputed rent by housing wealth estimates	0.4	0.2	0.3	0.1	-0.1
Limit returns to non-dependent U.S. residents	No adjustment	-0.2	0.2	0.2	0.0	0.4
Groups by individuals/size-adjusted incomes	Groups by adults/equal-split married inc.	0.0	0.1	0.2	0.1	0.2
Non-profits/govt. income half per capita	Non-profits/govt. income all by income	0.0	0.0	0.1	0.1	0.0
Inflation correction	No correction	0.0	-0.5	-0.1	0.5	0.0
Social insurance benefits/deficit excluded	Social insur. ben./def. incl., taxes deducted	0.0	0.0	-0.1	-0.1	-0.1
Subtotal: Pre-tax differences (PSZ less AS)		1.5	1.7	5.9	4.3	4.5
<i>After-tax income</i>						
Govt. consumption allocated half per capita	Govt. consumption all by after-tax income	0.8	0.8	1.3	0.5	0.5
Non-SS deficits by federal income taxes	Half by government transfers, half taxes	-0.3	0.0	0.5	0.6	0.8
Estate tax by prior decade decedent income	Estate tax by wealth distribution	-0.3	-0.2	0.0	0.2	0.3
Government transfers as described in text	PSZ transfers distribution	0.0	0.0	0.0	0.0	0.0
Corporate taxes by wages/corp. ownership	Corporate taxes by capital ownership	-0.2	-0.3	-0.3	0.0	-0.1
Other taxes by disposable inc. less savings	Other taxes by factor income less savings	0.0	0.0	-0.3	-0.3	-0.3
Subtotal: Differences from taxes and government consumption		0.3	0.3	1.1	0.8	0.8
Total after-tax differences (PSZ less AS)		1.7	1.9	7.0	5.1	5.3

Source: Auten and Splinter (2019)

AS/PSZ Difference: Under-reported business income

AS allocate to reported income groups based on audit data

PSZ allocate by positive reported business income

But: Business losses important

& under-rep. rates lowest at top of reported distribution

Reported AGI group	Reported bus. income (\$B)	PSZ % of pos. bus. income	AS % of underrep. income
losses	-10	1%	13%
0-40	9	6%	27%
40-80	34	19%	32%
80-95	32	16%	16%
95-99	40	20%	7%
Top 1%	77	38%	5%
Total	\$183	100%	100%

Source: 1988 TCMP audit data (sole prop, part., S-corps), 0-40 percentile excludes those with losses.

AS/PSZ Difference: Johns and Slemrod (2010) Table 3

Must allocate underreported inc. by reported income

True AGI (reported + underreported)
not observed in data used to
estimate inequality trends

Underreporting
of AGI, by
Estimated

Underreporting
of AGI, by

AGI	True AGI	Reported AGI
Bottom 10%	#	13
10%–20%	1	8
20%–30%	1	8
30%–40%	2	10
40%–50%	3	9
50%–60%	5	7
60%–70%	6	8
70%–80%	9	8
80%–90%	12	8
90%–95%	12	5
95%–99%	24	10
99.0%–99.5%	7	2
Top 0.5%	20	3
Total	100	100

AS/PSZ Difference: Johns and Slemrod (2010) Table 5

Audits find NO CHANGE in top shares of filers (AS: non-filers lowers ineq.)
Implies substantial re-ranking (PSZ: little re-ranking → increase ineq.)

AGI	Estimated True AGI	Reported AGI
Bottom 10%	0.3	0.1
10%–20%	1.6	1.6
20%–30%	2.7	2.7
30%–40%	3.9	3.9
40%–50%	5.2	5.2
50%–60%	6.7	6.8
60%–70%	8.8	8.9
70%–80%	11.5	11.7
80%–90%	15.6	16.0
90%–95%	10.9	11.0
95%–99%	14.9	14.4
99.0%–99.5%	3.8	3.7
Top 0.5%	14.0	14.1
Total	100.0	100.0

AS/PSZ Difference: Research on recent audit studies

DeBacker, Heim, Tran, Yuskavage (2020 Tax Notes)

Audits do not change filer inequality, 2006-2014

Gini: 0.570 to 0.563 when including underrep. inc.

Top 1% fiscal income share: 18.5% to 18.2%

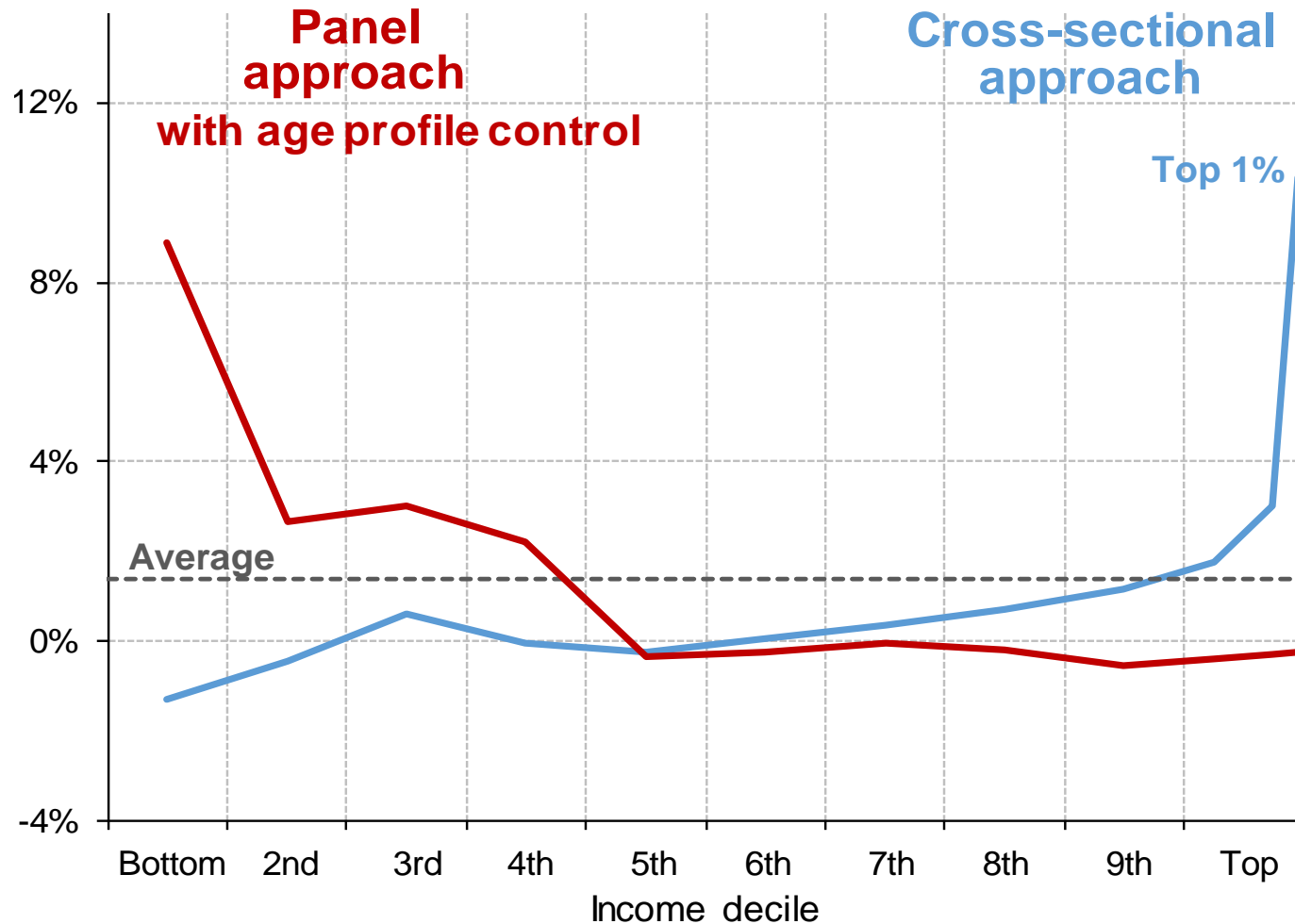
“Our results appear in contrast to those of Alstadsaeter, Johannesen, and Zucman (2019), who find large effects of evasion on inequality. On the other hand, we find results largely consistent with both Auten and Splinter (2017) and Johns and Slemrod (2010).”

Annual vs. Multi-Year Incomes

Comparing cross-sectional changes suggests all growth to top 10%

But it's different people in cross-sections. Economic growth is progressive.

Real annual fiscal income change, 1980-2014 (Splinter, 2019, Progressive Growth)

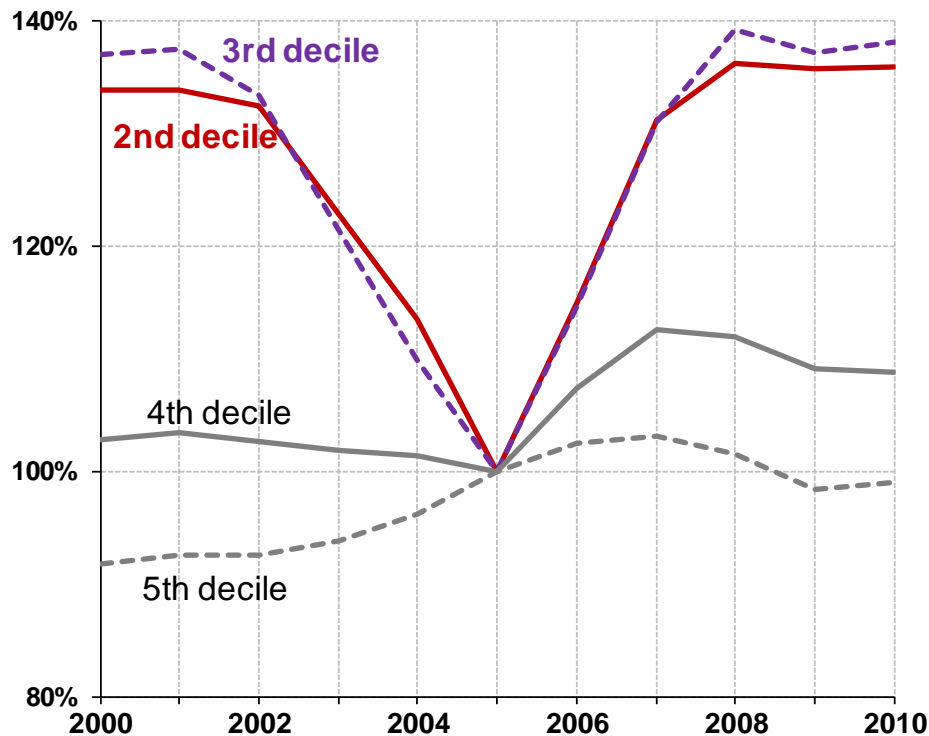


Annual vs. Multi-Year Incomes

But income mobility can create instability and leave some in poverty.

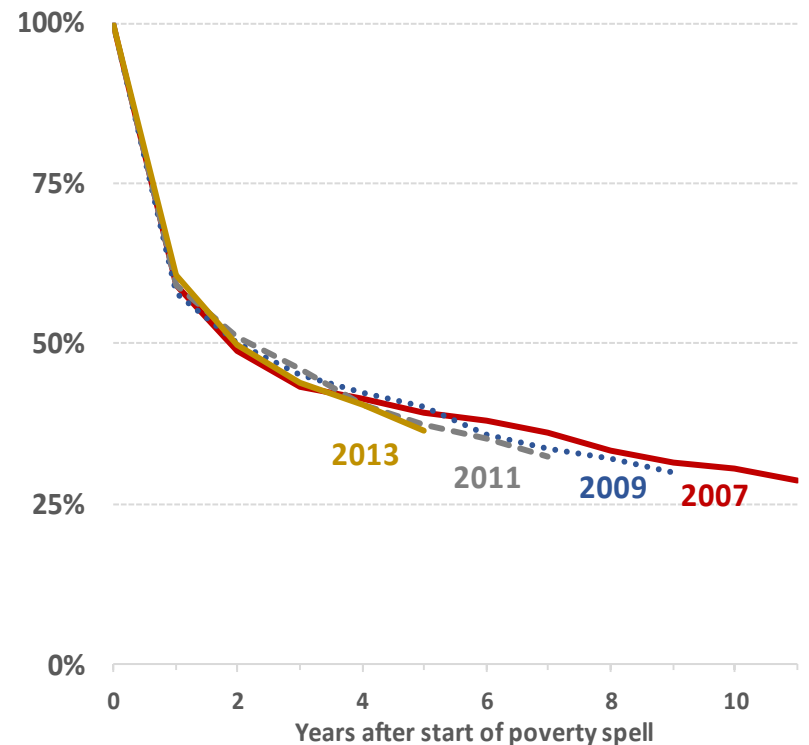
Instability in bottom half of distribution:

Real income relative to 2005 inc. by 2005 inc. group



Persistent Poverty:

Share remaining in poverty by starting year



Source: Splinter (2019, *Income Mobility and Inequality*)

Note: Bottom decile not shown falls from 300% in 2000 to 100% in 2005 and increases to 270% in 2010.

Source: Larrimore, Mortenson, and Splinter (NBER)

Conclusions

- **Surveys underestimate inequality but likely overestimate poverty**
- **National income >50% larger than fiscal income**
National income is more equal than fiscal income
- **How one allocates income missing from tax data can have big effects on measuring inequality**