

More Unequal we Stand? Inequality Dynamics in the United States 1967-2021

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Views are of the authors and not necessarily of the Minneapolis Fed or the Federal Reserve System

Remembering Tom

NYU Stern, July 2002



Gentleman, friend, economist, institution builder!

Context and objective

- ▶ Heathcote, Perri Violante (RED, 2010) document dynamics of several dimensions of inequality in the United States from 1967 to 2006, using publicly available surveys
 - ▶ Expand and update analysis on dimensions of US inequality (include Great Recession and COVID)

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 - ▶ Expand and update analysis on dimensions of US inequality (include Great Recession and COVID)
 - ▶ Provide empirical references to micro-macro literature
 - ▶ Contribute to the current debate on US inequality trends (Gramm et al. 2022 v/s Piketty et al. 2018)

Organizing device: household budget constraint

$$c + a' = \sum_{i=1}^N w_i h_i + U + T^G - \tau + pa$$

- ▷ w_i individual wage
- ▷ $w_i h_i$ individual earnings (labor supply)
- ▷ $\sum_{i=1}^N w_i h_i$ hh earnings (pooling)

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- ▷ $\sum_{i=1}^N w_i h_i + T^G + U - \tau$ hh disposable income (taxes)
- ▷ pa value of initial wealth

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- ▷ c consumption expenditures
- ▷ a' savings

Five Surveys

① Current Population Survey (March CPS), 1967-2021

- repeated cross-section (+short panel), $\simeq 60,000$ households per year: income

② American Community Survey (ACS), 2000-2021

- repeated cross-section, $\simeq 1\text{m}$ households per year: income

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③ Consumer Expenditure Survey (CEX), 1980-2021

- ▷ rotating short panel: $\simeq 15,000$ households: income, consumption, wealth

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- rotating short panel: $\simeq 15,000$ households: income, consumption, wealth

④ Panel Study of Income Dynamics (PSID), 67-96, 98(2)18

- long panel, $\simeq 6000$ households: income, consumption, wealth

⑤ Survey of Consumer Finance (SCF), 1988(3)2018

- repeated cross section, $\simeq 4000$ households: income and wealth

Sample selection

① Sample A

- ▶ “Clean” version of raw data: drop households with members that have incomplete or implausible info (i.e. wage below 1/2 the minimum)
- ▶ used for **population-level** statistics (comparison with NIPA)

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③ Sample C

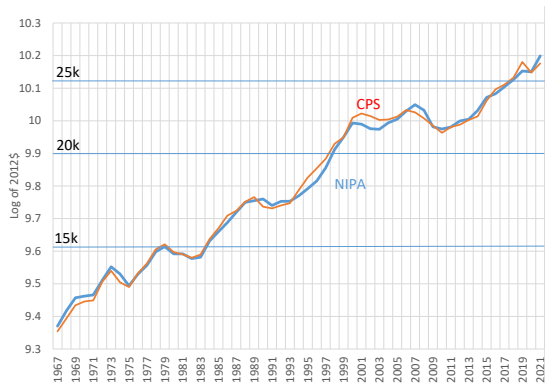
- ▷ individuals from households **B**, age 25-60 who work at least 260 hours per year
- ▷ used for **individual-level** (wages, hours) statistics

Sample A, Summary Statistics, 2018

	CPS	ACS	PSID	CE	SCF
# of households	66,929	1,215,264	8,422	14,793	5,813
Avg head age	51.8	52.5	54.1	53.0	51.5
Avg HH size	2.44	2.45	2.14	2.21	2.44
% white head	78.2	76.1	77.2	81.5	66.6
% college head	36.4	35.5	35.6	36.7	35.2
% 0 earnings	26.7	25.8	27.8	34.6	26.9
% earnings > 500k	0.5	0.5	0.4	0.2	0.7

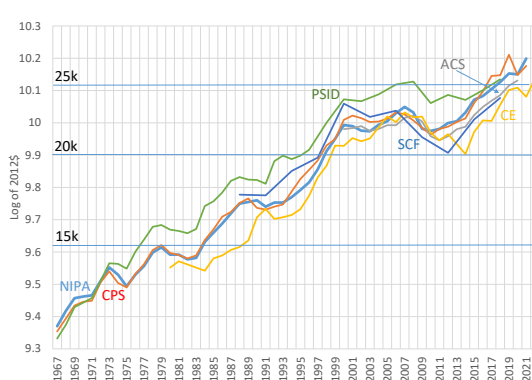
Macro facts in micro data (DNA)

Wage and salary income pc, sample A



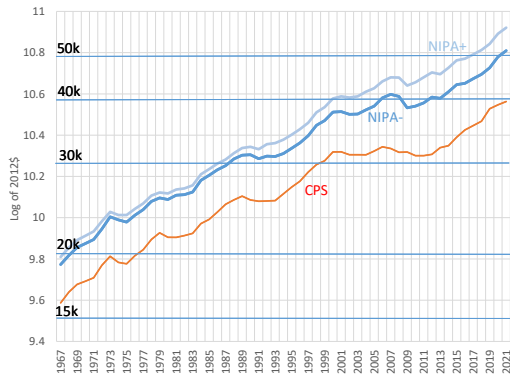
- ▶ March CPS matches NIPA well in level, trend and cycles

Wage and salary income pc, sample A



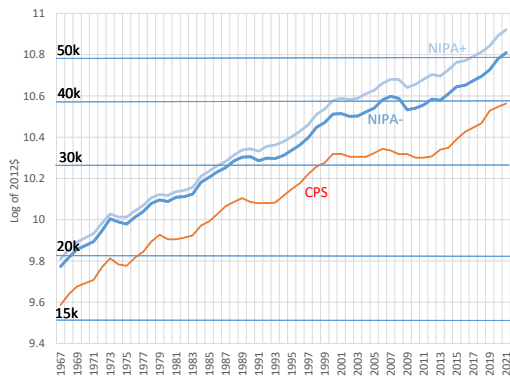
- ▷ March CPS matches NIPA well in level, trend and cycles
- ▷ Broad agreement with NIPA for other surveys
- ▷ In PSID & CE more persistent Great Recession
- ▷ Higher level in PSID, lower level in CE

Pretax (personal) income pc, sample A



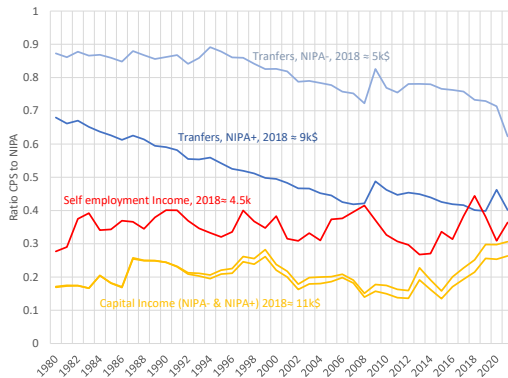
- ▷ NIPA- and CPS: wages, capital and business income, non-med transfers, FICA
- ▷ NIPA+: medicare/aid, owner renteq, employer contrib.

Pretax (personal) income pc, sample A



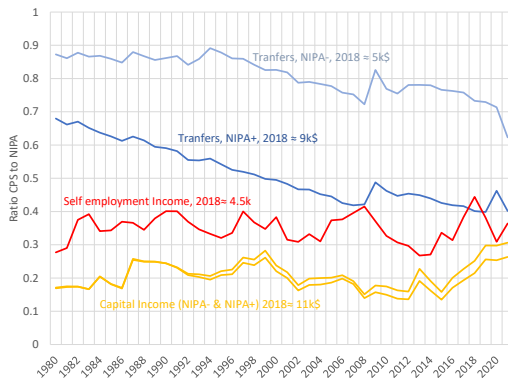
- ▷ NIPA- and CPS: wages, capital and business income, non-med transfers, FICA
- ▷ NIPA+: medicare/aid, owner renteq, employer contrib.
- ▷ Significant and growing missing pre-tax income from CPS

Gaps between NIPA and surveys (CPS)



- ▷ Capital and bus. inc. much lower in CPS than NIPA
- ▷ CPS transfers declining share of NIPA+ because of medical

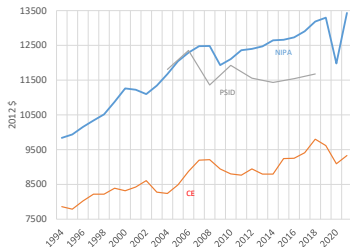
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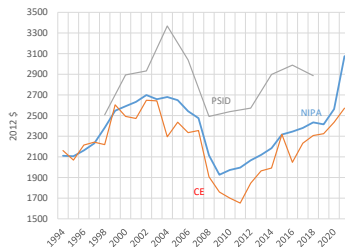
- Capital and bus. inc. much lower in CPS than NIPA
- CPS transfers declining share of NIPA+ because of medical
- Later assess impact of missing income on inequality

Consumption expenditures pc, sample A

Non Durables



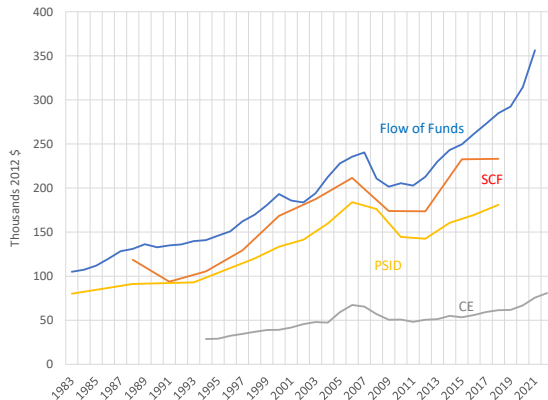
Durables



Non health, non housing

- ▷ recent years allow evaluation of PSID v/s CE
- ▷ CE better matches NIPA growth in recent years and closer to NIPA than PSID
- ▷ both capture cyclical variations (COVID?)

Household net worth pc, sample A

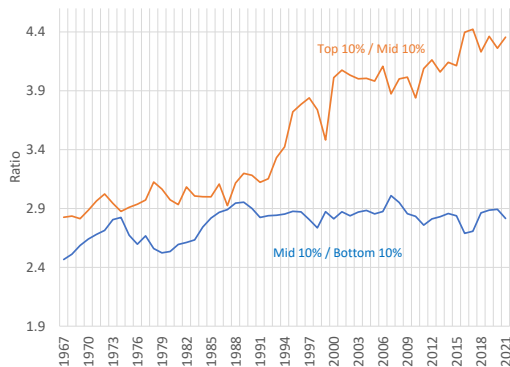


- ▷ SCF closest to FoF
- ▷ PSID wealth level off, but not trend and cycles
- ▷ CE wealth very low

Inequality dynamics roadmap

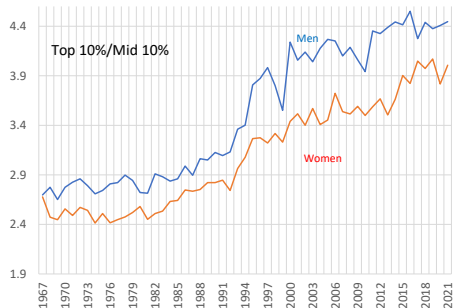
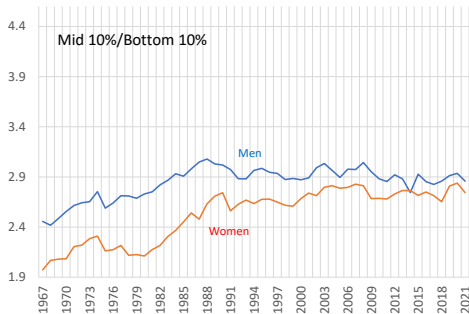
- ▷ individual wages →
- ▷ individual earnings →
- ▷ HH earnings/income →
- ▷ HH expenditures and wealth

Overall wage inequality, sample C, CPS



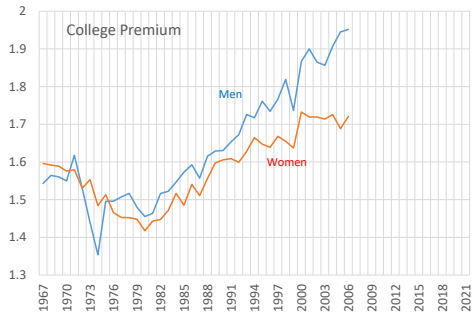
- ▷ Not cyclical
- ▷ Bottom: flat
- ▷ Top: starts increasing in 1990s, keeps raising after GR

Wage inequality by gender, sample C, CPS

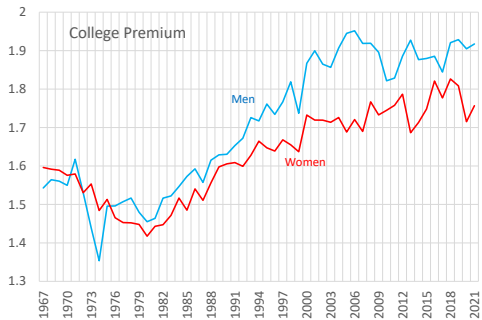


- ▶ Similar patterns across genders
- ▶ Women wage catch-up mask within gender increase in wage inequality at the bottom in the 1980s

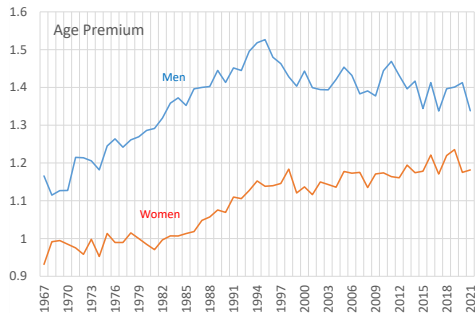
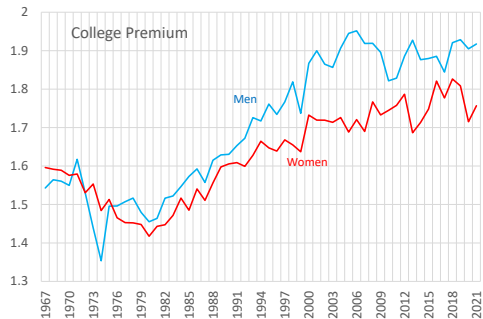
Wage premia



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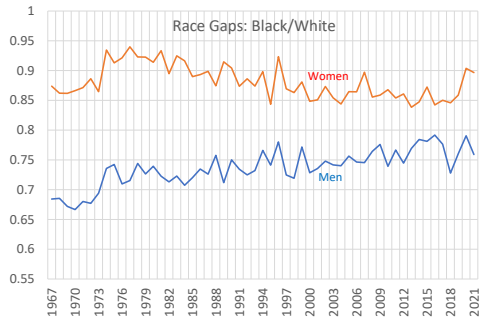
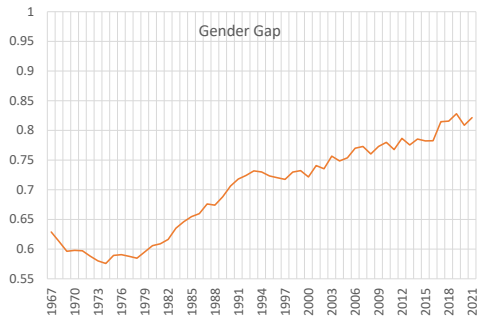


Wage premia



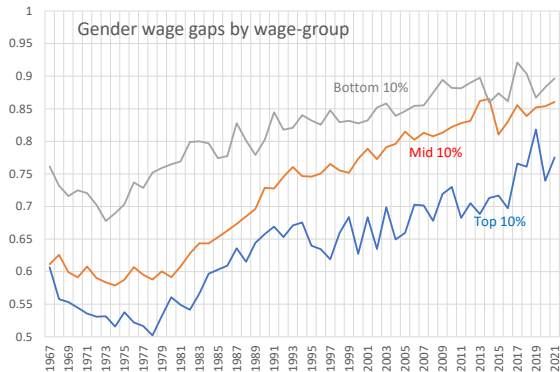
- ▷ post GR: end of the rise in college premium (also true for post-college premium)

Wage gaps



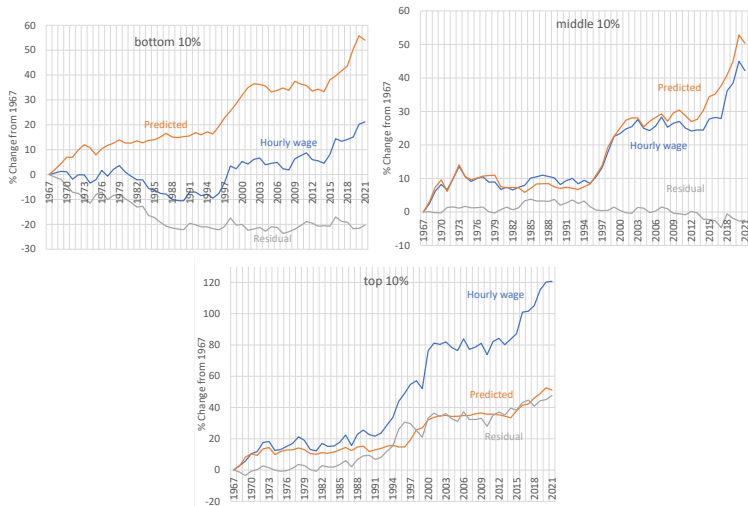
- ▷ post GR: further closing (at slower pace) of gender gap
- ▷ little change in race gap

Wage-gender gaps across the wage distribution



- ▷ wage-gender gap larger at the top
- ▷ faster catch up in the middle

Observables (Age, Edu, Sex, Race) v/s Residuals



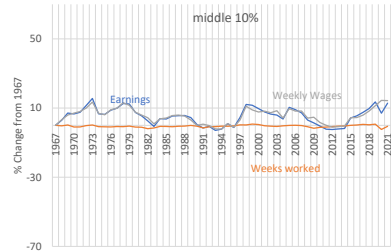
▷ residuals explain most of the increase!

Wage inequality over the past 15 years

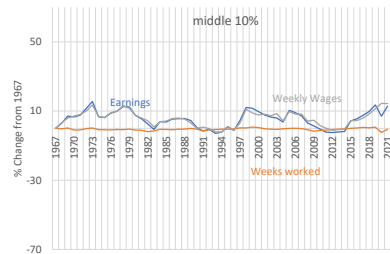
- ▷ Stable at the bottom
- ▷ Continues to increase at the top for men and women
- ▷ Increase not explained by observables

From Wages to Earnings

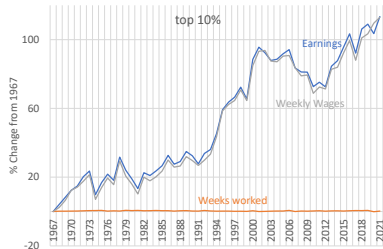
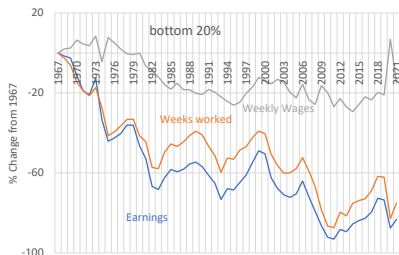
Measures of men earnings: sample B



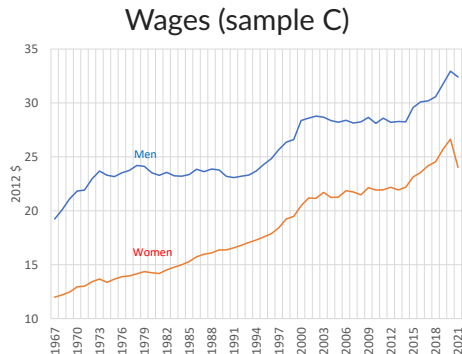
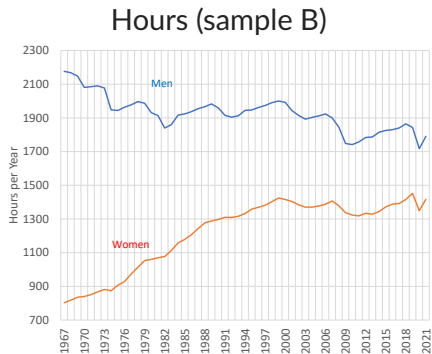
Measures of men earnings: sample B



- ▷ men earnings inequality increase both at the top and bottom
- ▷ top: only secular driven by wages
- ▷ bottom: cyclical and secular, driven by hours



Earnings Gender Gaps



- ▷ 1967-1997: women faster wage and hours growth: great earnings equalization
- ▷ 1997-2020: hours equalization over, wage equalization slower
- ▷ gender gap in hours AND wages around 25%

From individuals to households

Measuring the impact of household pooling

- ▶ Start from sample B
- ▶ Select households with either 1 or 2 members of age 25-60
- ▶ Construct two earning measures

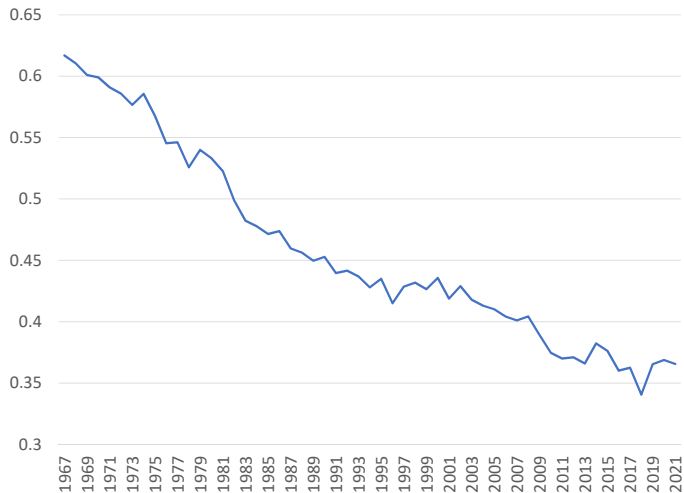
$$\bar{y}_i = \frac{\sum_{H(i)} y_i}{N(i)}, \text{ Pooled earnings within household}$$

y_i , Individual Earnings

- ▶ For singles $y_i = \bar{y}_i$
- ▶ Measure of household pooling

$$HP_t = \frac{\text{var}(y_{it}) - \text{var}(\bar{y}_{it})}{\text{var}(y_{it})} \in [0, 1]$$

The role of households in reducing inequality

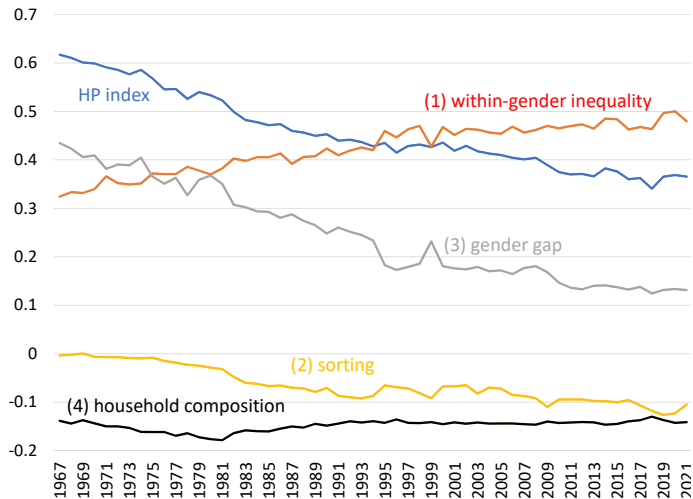


- Going from individual to household reduces inequality, but less so over time

Decomposing the HP index

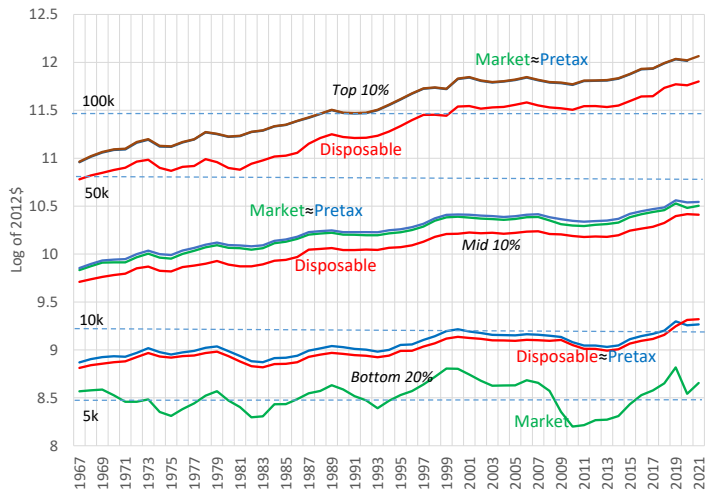
$$\begin{aligned} HP_t = & \underbrace{\frac{1}{4} \frac{\text{var}(y_{i_1t}^c) + \text{var}(y_{i_2t}^c)}{\text{var}(y_{it})}}_{\text{Within Gender Inequality}} (1 - s_0) \\ & + \underbrace{\frac{1}{2} \frac{(Y_{1t}^c - Y_{2t}^c)^2}{\text{var}(y_{it})}}_{\text{Gender Gap}} (1 - s_0) \\ & - \underbrace{\frac{1}{2} \frac{\text{cov}(y_{i_1t}^c, y_{i_2t}^c)}{\text{var}(y_{it})}}_{\text{Sorting}} (1 - s_0) \\ & - \underbrace{\frac{\text{var}(y_{it}^c) - \text{var}(\bar{y}_{it}^c)}{\text{var}(y_{it})}}_{\text{Household formation}} (s_t - s_0) \end{aligned}$$

Decomposing the index

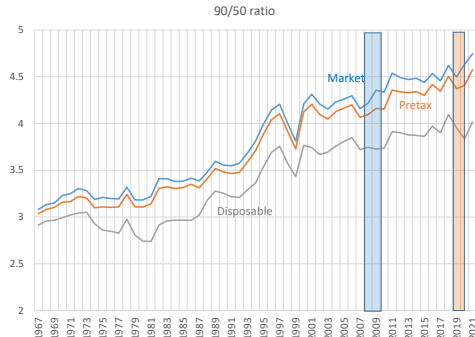
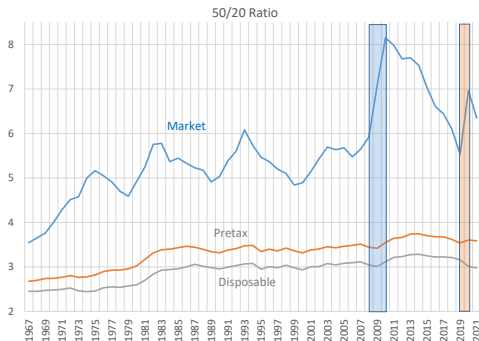


▷ Fall in wage gap, increased singles and sorting: reduce household pooling

Measures of household income: Sample B, CPS, by mkt

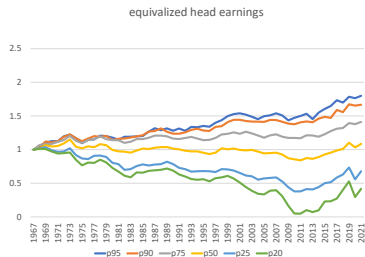


Household inequality: Sample B



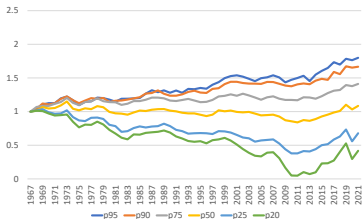
- ▶ Great Recession drove an increase in inequality, which has reversed at the bottom, not at the top
- ▶ COVID recession unprecedented redistribution

Summarizing income distributions

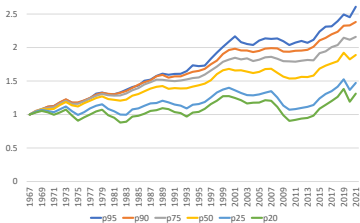


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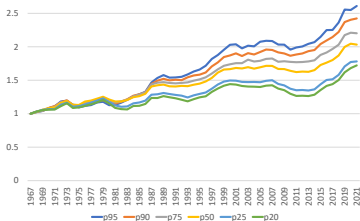
equivalized head earnings



equivalized household earnings



equivalized household disposable income



- ▷ From Head Earnings to HH Earnings (family) to HH Disposable Income (govt)

Main takeaways

- ▶ Market income of bottom 20% of households still at 1967 level (after the GR cycle)

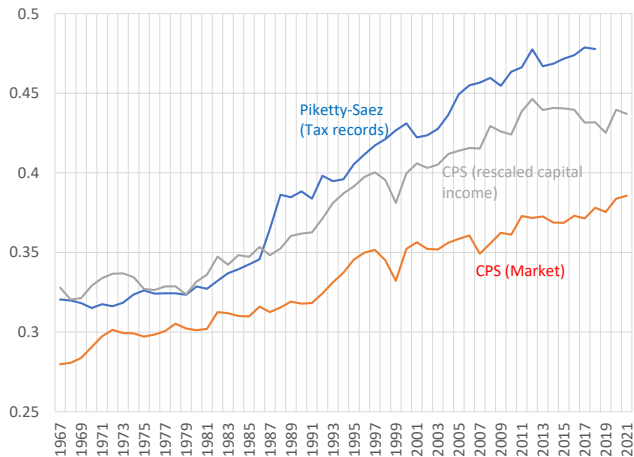
Main takeaways

- ▶ Market income of bottom 20% of households still at 1967 level (after the GR cycle)
- ▶ Tax and transfers greatly affect trend and cycle of bottom 20%, and reduce income at the top
- ▶ Over past 15 years disposable income of the top keeps diverging
- ▶ COVID historically large redistribution

Inequality impact of missing income in CPS

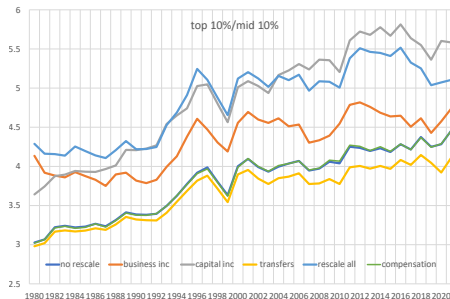
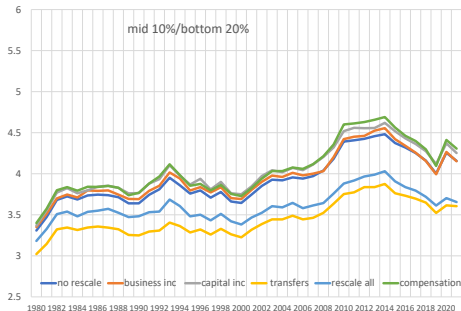
- ▷ CPS misses substantial fraction of capital and business income and transfers
- ▷ Assess inequality impact by rescaling CPS figures so that NIPA+/CPS ratio in income category
- ▷ Rescaling is not uniform across households because many households report 0 in a given category
- ▷ Implicitly assume CPS errors are only on intensive margin

Check: Share of top 10%



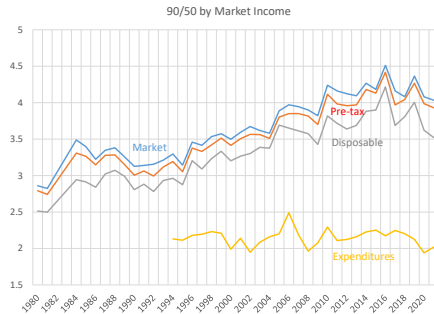
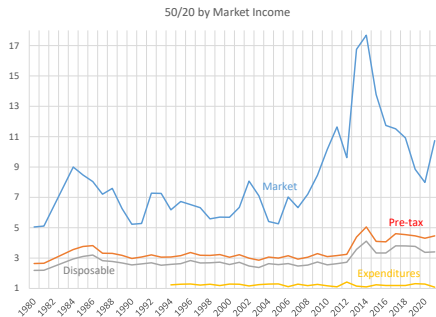
- ▷ Rescaling capital income has significant impact on both level and trend of inequality at the top

Impact of rescaling on pre-tax inequality



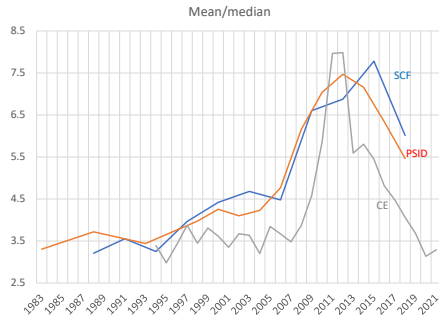
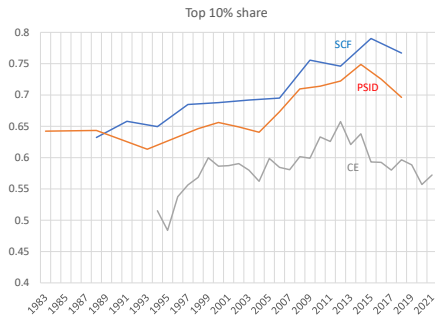
- ▷ rescaling capital inc increases ineq. level & growth at the top
- ▷ rescaling everything increases ineq. level but not growth at the top
- ▷ rescaling transfers lowers inequality level & growth at the bottom

Household Expenditure Inequality: Sample B, CE



- ▷ Dynamics of income inequality in CE very similar to CPS
- ▷ Still no increase in expenditure inequality, neither at the top nor at the bottom
- ▷ Same results using PSID expenditures

Wealth Inequality: Sample B

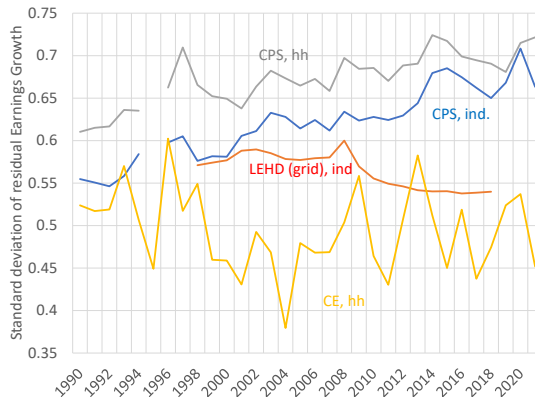


- ▷ Dynamics of wealth inequality driven by house and stock prices (Kuhn et al. 2020)
- ▷ In recent years (still missing COVID data in SCF and PSID) wealth inequality declining (raising home prices?)

Earnings Volatility

- ▶ Recent work using administrative data (Guvenen et al. 2020) have highlighted a decline in earnings volatility (Measured as the standard deviation of changes in log earnings)
- ▶ Surveys can be used to compute comparable measures

Earnings Volatility



- ▶ Main discrepancy is an increase in volatility during GR recovery (mostly driven by large increase in positive earnings growth in CPS)

Lessons from US Survey data over the past 15 years

- ▶ increase in income inequality has moderated, however inequality at the top still increasing
- ▶ growth of college premium and gender/race equalization have stopped

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- ▷ COVID: historically different, first recession when disposable income inequality declined
- ▷ consumption expenditures inequality still flat throughout
- ▷ wealth inequality increase around great recession, declines after

Additional slides

Pretax (personal) income pc, sample A, 5 surveys

