



# Inequality in 3D: Synergies in the Distributions of Income, Consumption, and Wealth

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G20 DGI-2: Workshop on household distributional accounts

November 4-5, 2021

Based on collaborations with Jonathan Fisher, Tim Smeeding, Jeff Thompson, Marina Gindelsky, Dennis Fixler

Thanks to Washington Center for Equitable Growth and Russell Sage Foundation for funding

# Why Inequality: Much attention on recent increases (or decreases)

The Washington Post  
Democracy Dies in Darkness

Business

## Income inequality in America is the highest it's been since Census Bureau started tracking it, data shows

In the midst of the nation's longest economic expansion, the separation between rich and poor is at a five-decade high

earch

Bloomberg Opinion

Sig

Economics

## The Good News About Income Inequality

The working class is doing better, and it may reflect a fundamental change in the U.S. economy.

By [Karl W. Smith](#)

September 12, 2019, 7:00 AM EDT

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## The top 1% officially have more money than the whole middle class

The New York Times

THE MORNING NEWSLETTER

## A Wealth Tax

What are the pluses and minuses?

CHICAGO SUN-TIMES

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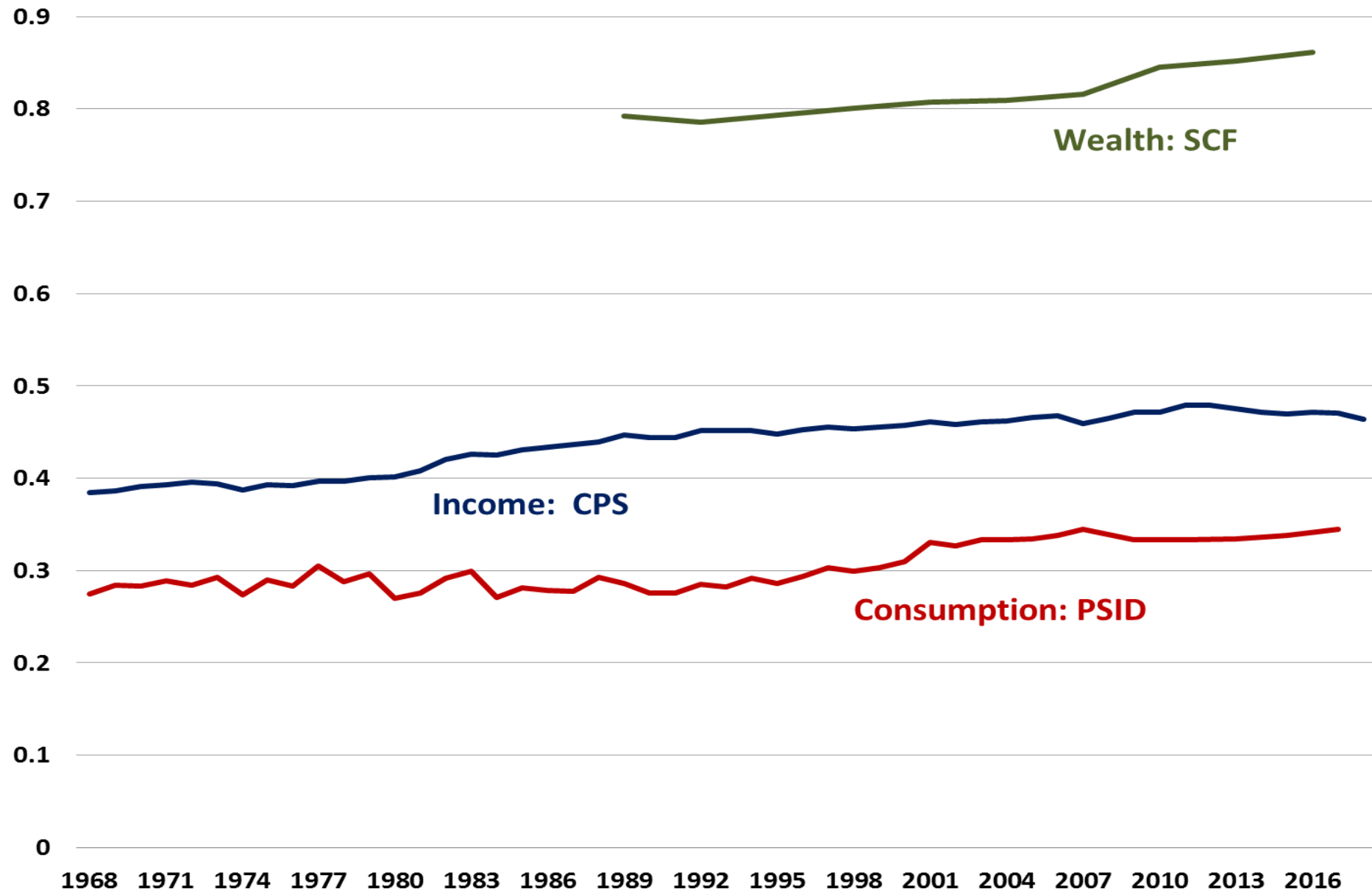
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COLUMNISTS COMMENTARY

## The big myth of rising income inequality

We have enough on our national plate without talking ourselves into false belief in a broken

# Wealth Inequality higher than Income, which is higher than Consumption, but all increase over time



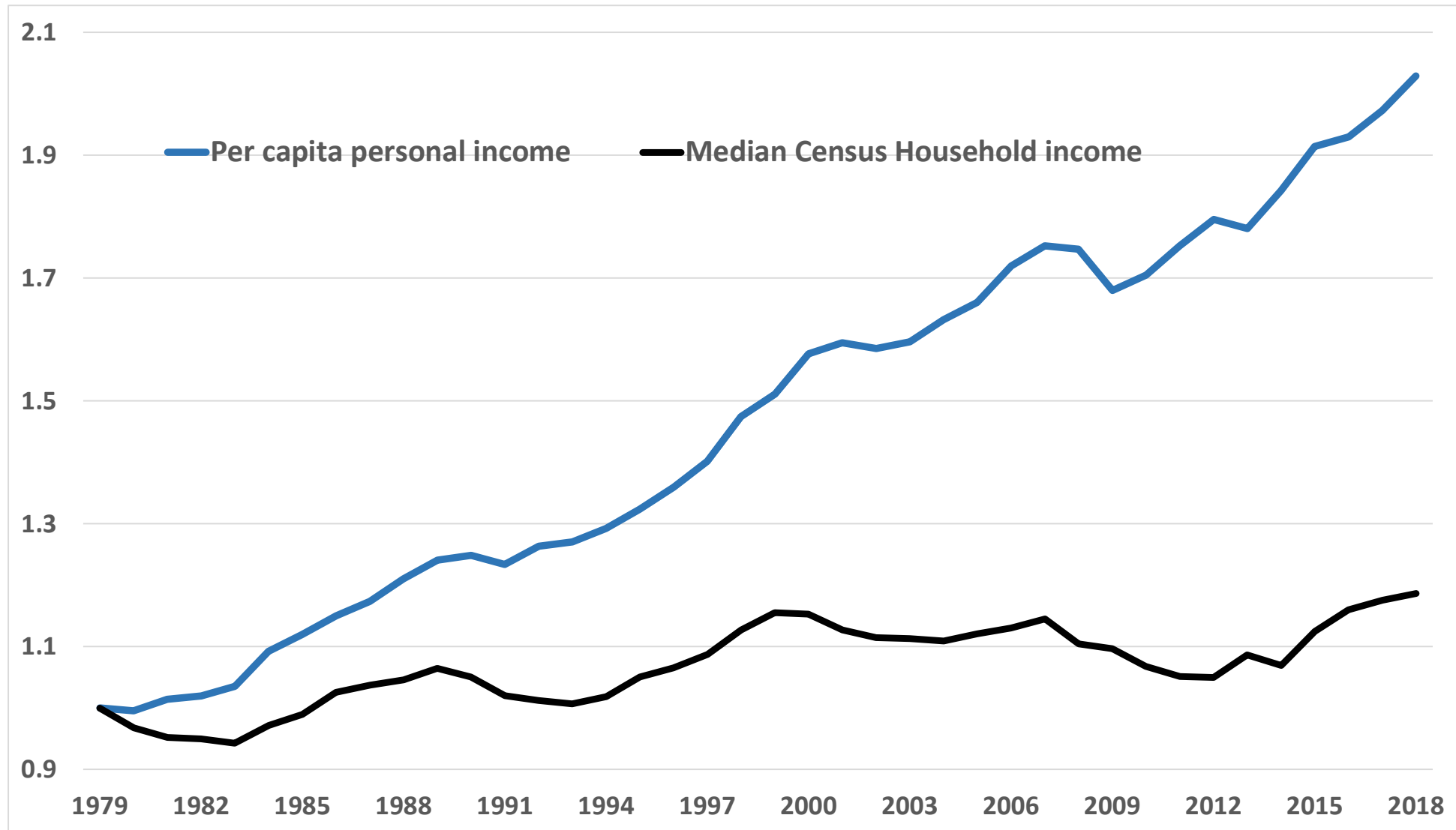
# Why three dimensions?

- Stiglitz Commission (2009) “...the most pertinent measures of the distribution of material living standards are probably based on jointly considering the income, consumption, and wealth position of households or individuals.”
- OECD (2013) “The quality and comparability of existing metrics of economic inequality...” could be improved by “...by developing measures of the joint distribution of household income, consumption and wealth.”
- Eurostat/OECD (2019) “The absence of a perfect correlation between income, consumption and wealth at the household level underscores the necessity of an integrated framework of analysis...studies of economic inequality usually examine the distribution of income, consumption, and wealth separately and, hence, miss the important synergy among the three measures.”
- Friedman (1957) “Its essential idea is to combine the relation between consumption, wealth, and income suggested by purely theoretical considerations with a way of interpreting observed income data...”
- Kuznets (1934) “Economic welfare cannot be adequately measured until the personal distribution of income is known.”

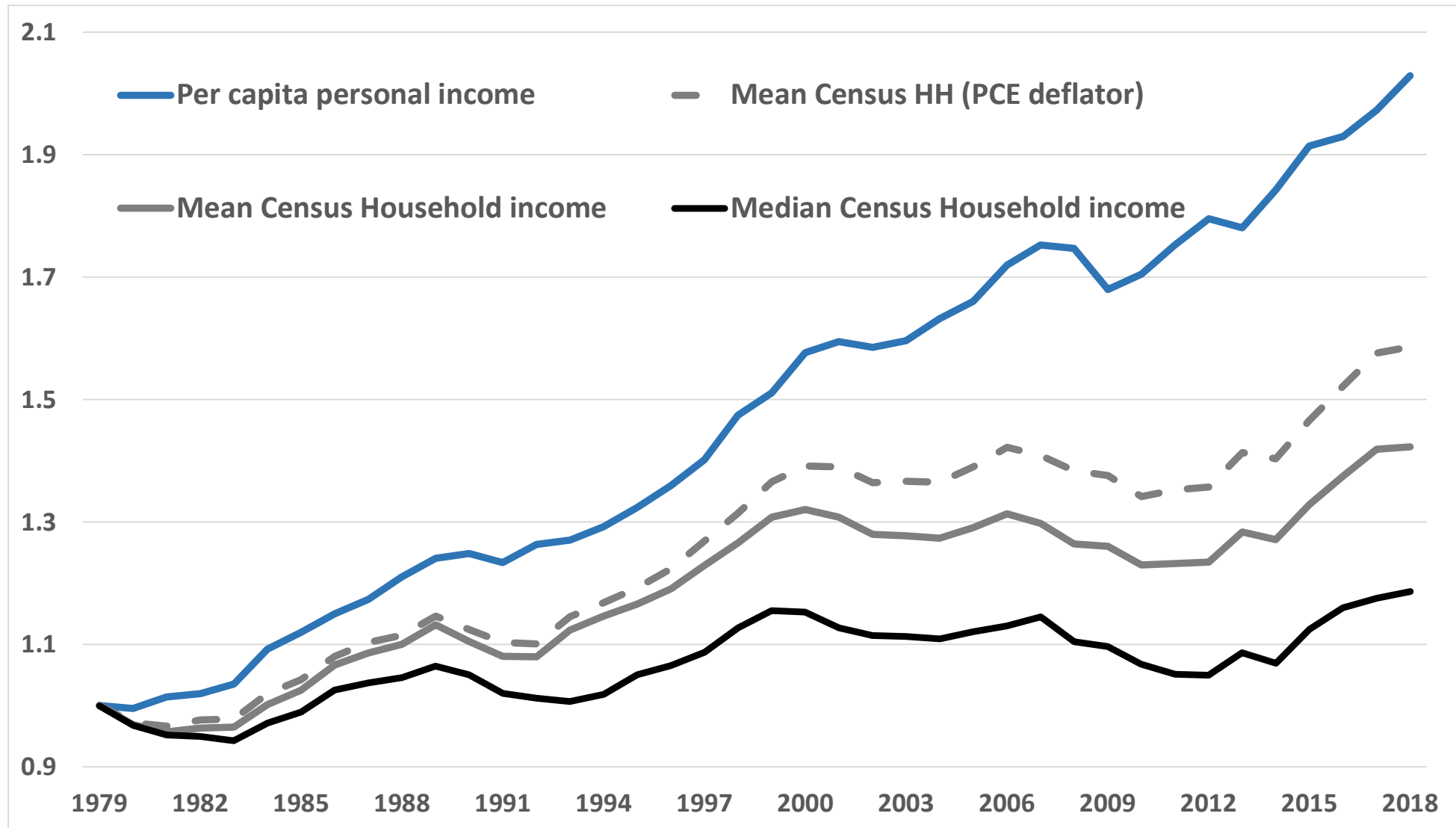
# Why 3D: Complementarity, Integration, Synergy

- Consistent (complementary) measures of income, consumption and wealth
- Best methods for integrating data sets to obtain joint distribution of ICW
- Examine the complementarity and synergy in the joint distributions of ICW, and examine budget constraint (savings),  $I - C = \Delta W$ .
- Better measures of economic well-being, economic disparities, and measures of horizontal equity (need demographic variables)
- Need methods to distribute national aggregates that follow current US agency projects and international efforts

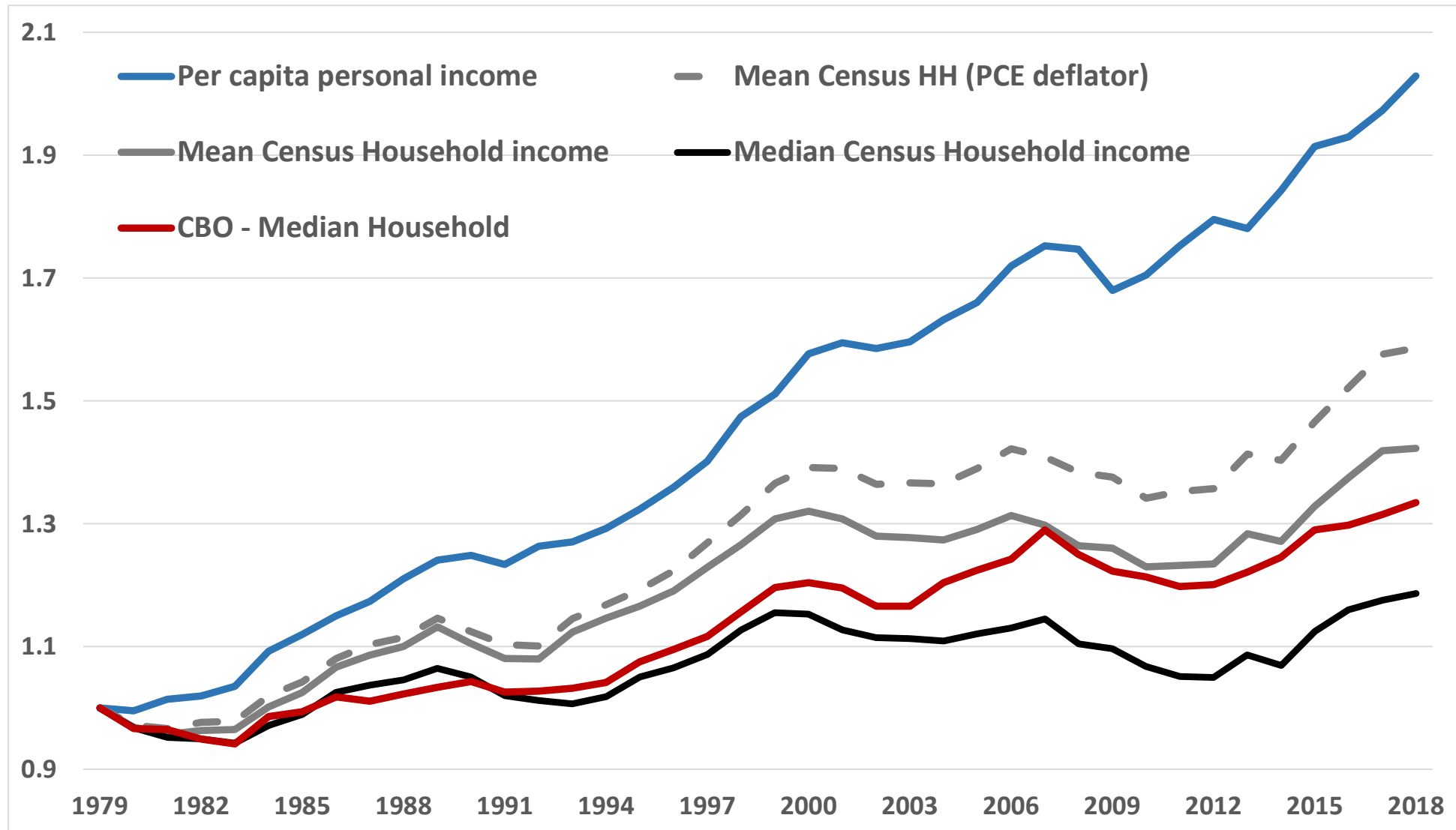
# Consistency: Different measures of income yield very different levels and trends



# Consistency: And different deflators matter as well



# Consistency: Differences between Congressional Budget Office (CBO) and Census measures





# Why 3D: Complementarity, Integration, Synergy

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# ICW Research agenda

- Fisher, Johnson, Smeeding and Thompson, *“Inequality in 3D: Income, Consumption and Wealth,” Review of Income and Wealth*, Forthcoming, 2021.
- Fisher & Johnson, *“Inequality and Mobility using Income, Consumption and Wealth,” NBER Volume, Measuring and Understanding the Distribution and Intra/Inter-Generational Mobility of Income and Wealth*, forthcoming, 2021
- Fisher, Johnson, Smeeding and Thompson, *“Estimating the Marginal Propensity to Consume using the Distributions of Income, Consumption, and Wealth,” Journal of Macroeconomics*, 2020.
- Fisher, Johnson, Smeeding and Thompson, *“The Demography of Inequality: Income, Consumption, and Wealth, 1989-2016,” University of Michigan PSC Research Report No. 18-890*, 2018.
- Fixler, Gindelsky, Johnson “Measuring Inequality in the National Accounts,” BEA Working paper, Dec 2020

# Data landscape for ICW in the US

## Survey of Consumer Finances (SCF)

- Dual-Frame Sample
  - National Area Probability Sample
  - List Sample – High wealth households
- Triennial: 1989-2016
- Unit of observation is the primary economic unit
- **Income, wealth, and some consumption**
  - Consumption for food, housing, and vehicles

## Consumer Expenditure (CE) Survey

- National Area Probability Sample
- Annual: 1980-2017
- Used for weights for Consumer Price Index
- Unit of observation is the consumer unit
- **Income, consumption, and some wealth**
  - Wealth includes owned home, vehicles, and some assets

## Panel Study of Income Dynamics (PSID)

- Nationally representative data beginning in 1968
- Biennial survey since 1997
- Unit of observation is the family
- **Income** every wave
- **Wealth and consumption** every wave since 1999

# Definitions of income, consumption, and wealth

## **Income**

- Income from employment, investment, government cash transfers, and inter-household transfers of money
- Plus in-kind transfers

## **Consumption**

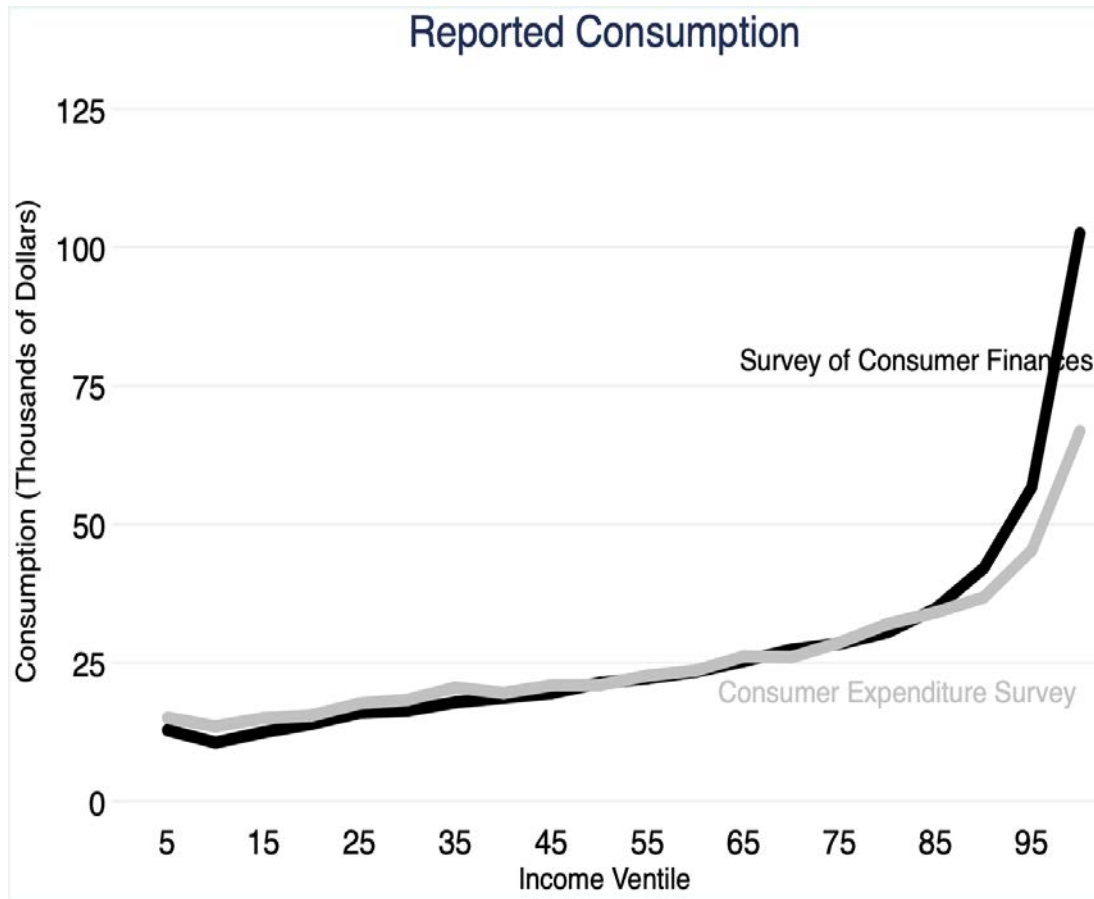
- Total spending on food, housing, non-durables, transportation, other durables, education, health, and child care.
- Imputed service flow for homeowners.
- Imputed service flow from vehicles.
- Imputed rent for those living in subsidized housing

## **Wealth**

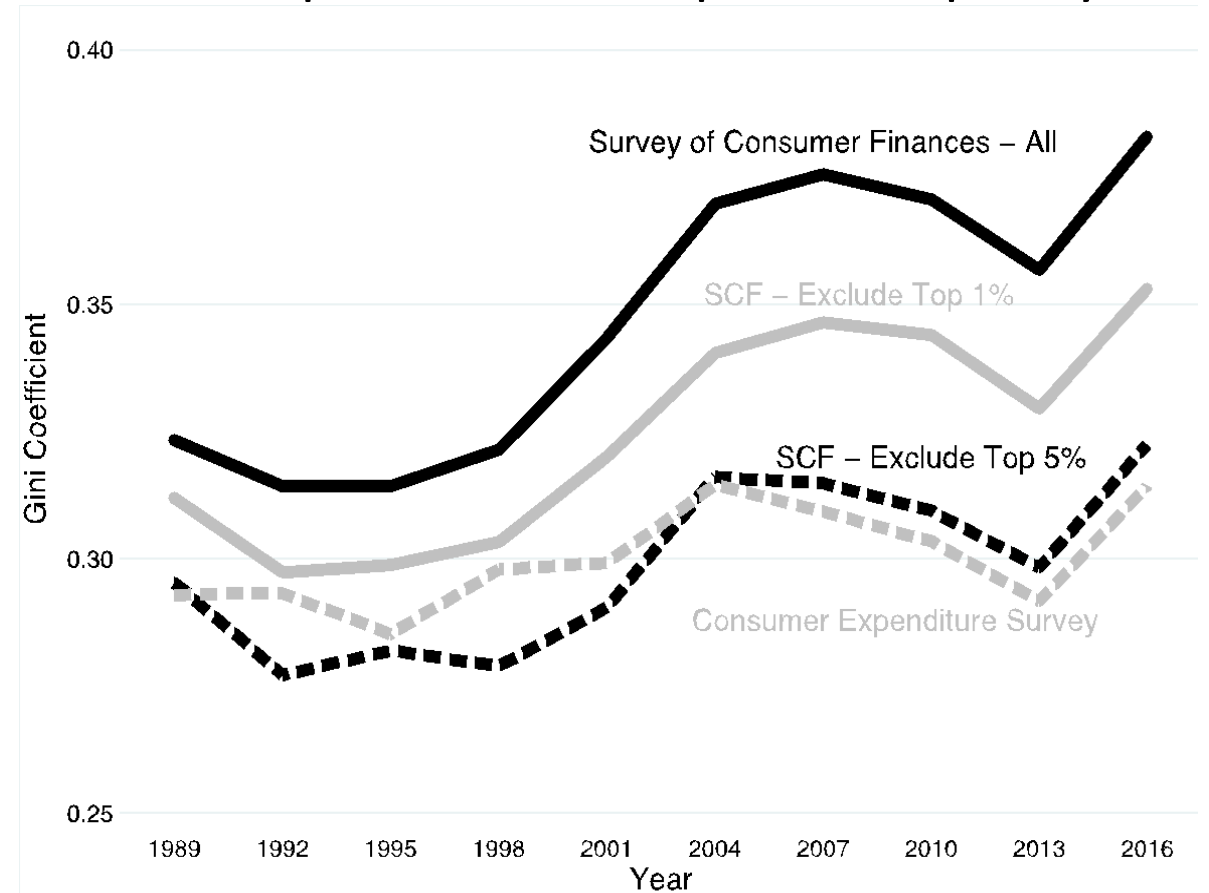
- Assets including stocks, bonds, mutual funds, home-equity, residential real estate, and business assets
- Less all debt including mortgage, credit cards, student debt, and business debt

# Use reported consumption in SCF to impute unreported consumption to enable ICW in SCF

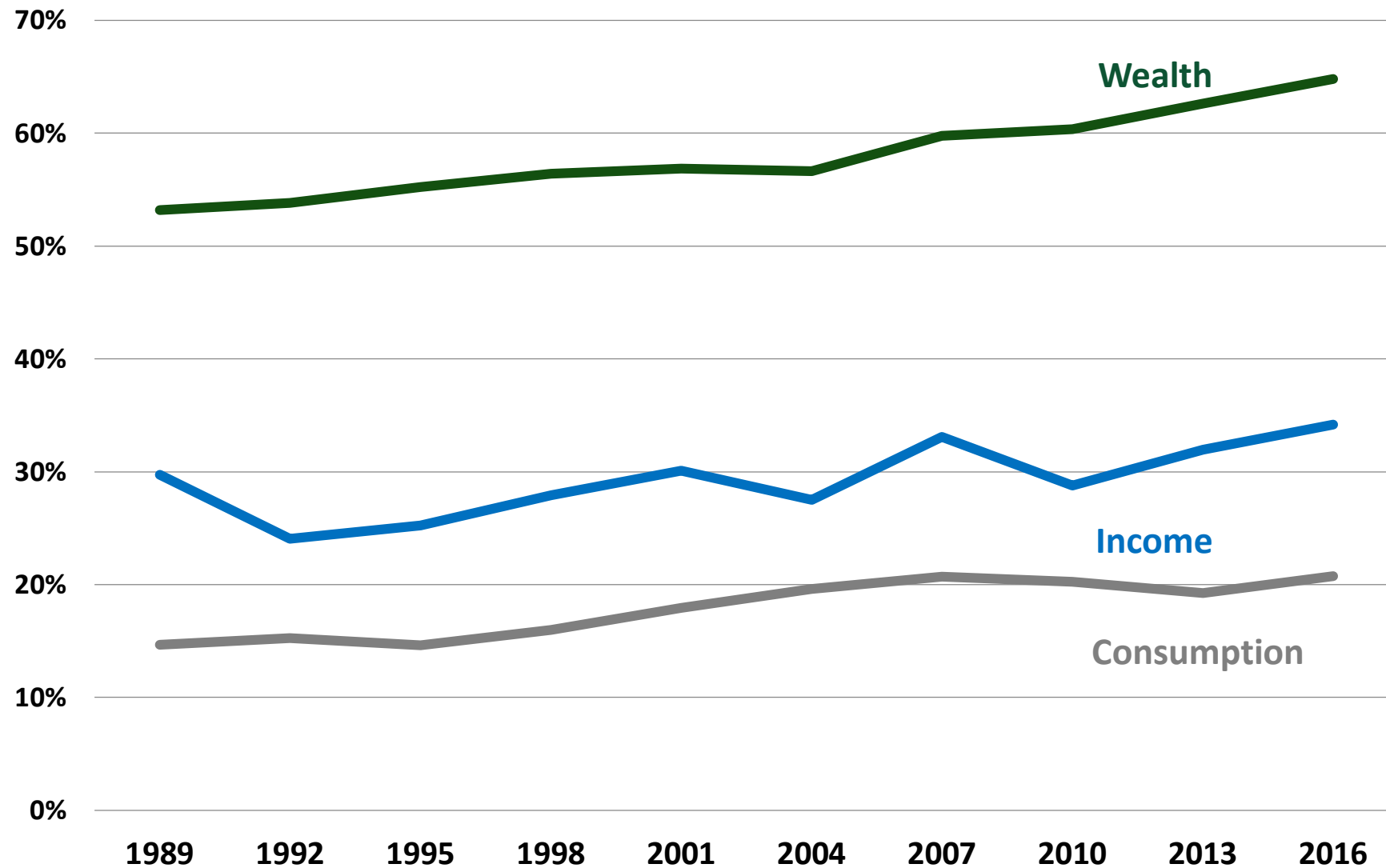
Reported consumption higher in SCF at the top of the income distribution



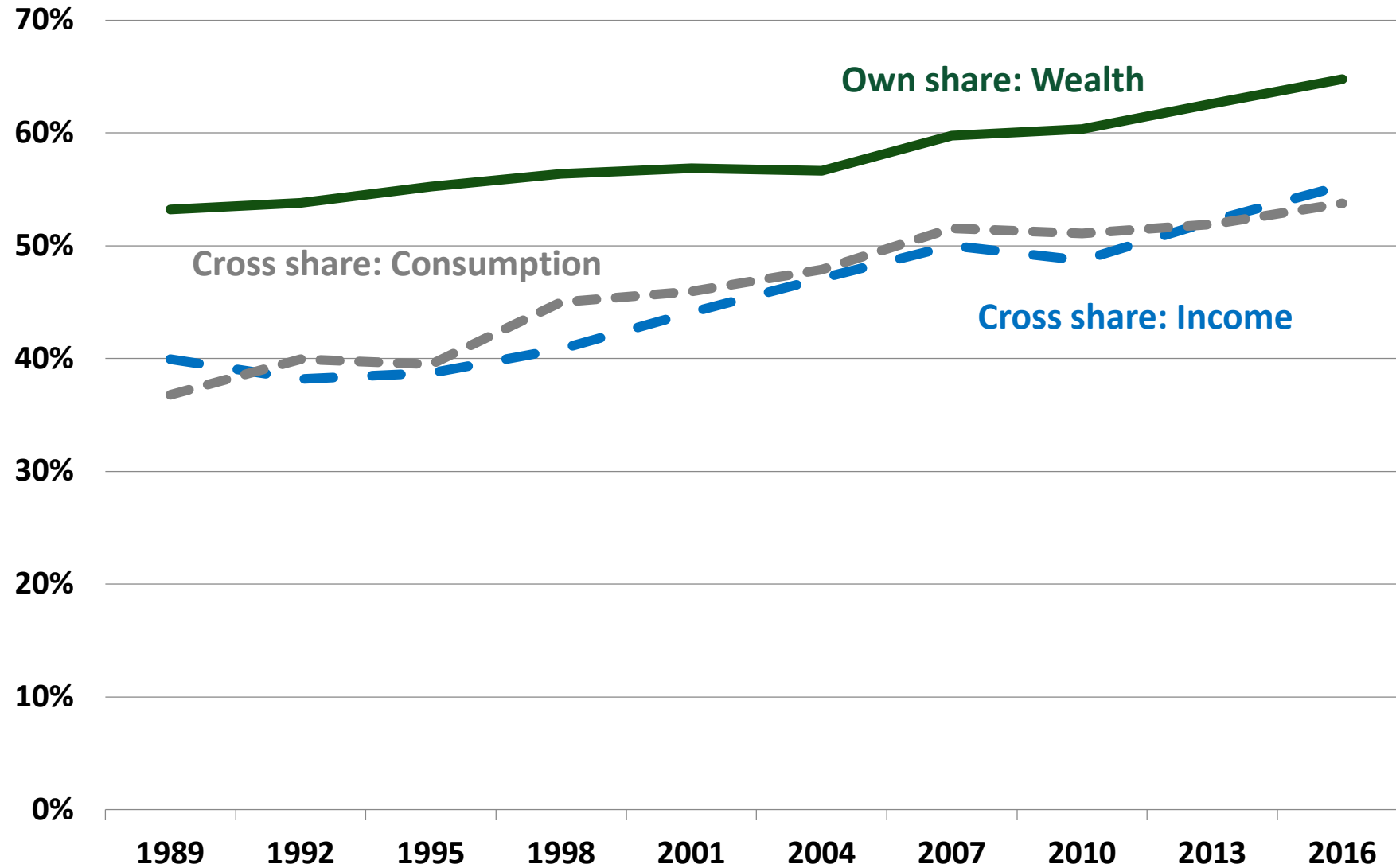
## Underreported consumption inequality



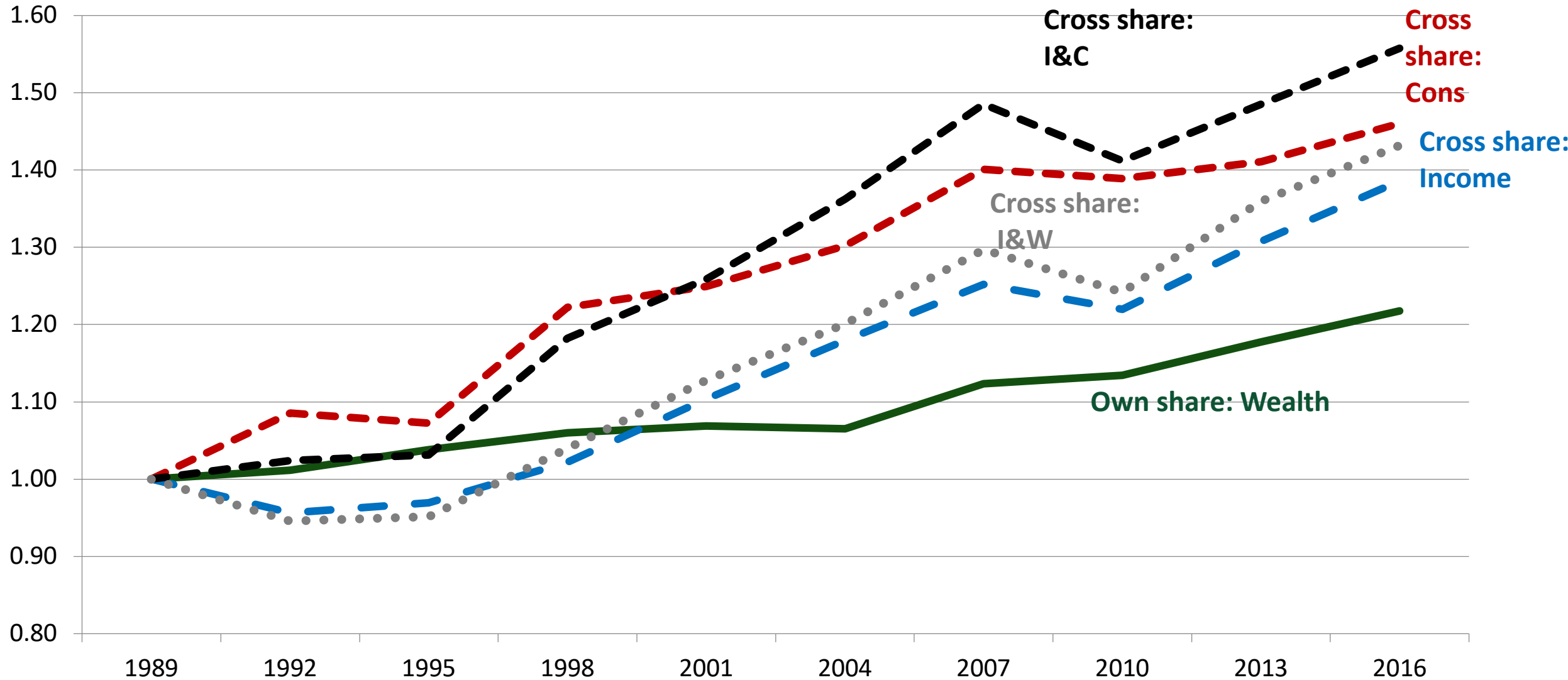
# 1D: Own Shares for top 5% of Wealth, Income, and Consumption



# 2D: Wealth Shares (own and cross) for top 5% of Wealth, Income, and Consumption

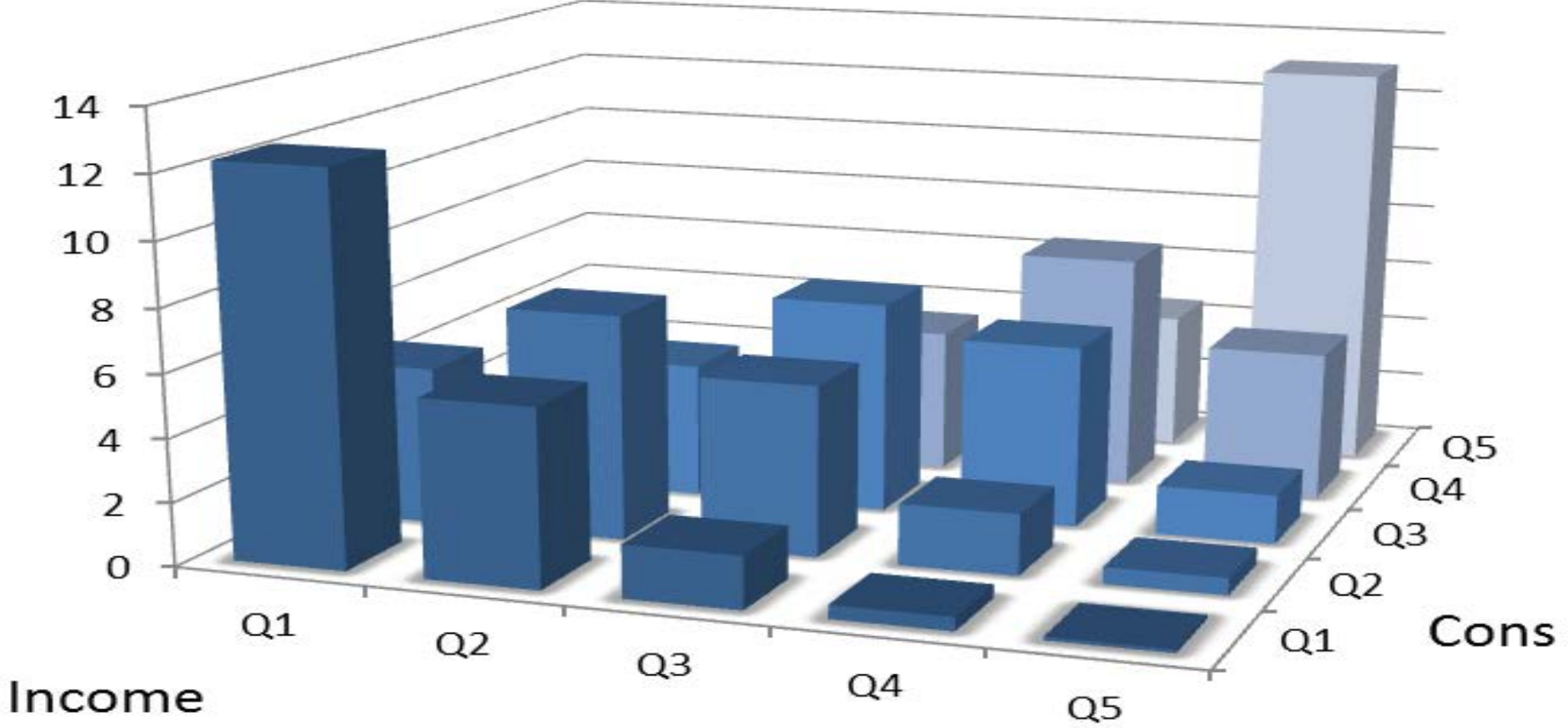


# 2D and 3D Wealth Shares increase more than 1D own Wealth Shares



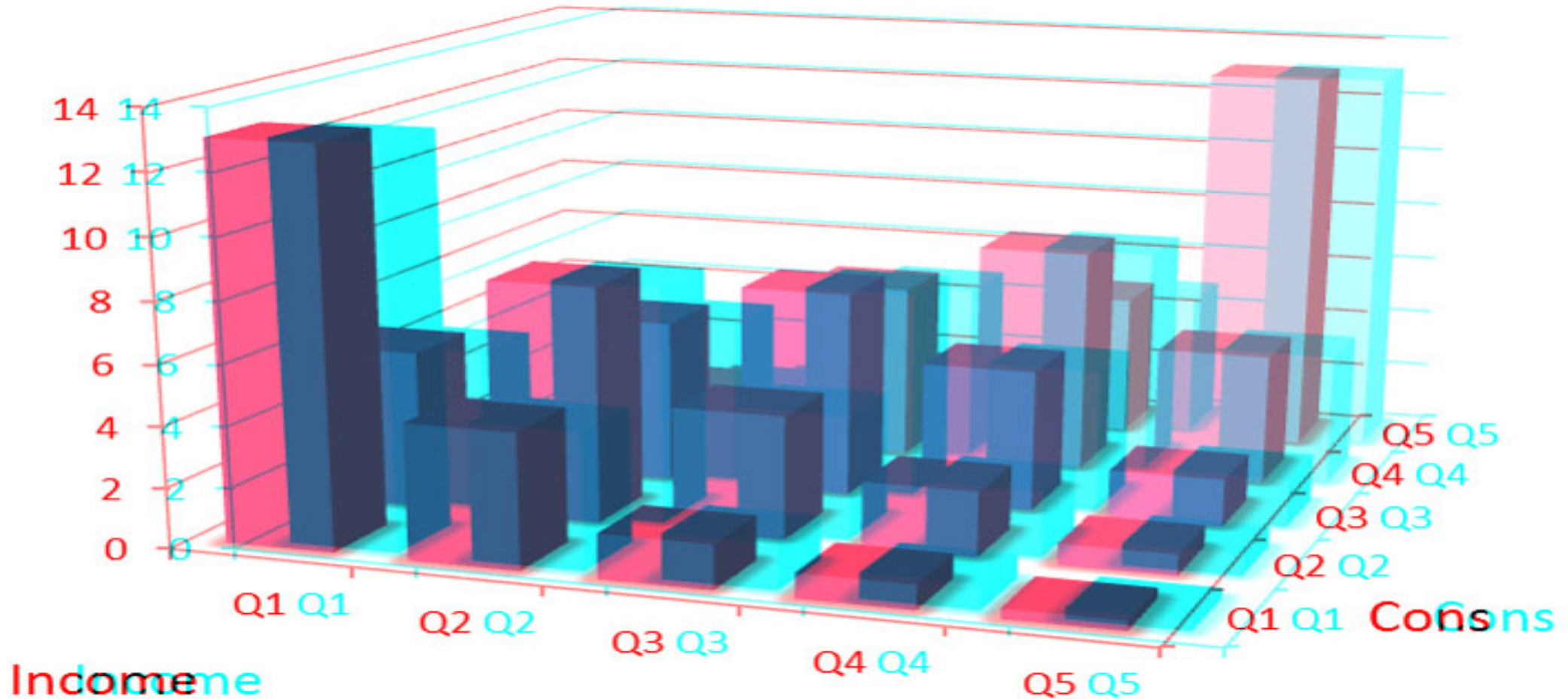


# Inequality in 2D: Transition matrix for income and consumption quintiles Showing twin peaks of joint distribution



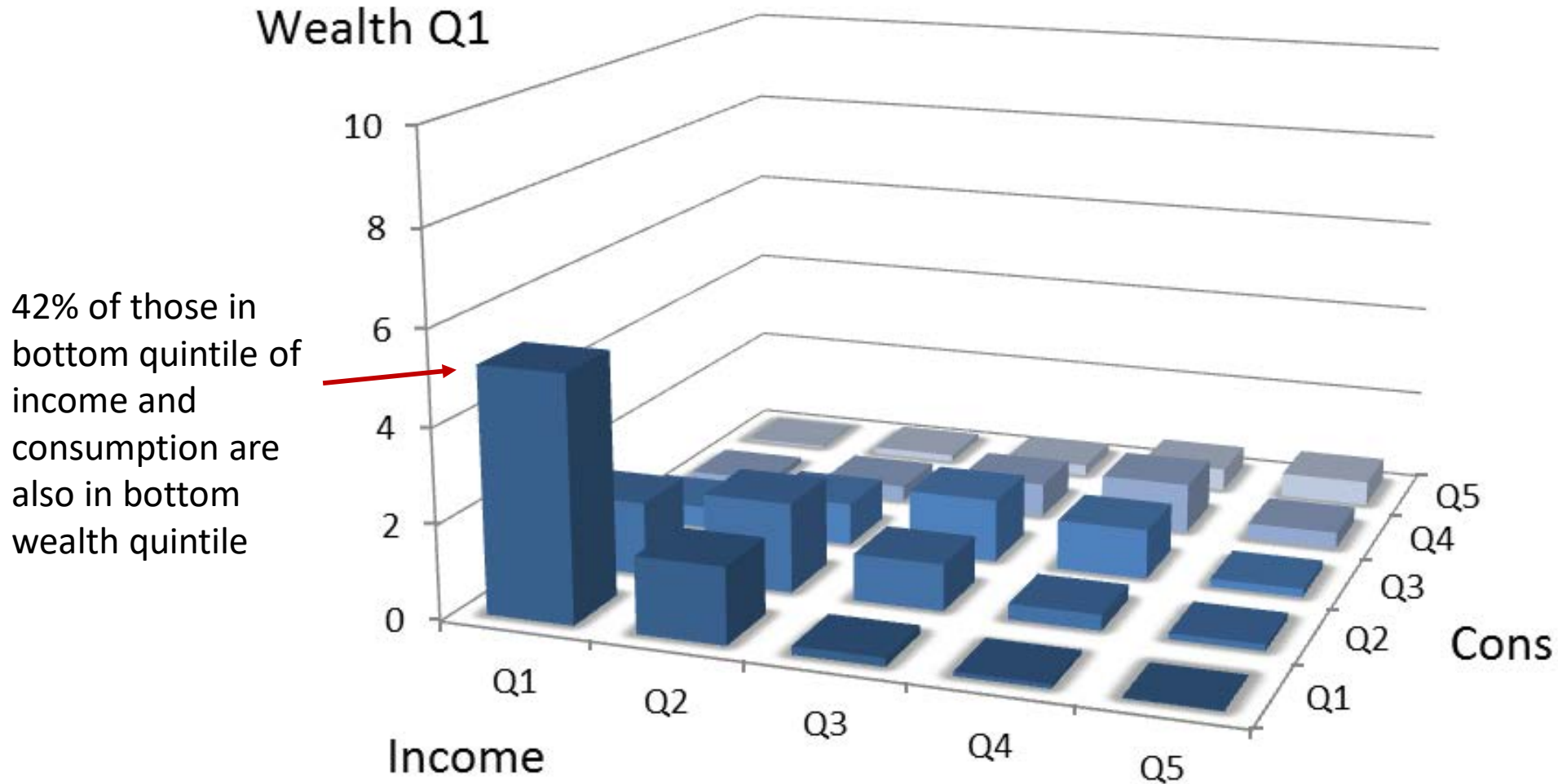
# Inequality in 2D:

Transition matrix for income and consumption quintiles  
Showing twin peaks of joint distribution

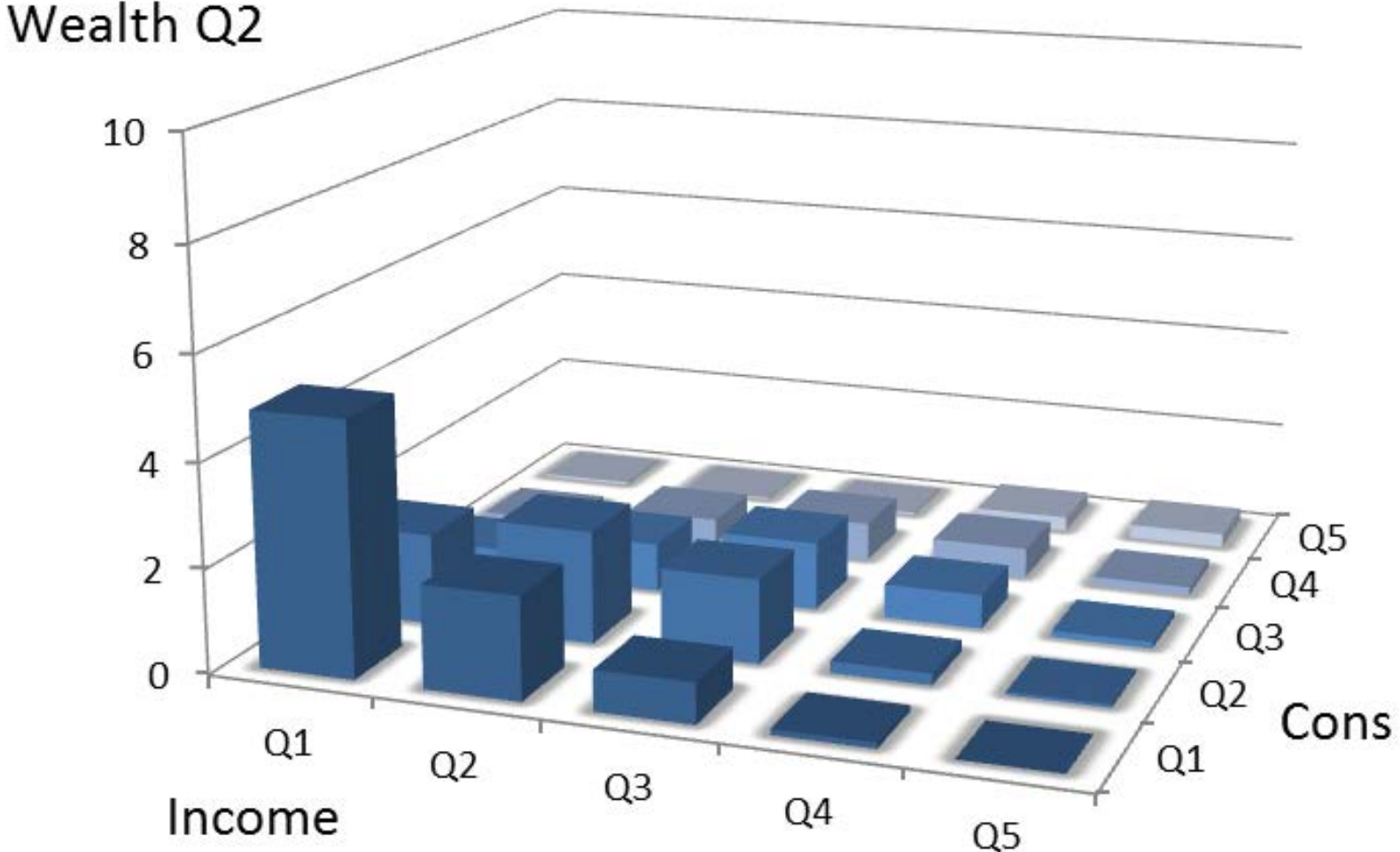


# Inequality in 3D:

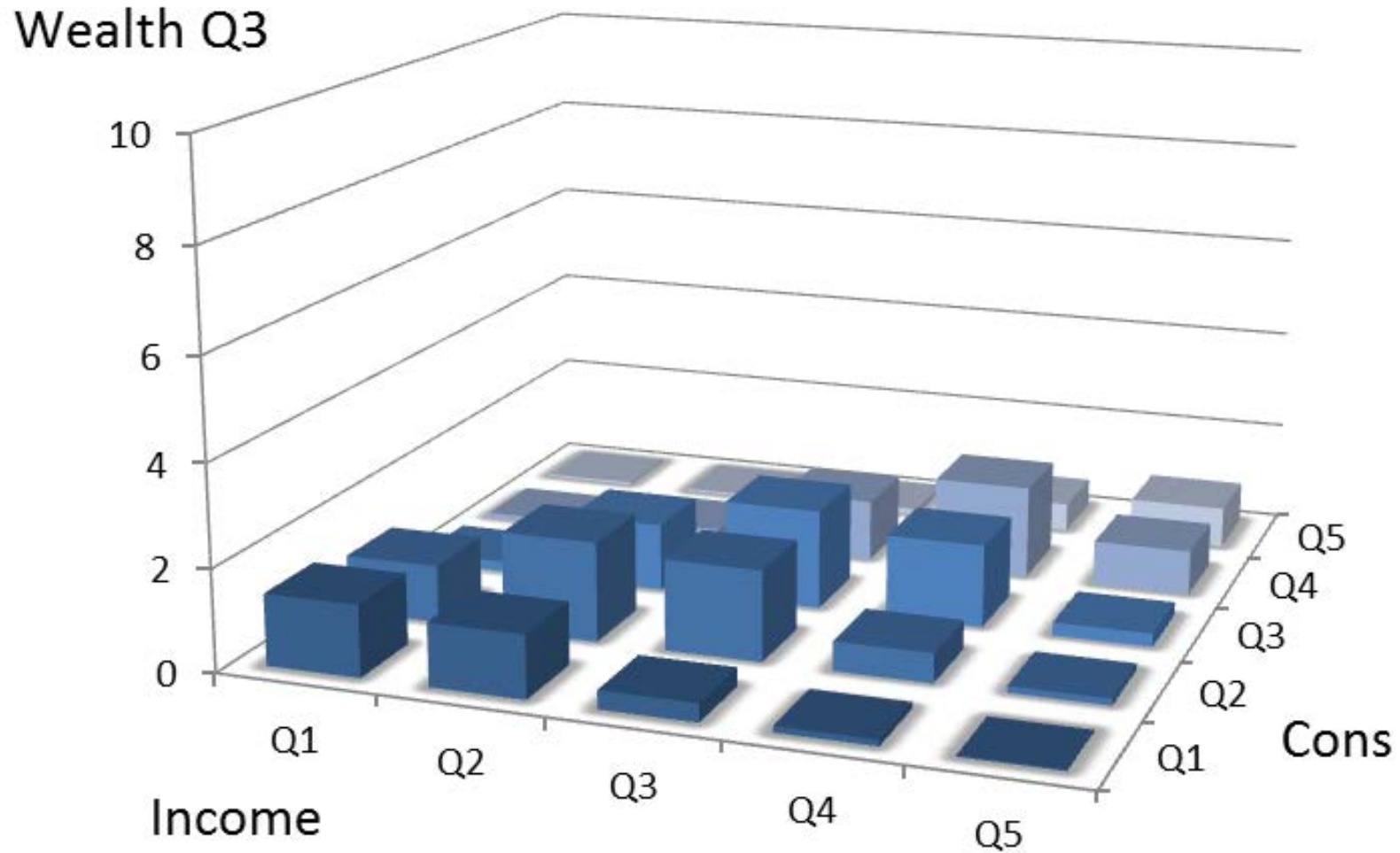
Transition matrix for income and consumption quintiles  
by wealth quintile: bottom quintile



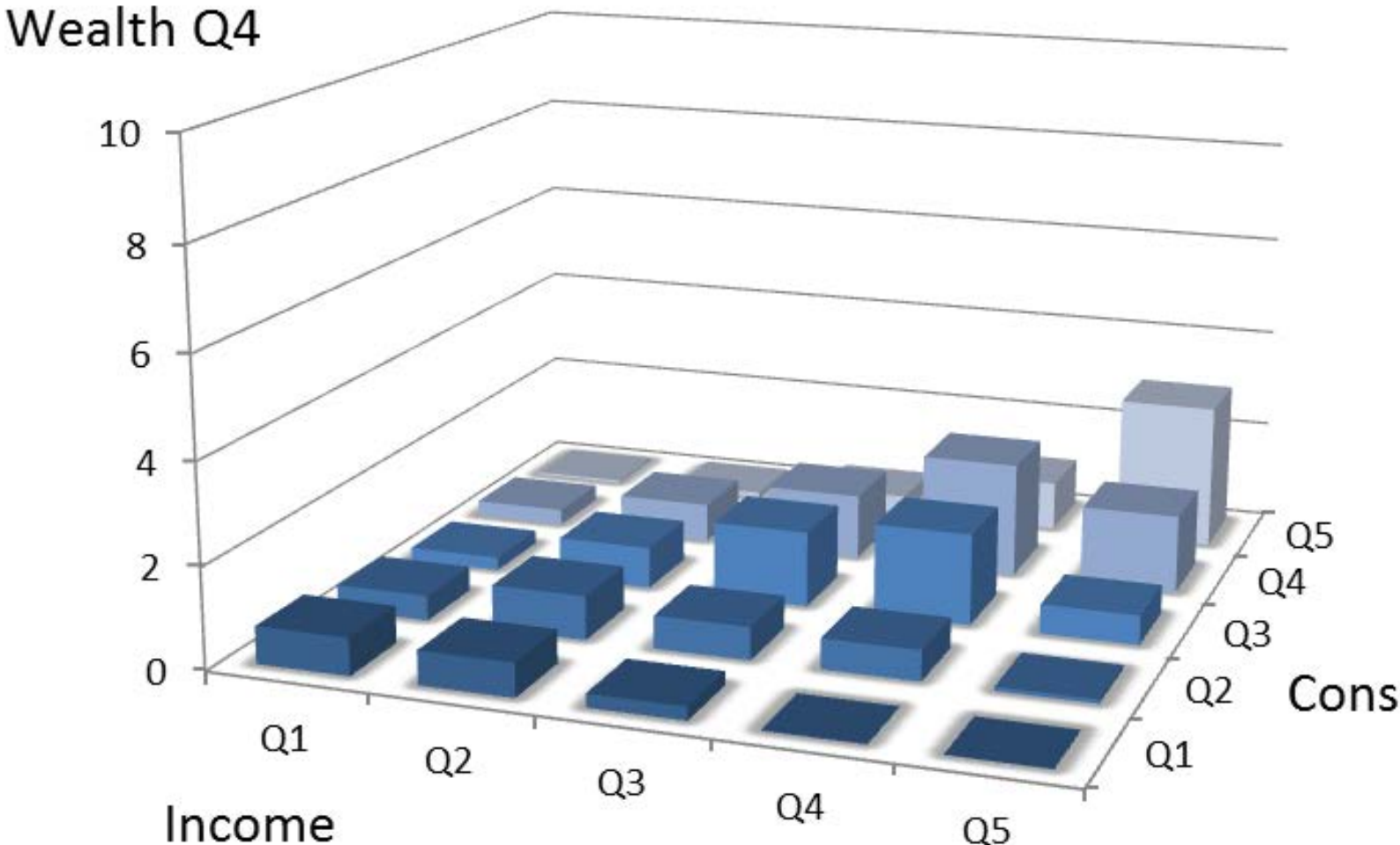
# Inequality in 3D: Transition matrix for income and consumption quintiles by wealth quintile: 2<sup>nd</sup> quintile



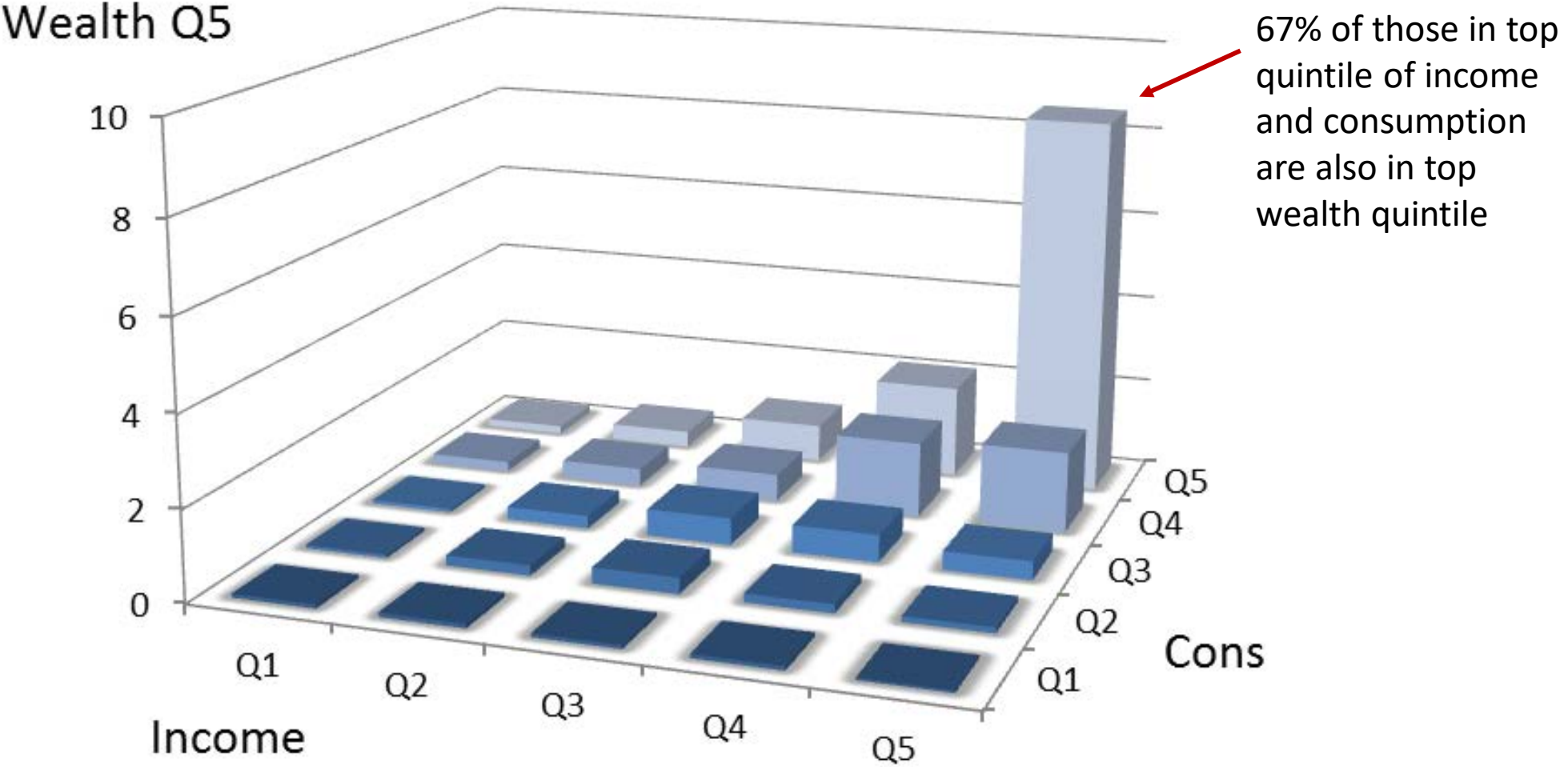
# Inequality in 3D: Transition matrix for income and consumption quintiles by wealth quintile: 3<sup>rd</sup> quintile



# Inequality in 3D: Transition matrix for income and consumption quintiles by wealth quintile: 4<sup>th</sup> quintile

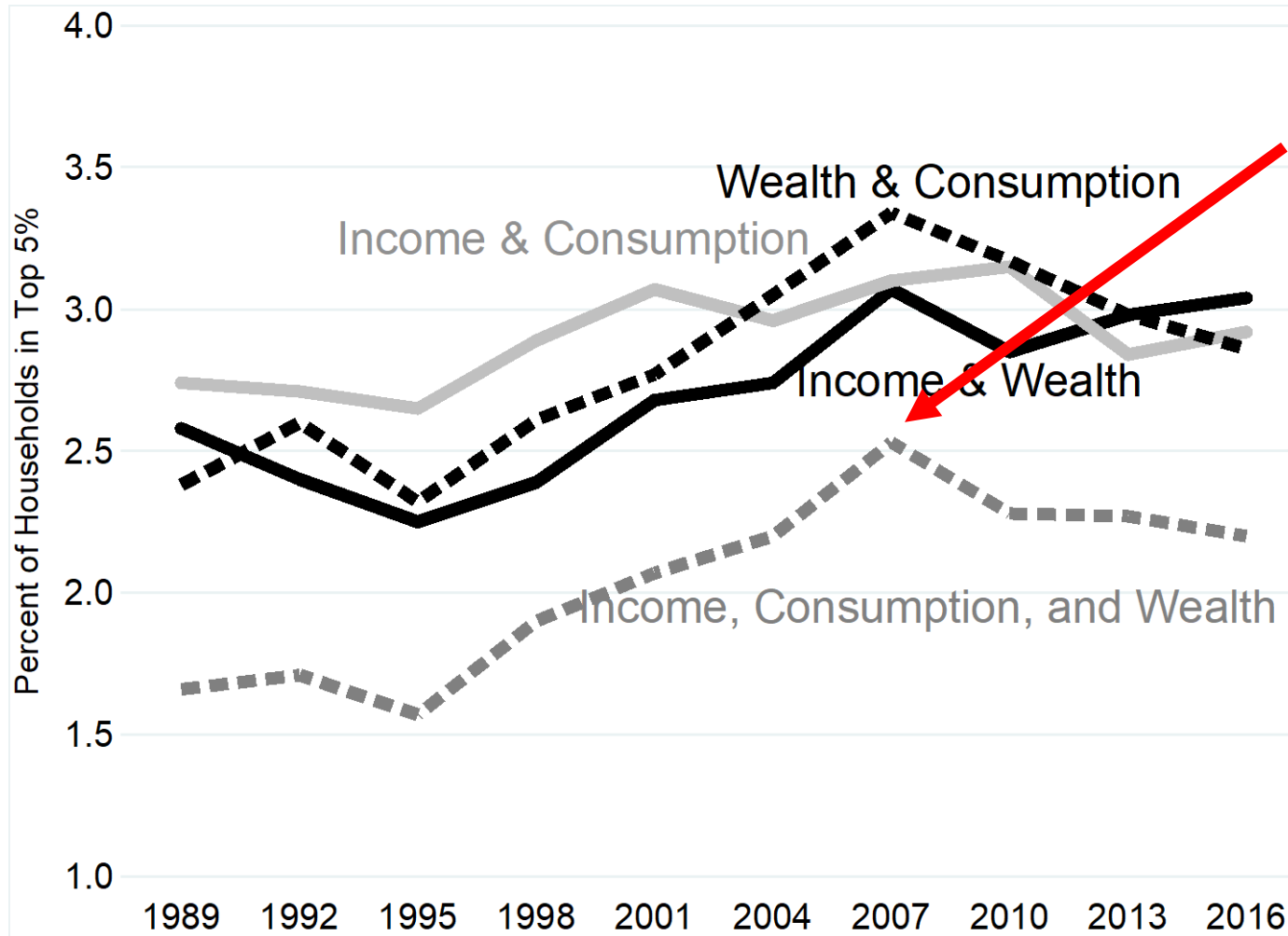


# Inequality in 3D: Transition matrix for income and consumption quintiles by wealth quintile: top quintile



# ICW is sticky at the top; trends in joint distributions

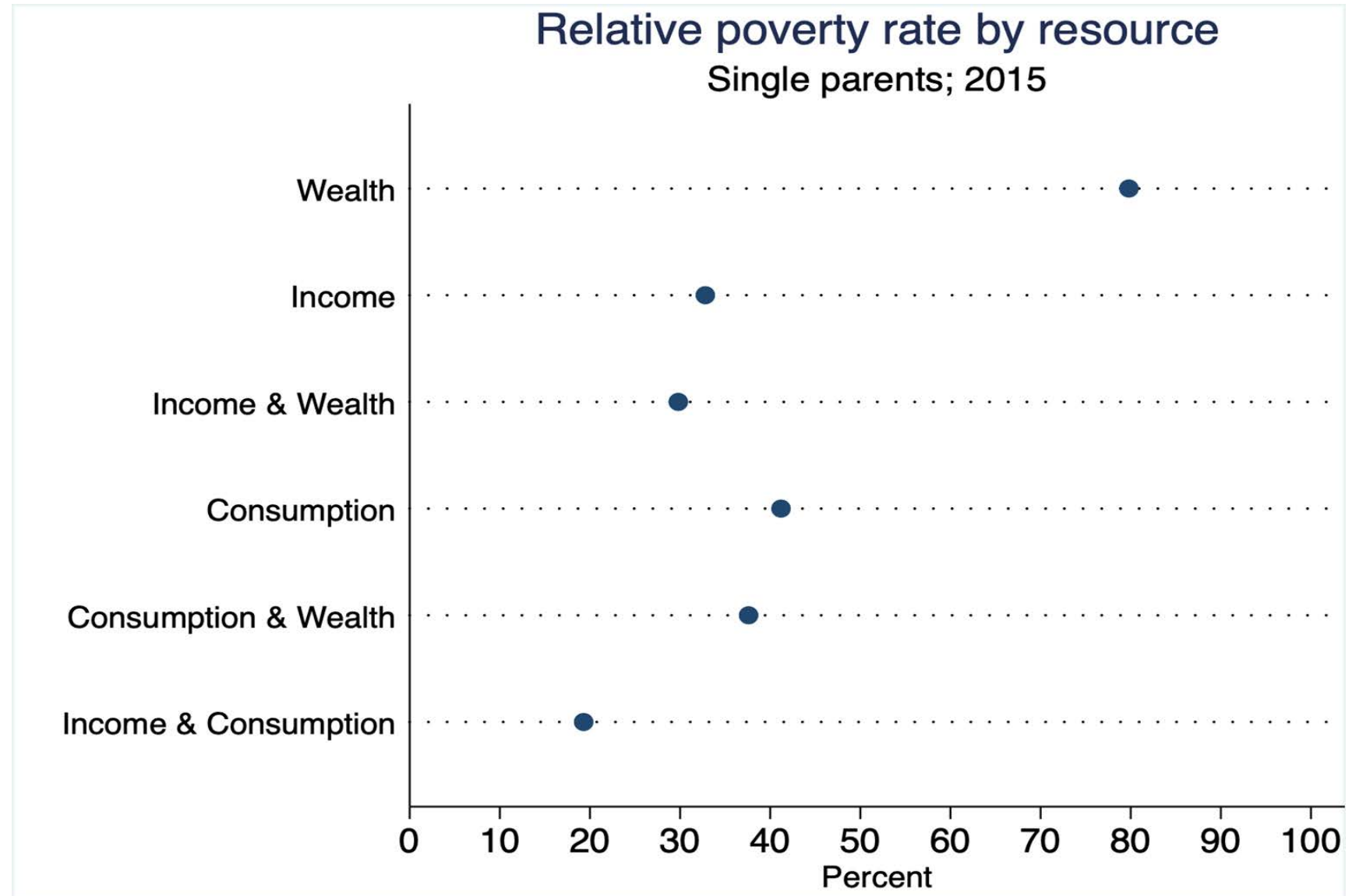
Share of households in the top 5% of two or three resource measures



In 2007, half of households that were in the top 5% of income were also in the top 5% of consumption and the top 5% of wealth.



# Poverty in 2-D by demographics for Eurostat-OECD EG



Results provided by Fisher, Johnson, Smeeding, and Thompson to Eurostat-OECD Expert Group On Measuring The Joint Distribution Of Household Income, Consumption & Wealth

# Panel Study of Income Dynamics (PSID)

1968-2017

- Follows 1968 respondents and their descendants

We supplement the PSID

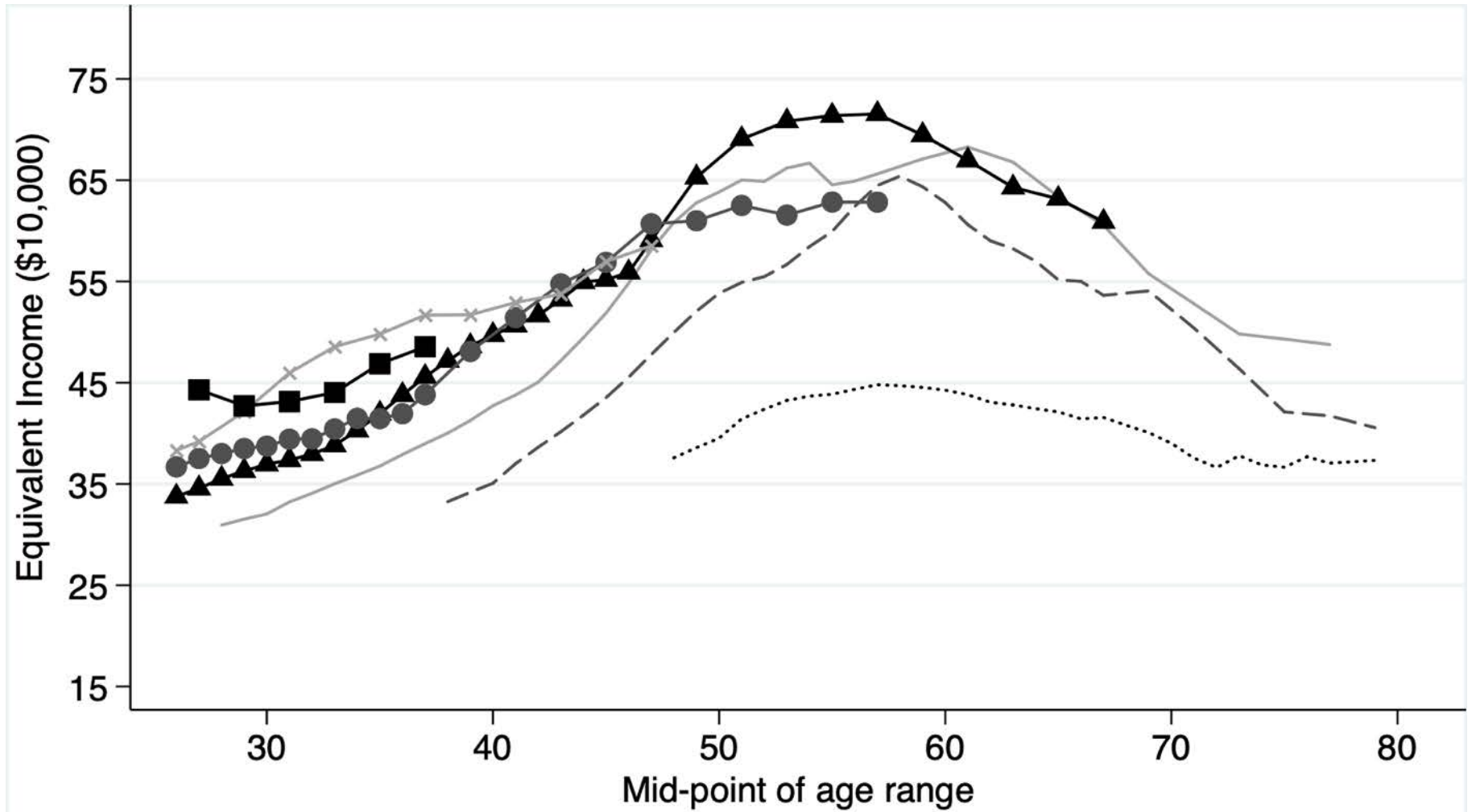
- By using CE data to impute total consumption for all waves
- By imputing net wealth for all waves

Findings

- Determine life-cycle paths of ICW
- Complete paths for children
- Estimate Gini and rank-rank mobility for cohorts
- Estimate intergenerational mobility



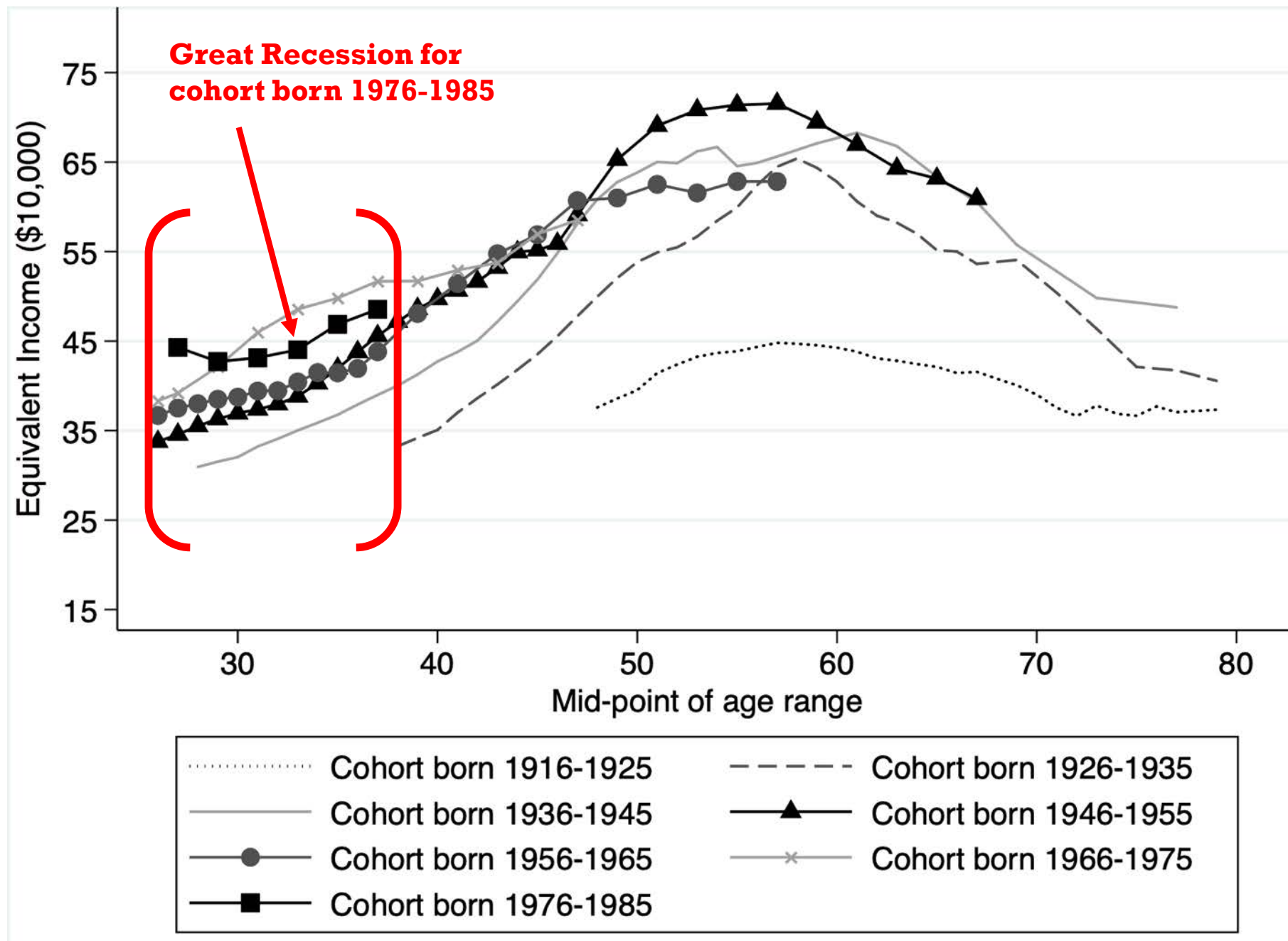
# Age-income profile by cohort (mean)



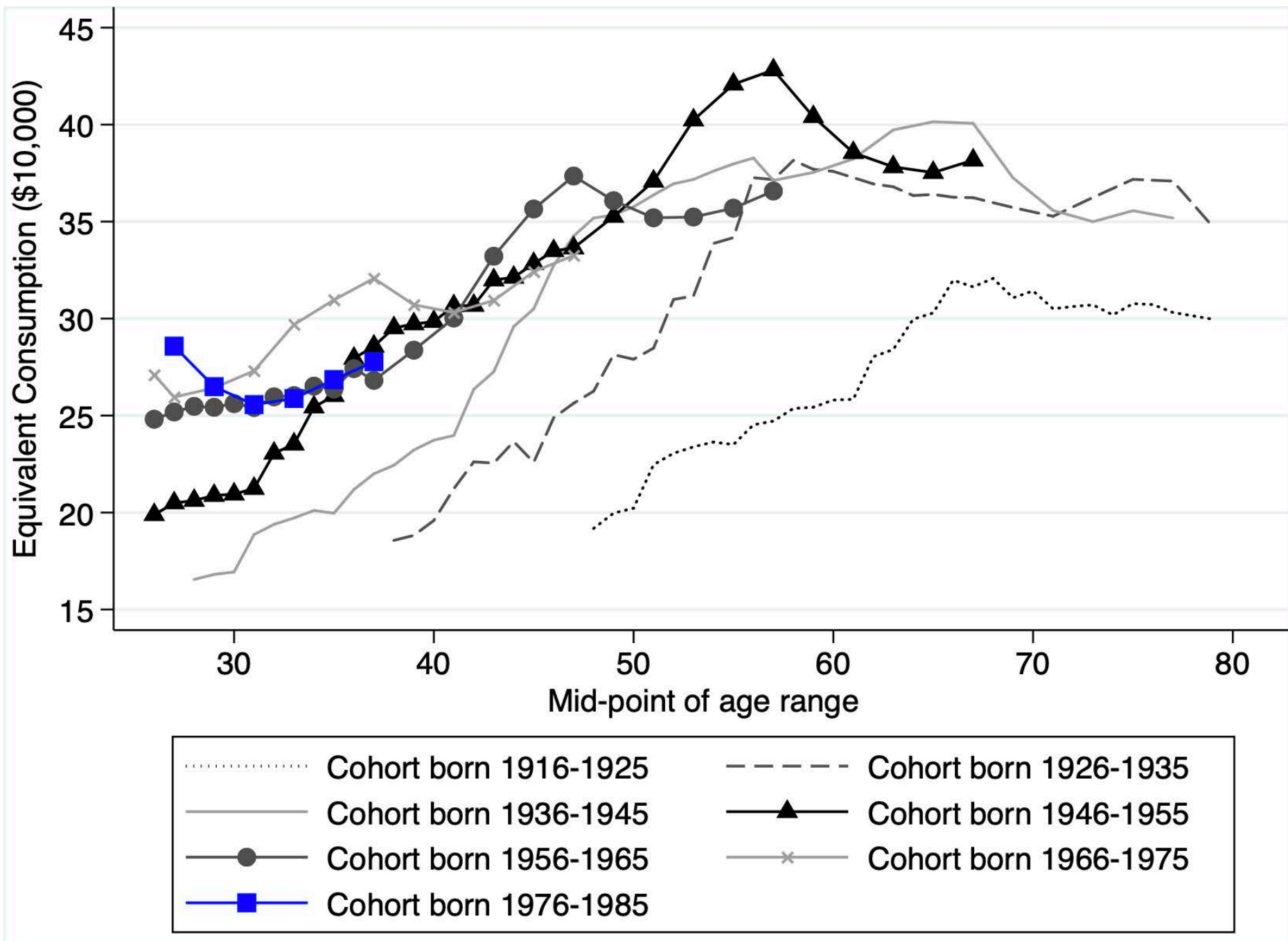
Fisher & Johnson, *"Inequality and Mobility using Income, Consumption and Wealth,"* NBER Volume, forthcoming, 2021



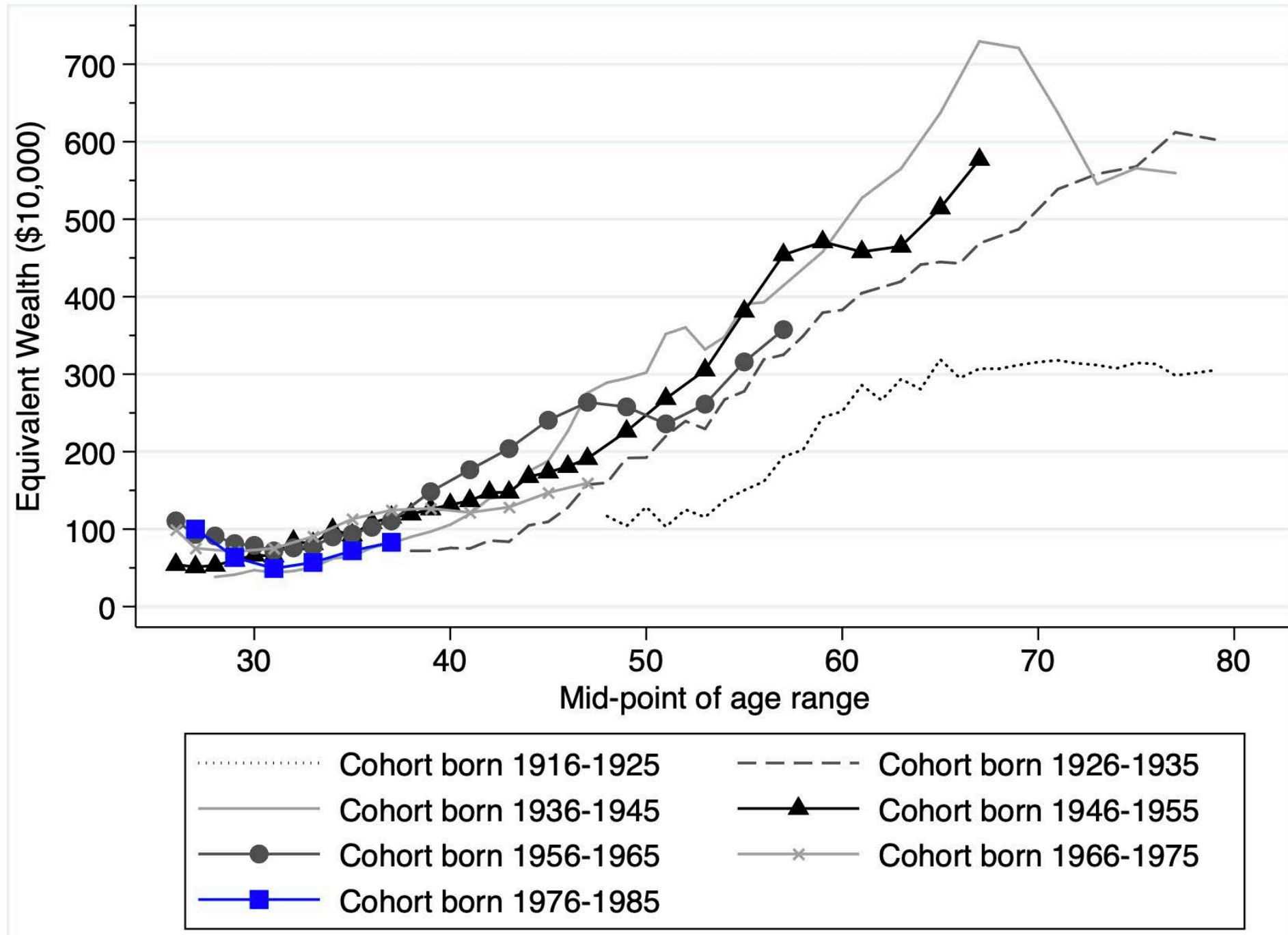
# Age-income profile by cohort (mean)



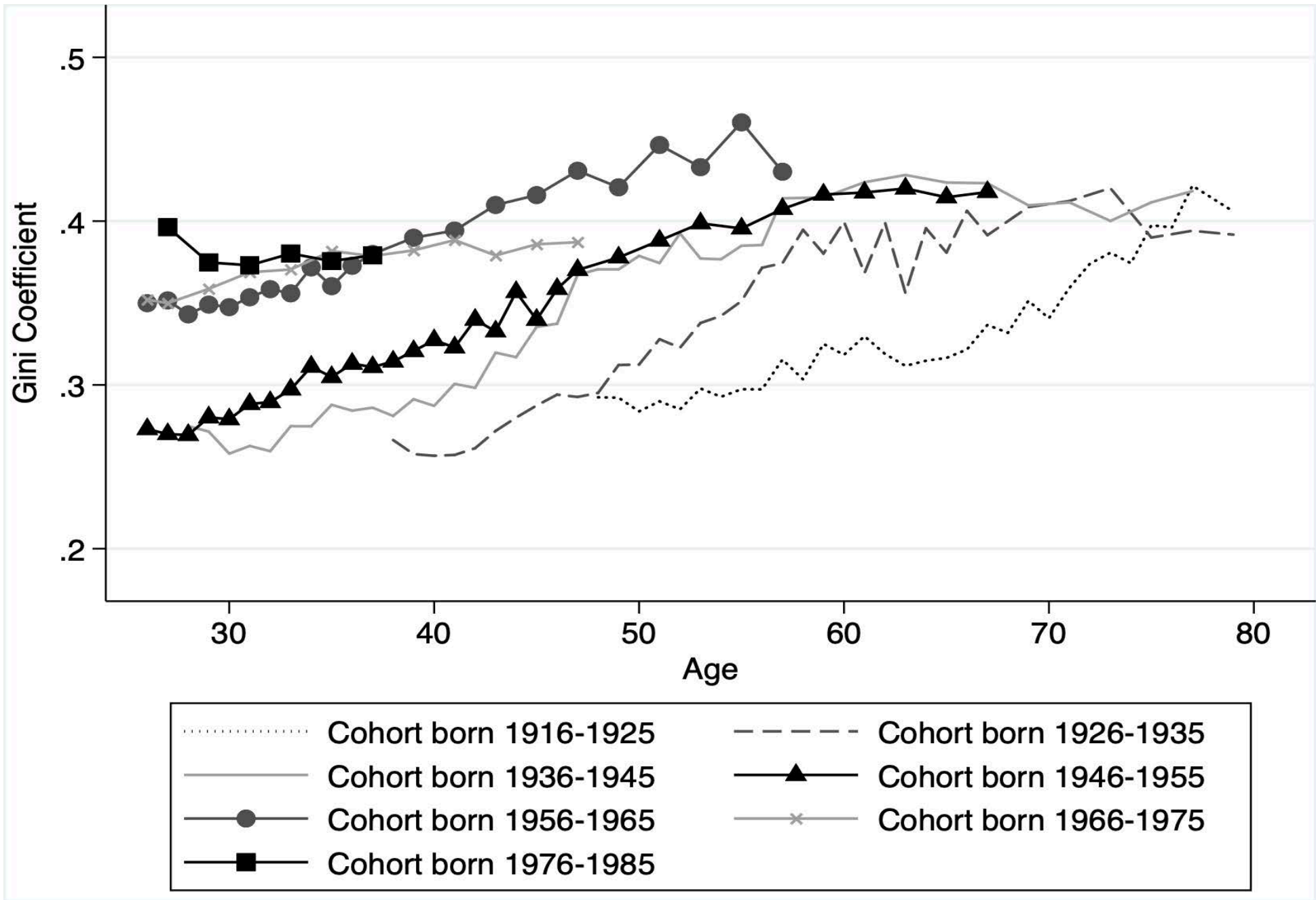
# Age-consumption profile by cohort (mean)



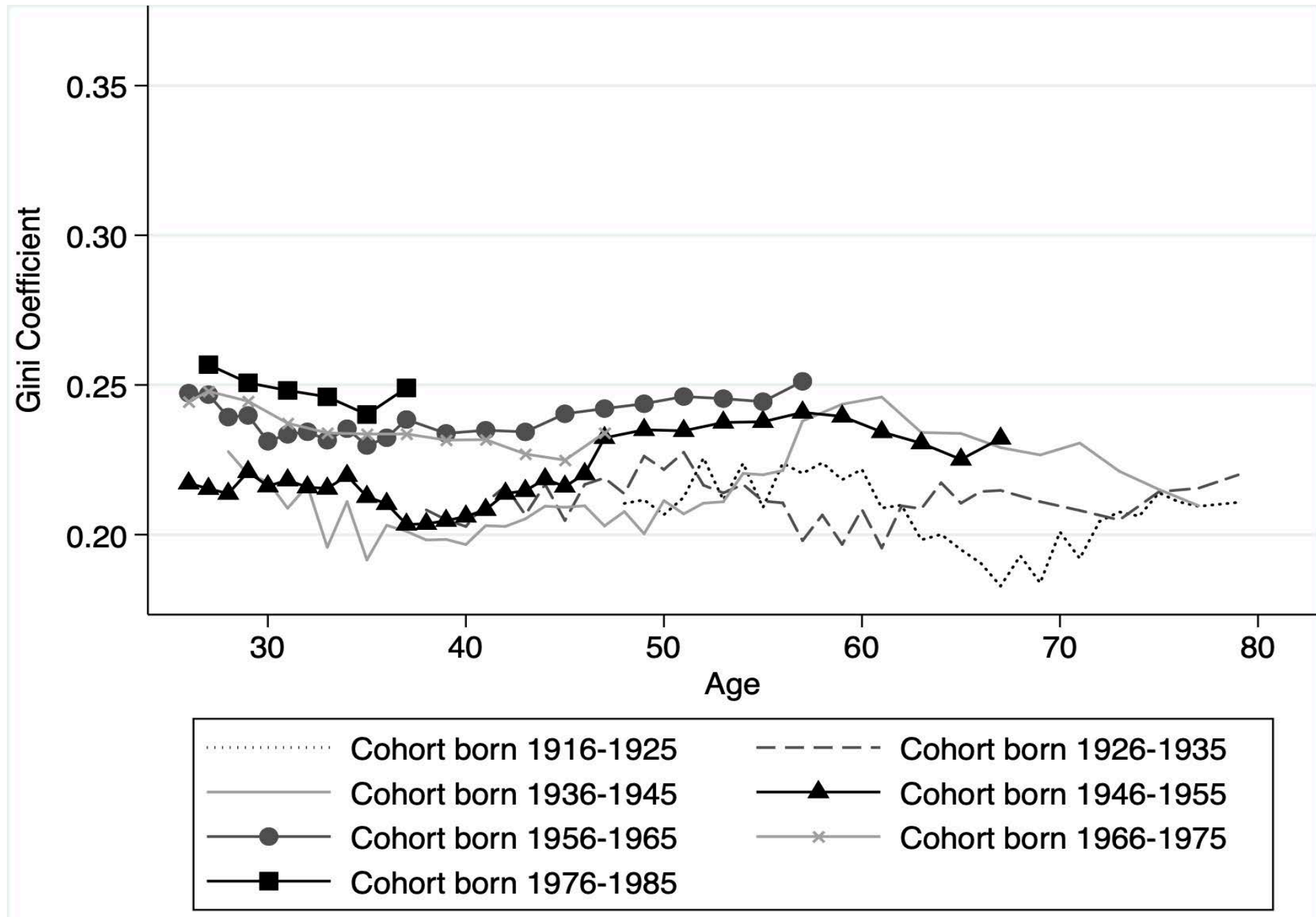
# Age-wealth profile by cohort (mean)



Income Inequality increases for all cohorts (using Gini coefficient)

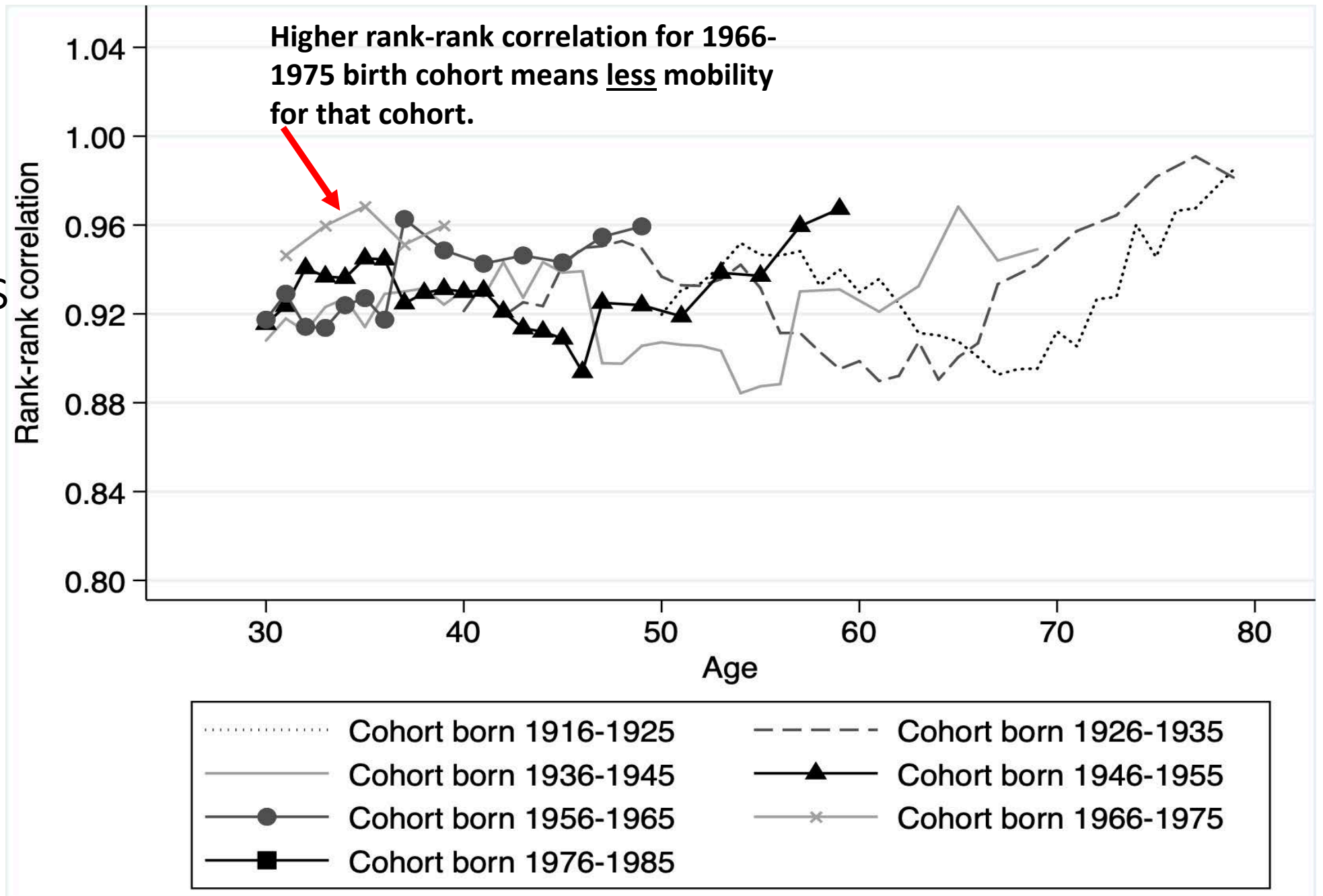


Consumption  
Inequality is  
lower for all  
cohorts  
(using Gini  
coefficient)



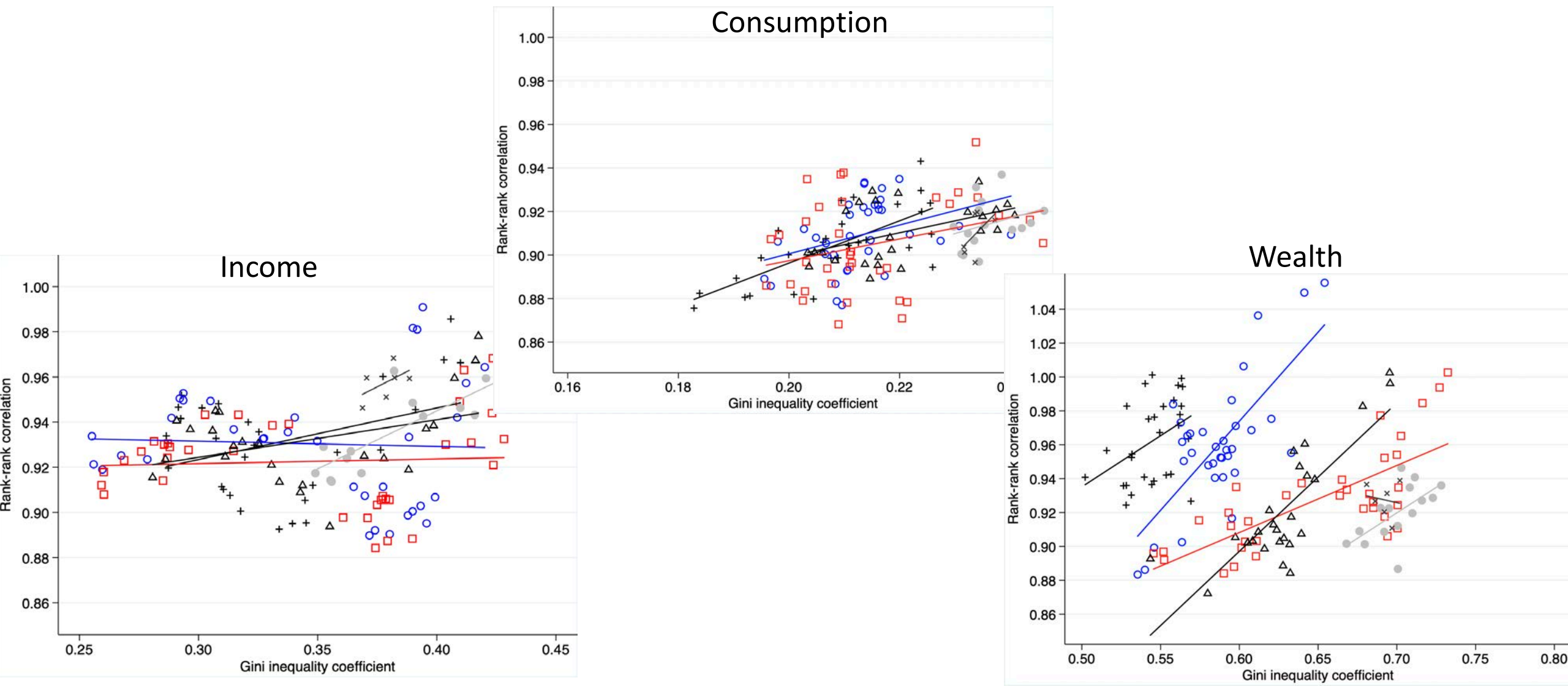


Income mobility falls for most cohorts (using Rank-rank correlation)

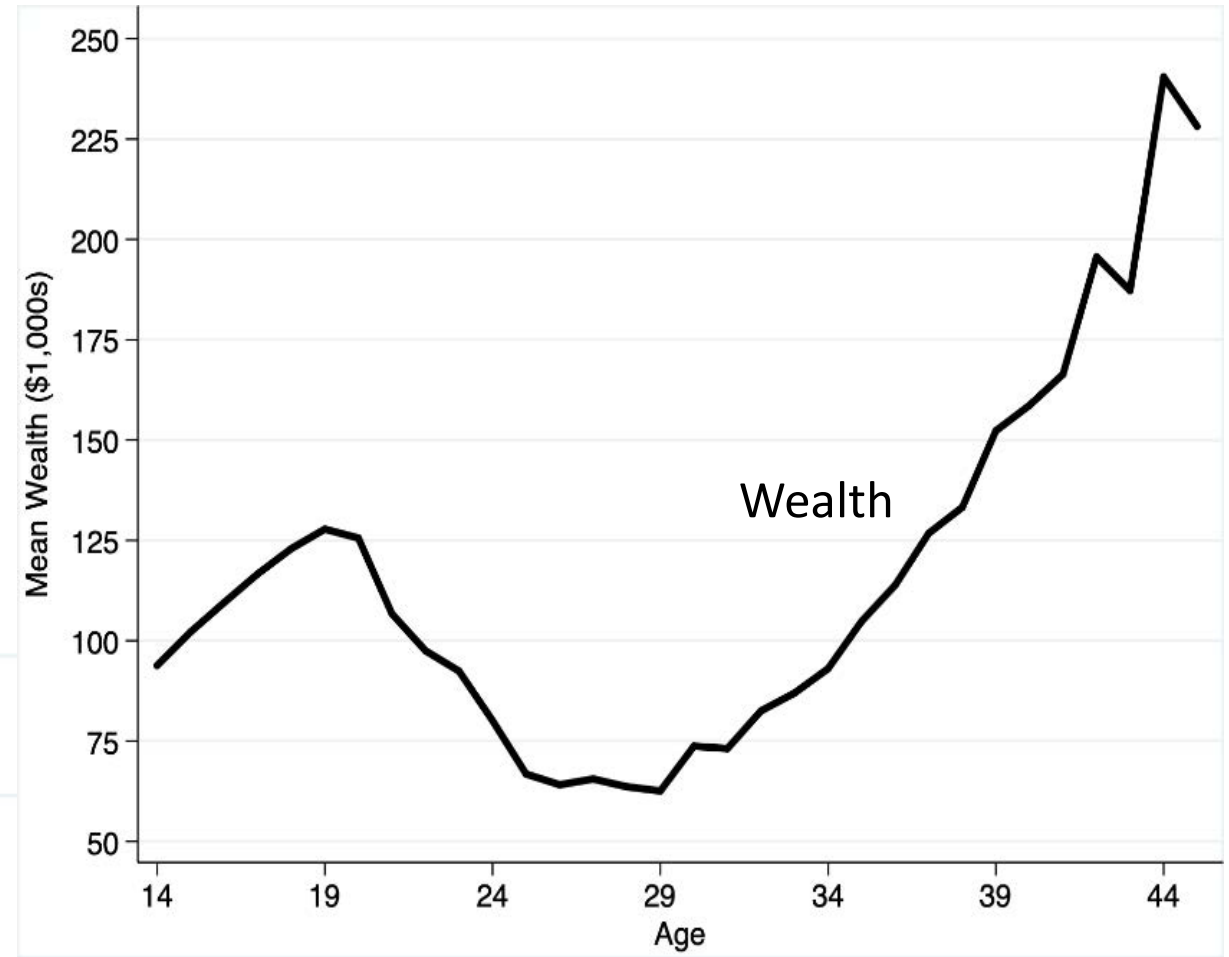
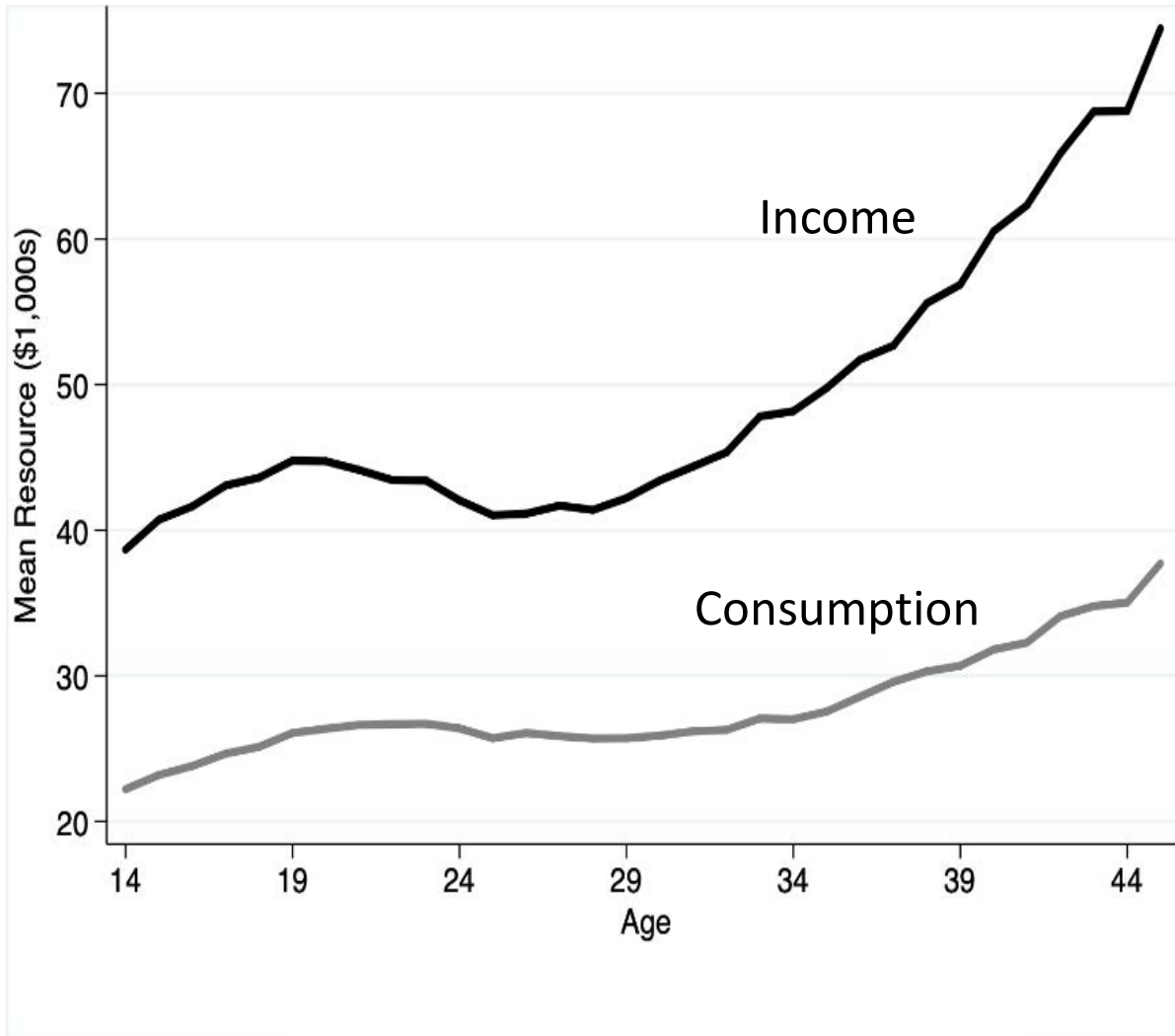


# Great Gatsby Curves for intragenerational mobility

Inequality (Gini) and immobility (rank-rank) are correlated

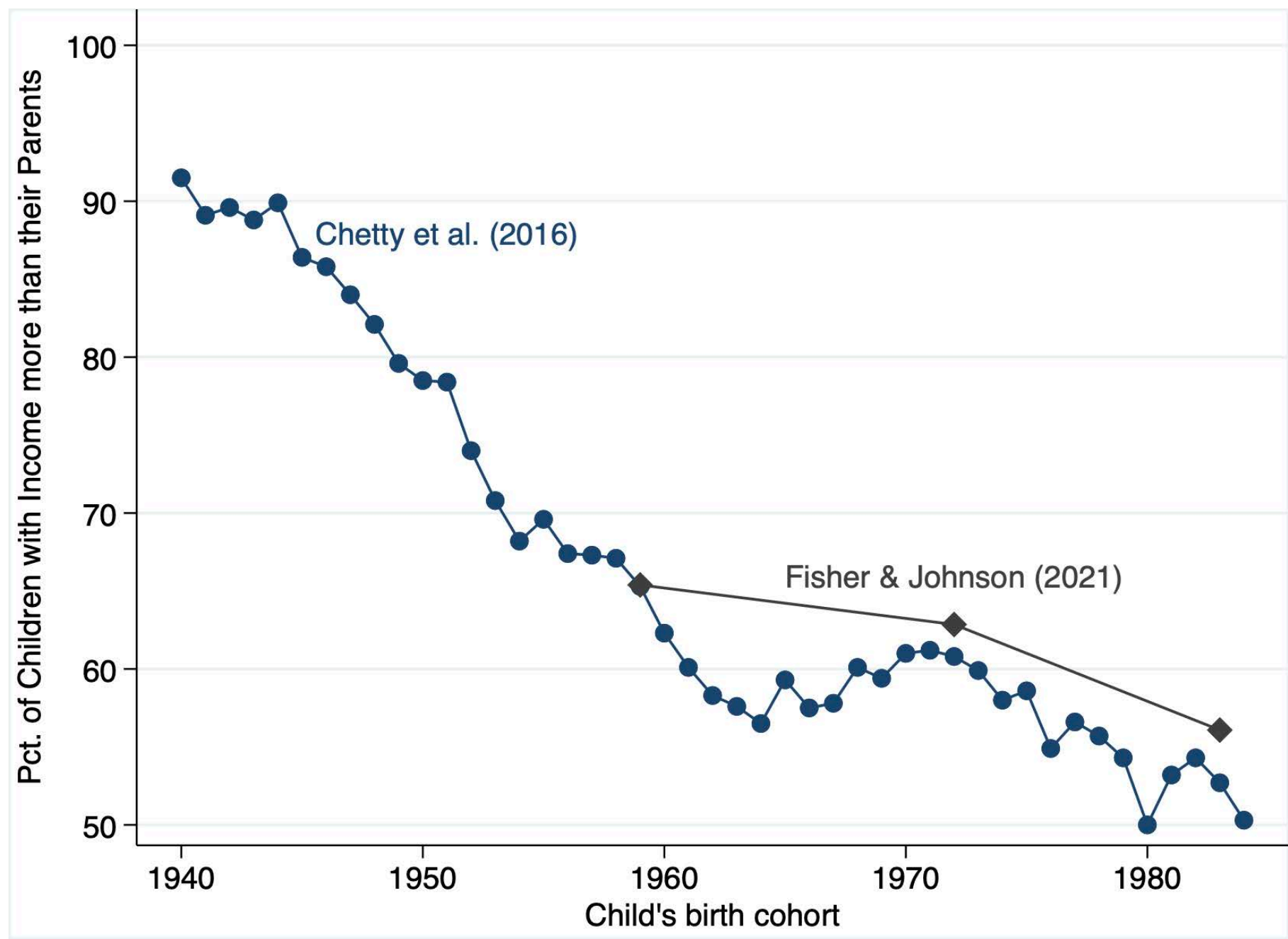


PSID enables us to examine the life-cycle path of from youth through adulthood, and hence, intergenerational mobility



Absolute mobility for income compared to Chetty et al. (2016)

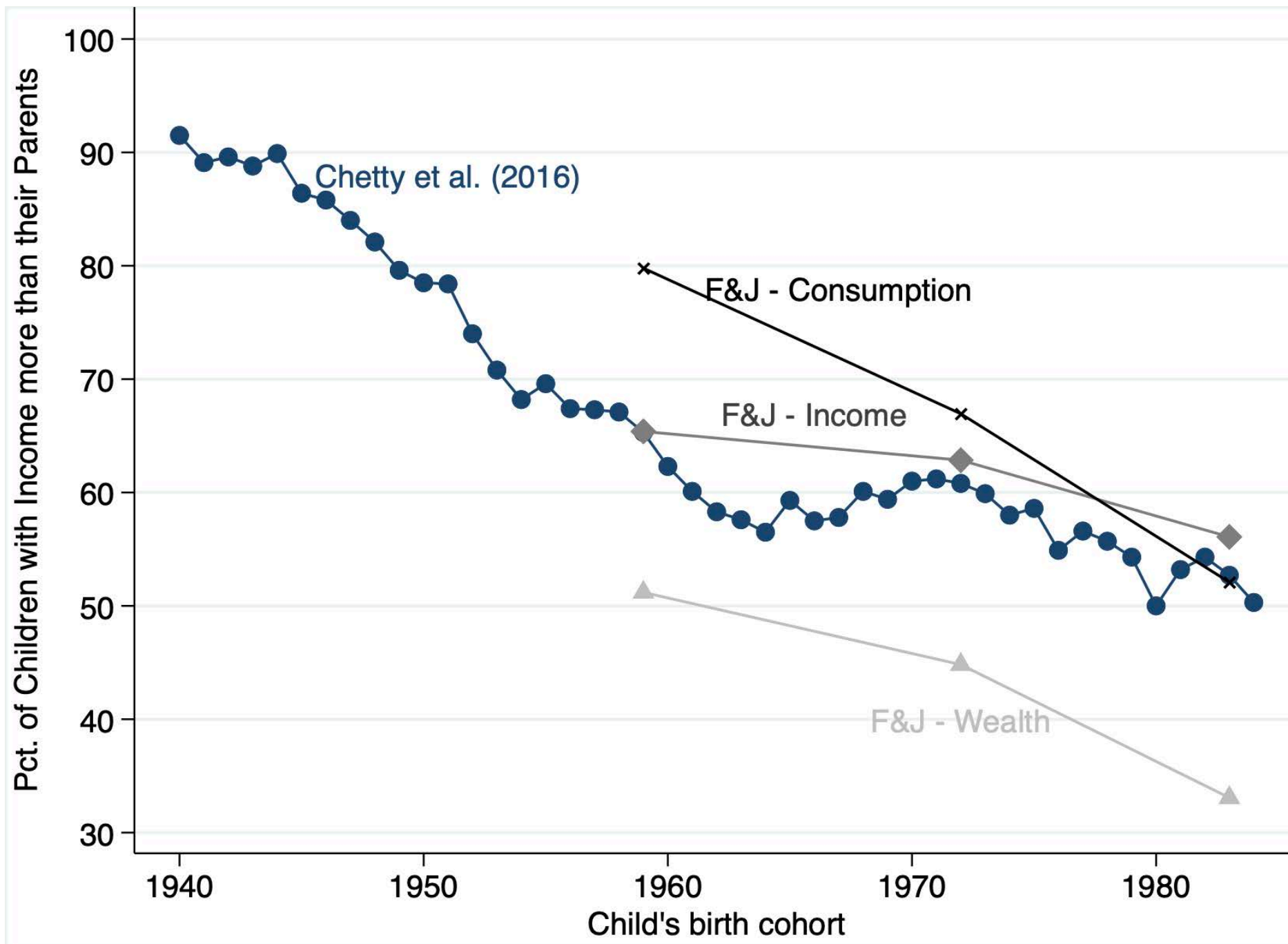
Average for offspring from ages 31-35.  
Average for parents when offspring were 14-18-years old.



Absolute consumption mobility higher than income, which is higher than wealth

Average for offspring from ages 31-35.

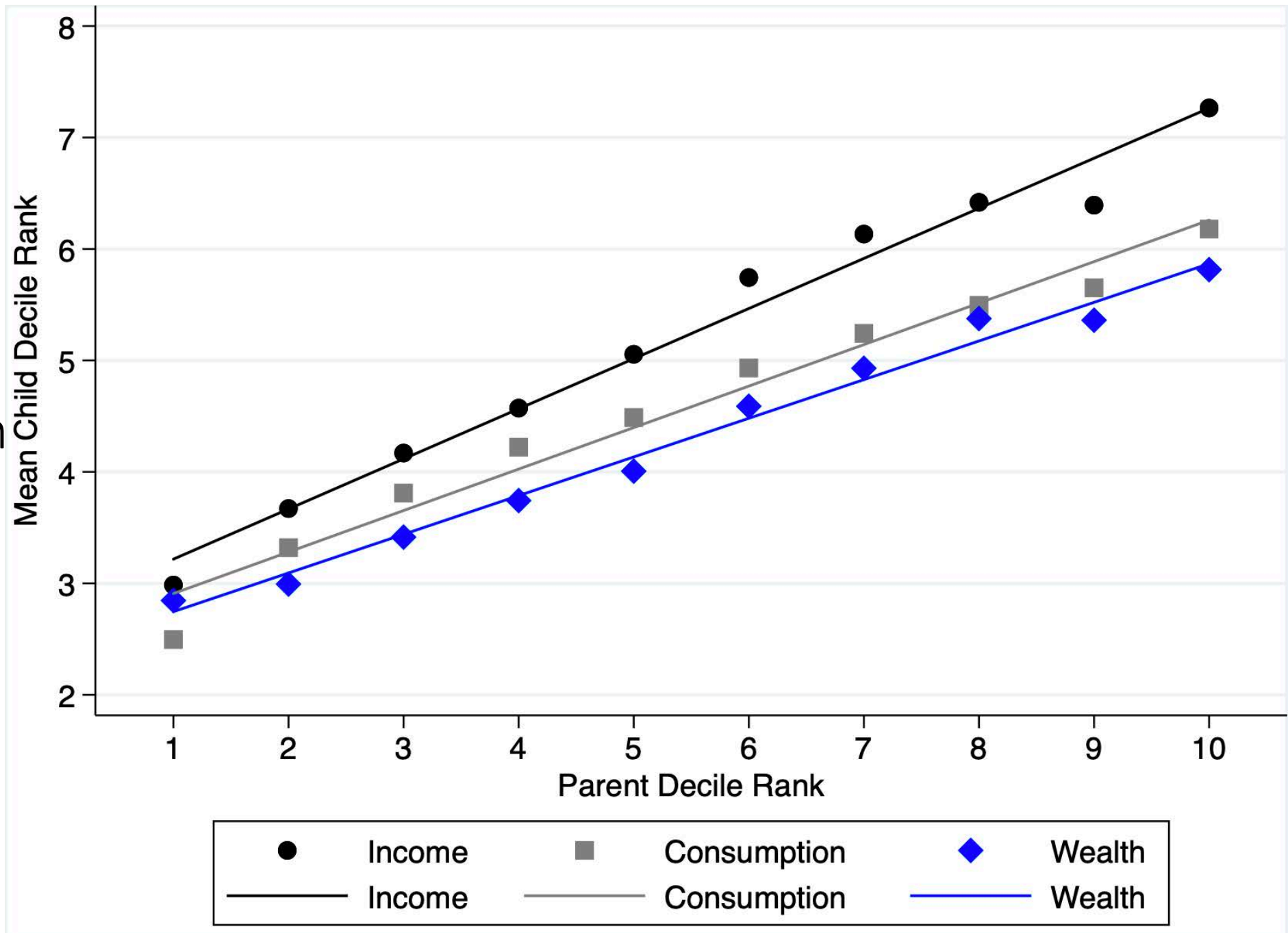
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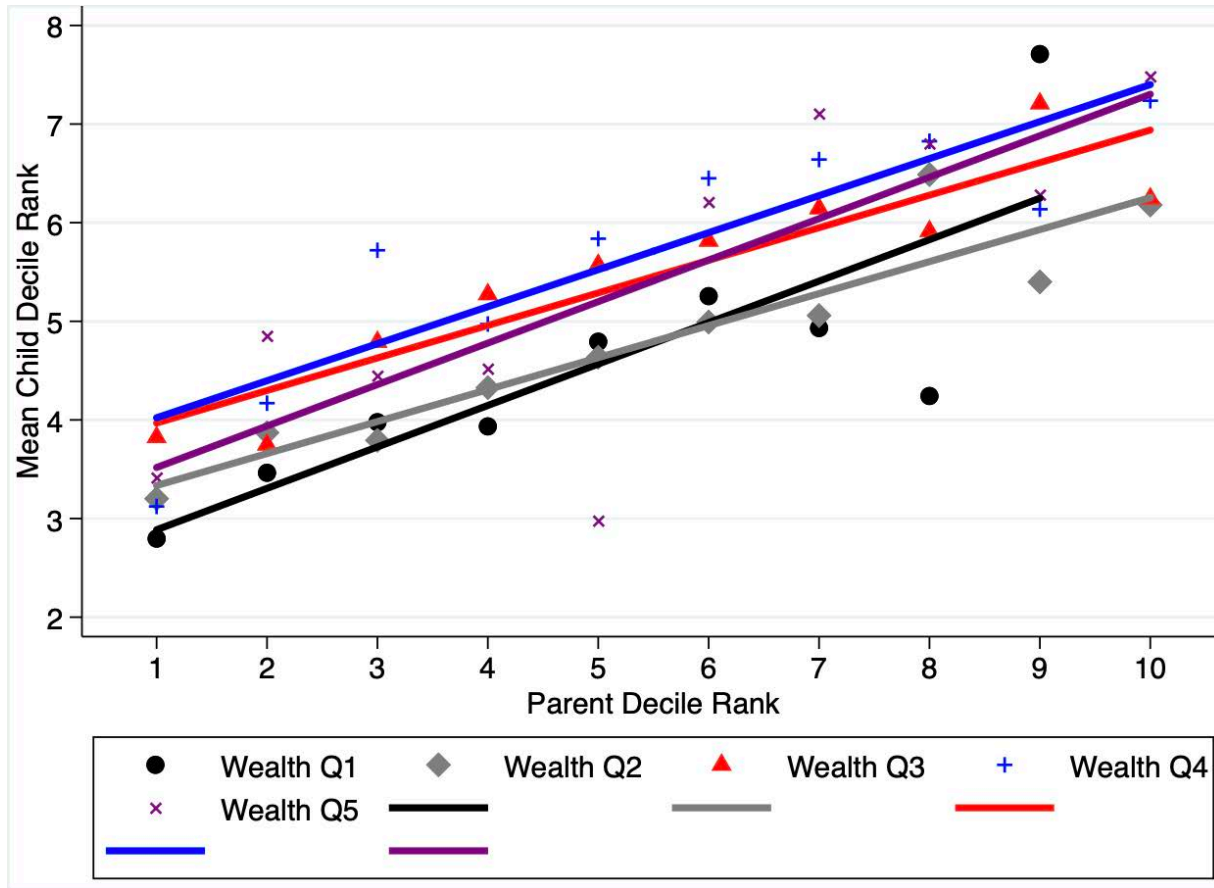
Consumption intergenerational mobility is higher than income mobility using Rank-rank correlation (given by slope)

Average for offspring from ages 31-35.

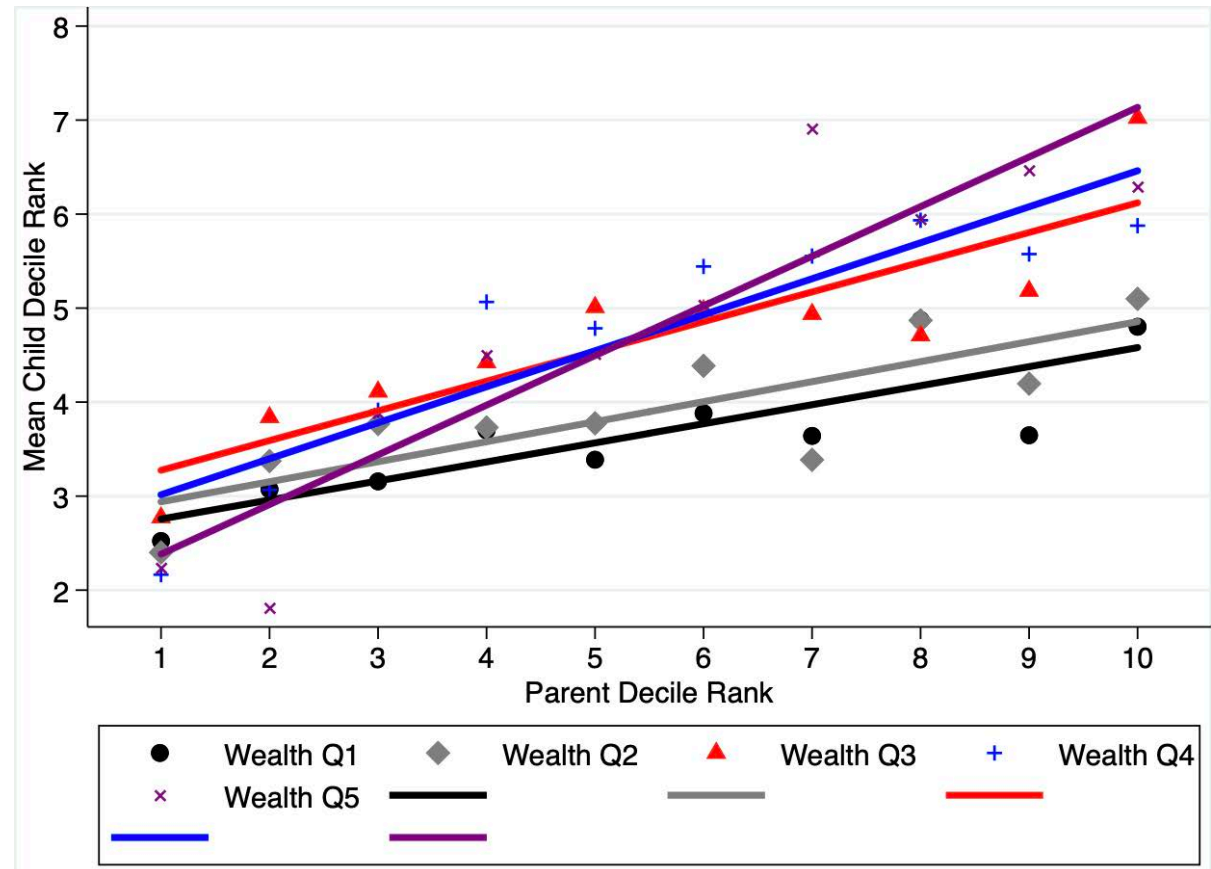
Average for parents when offspring were 14-18-years old.



# Income and Consumption mobility differs by Wealth quintile

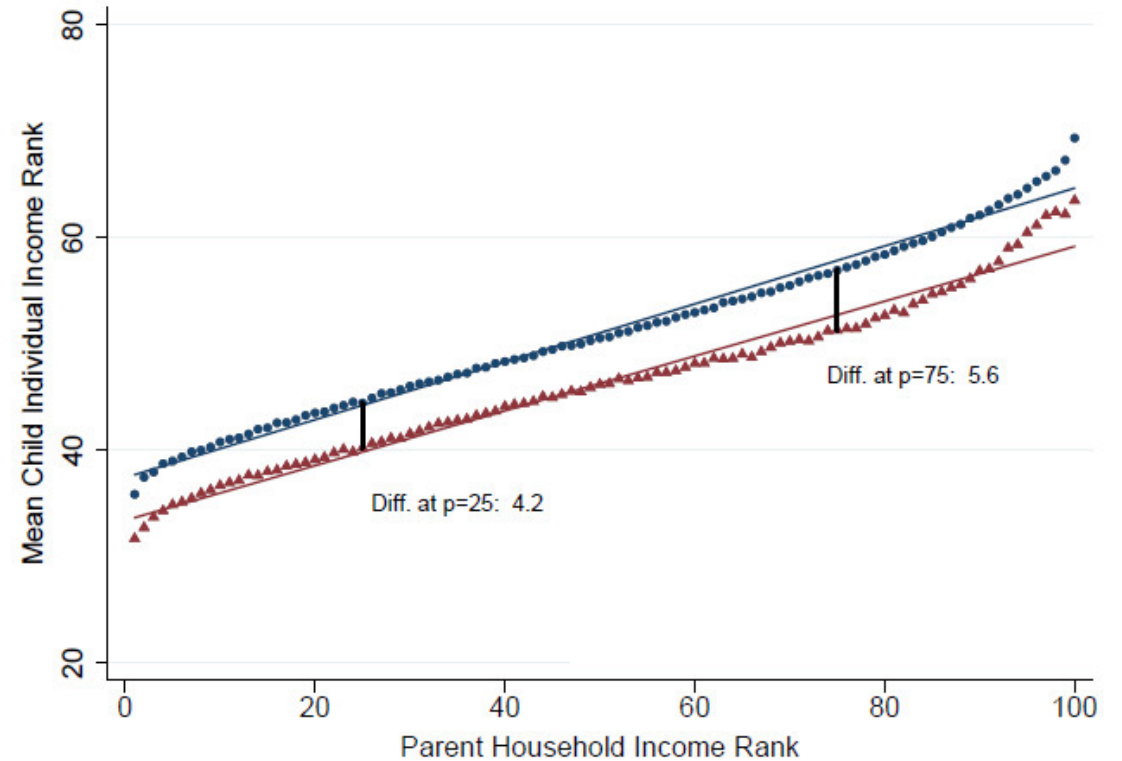
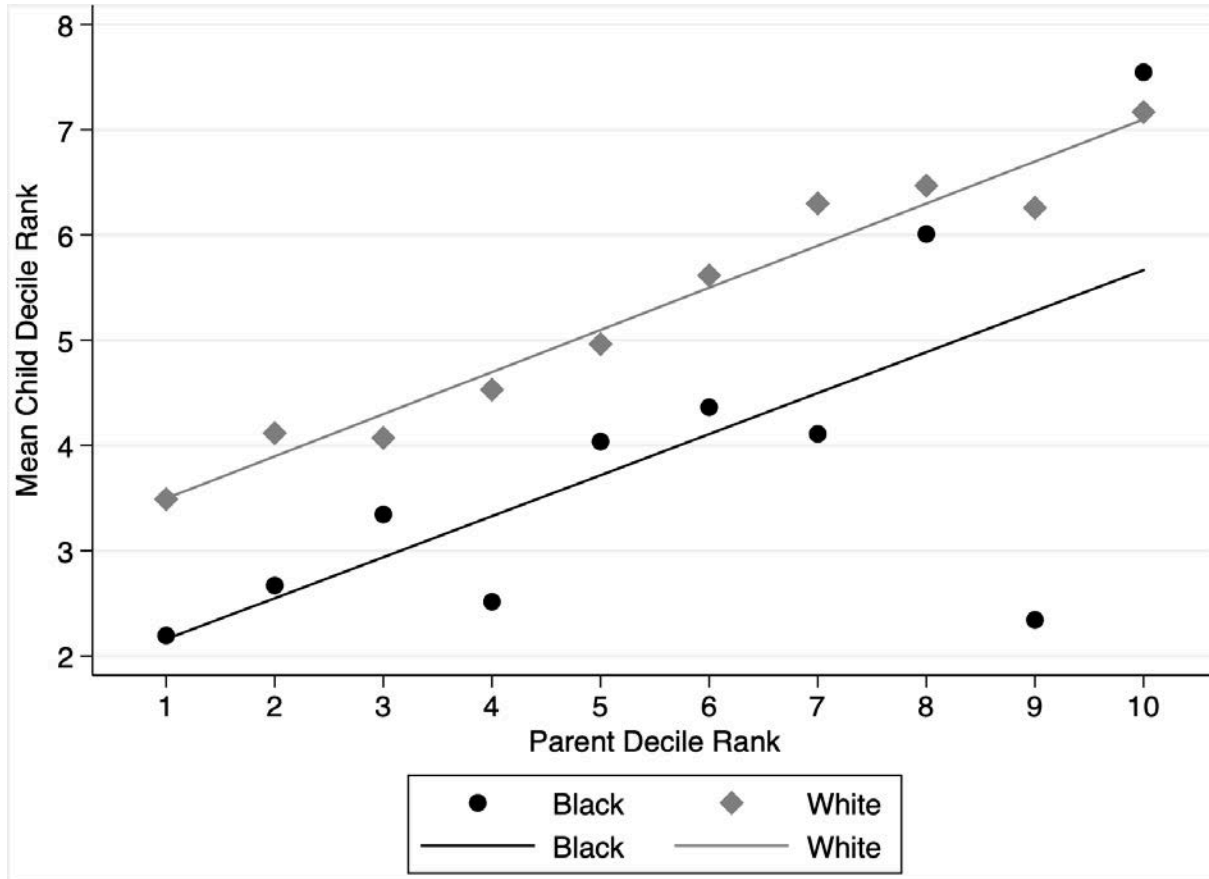


Income



Consumption

White and Black children have similar income mobility (using rank-rank); blacks start with much lower ranks, similar to Chetty et al.

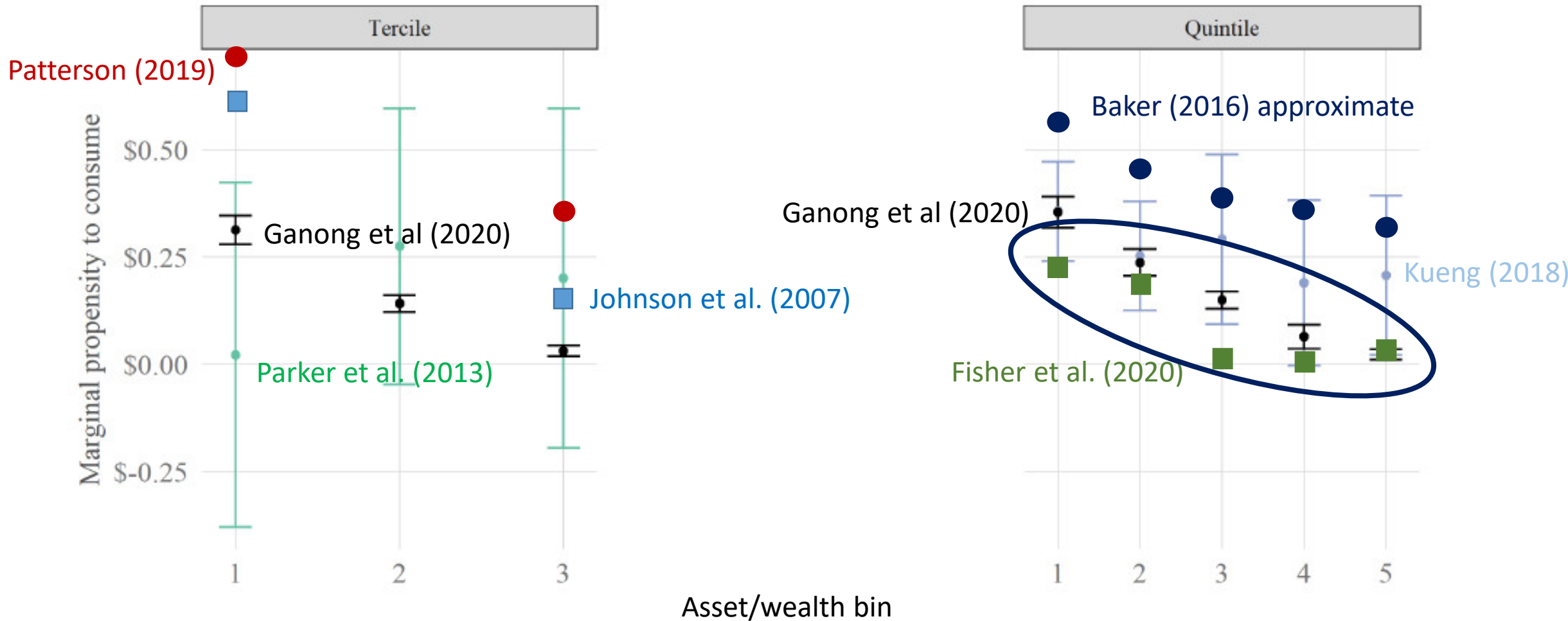


Chetty, Hendren, Jones, and Porter. "Race and Economic Opportunity in the United States: An Intergenerational Perspective." Quarterly Journal of Economics, May 2020



# Longitudinal data on ICW provide MPC estimates

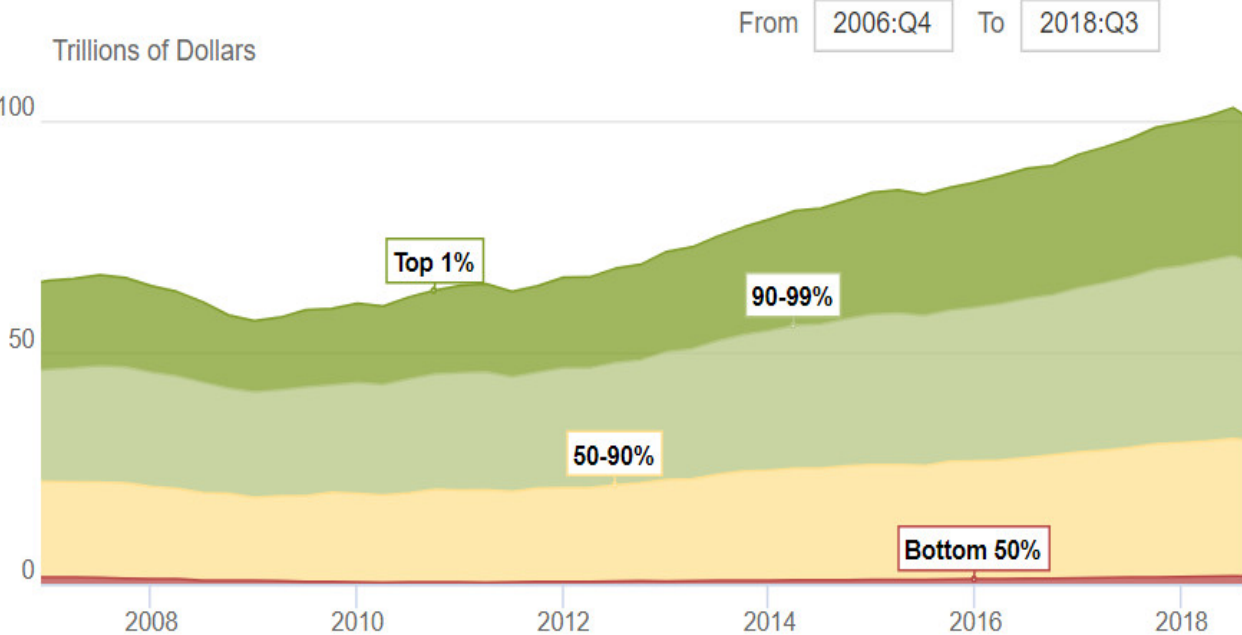
## MPC for high asset households is lower for a variety of estimates



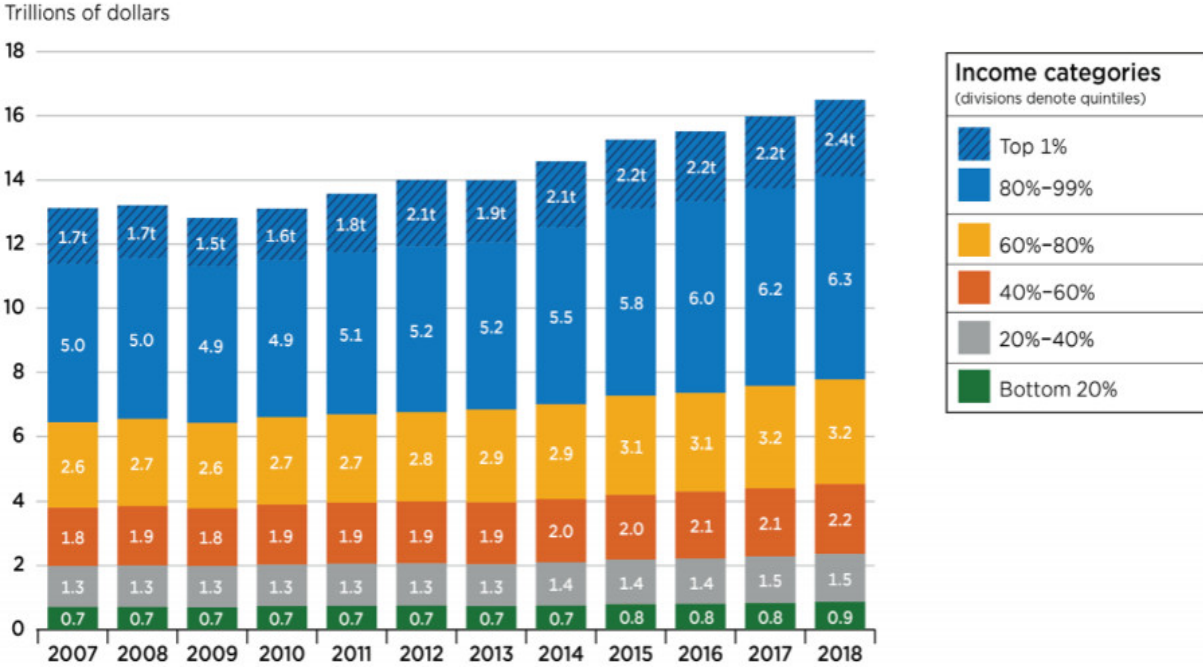
Modified Figure, Ganong et al. (2020), "Wealth, Race, and Consumption Smoothing of Typical Income Shocks," NBER Working Paper #27552  
 Fisher, Johnson, Smeeding and Thompson, "Estimating the Marginal Propensity to Consume using the Distributions of Income, Consumption, and Wealth," *Journal of Macroeconomics*, 2020.

# The Federal Reserve Board and BEA are working on methods to create distributions of national aggregates

Distribution of Financial Accounts (Wealth)

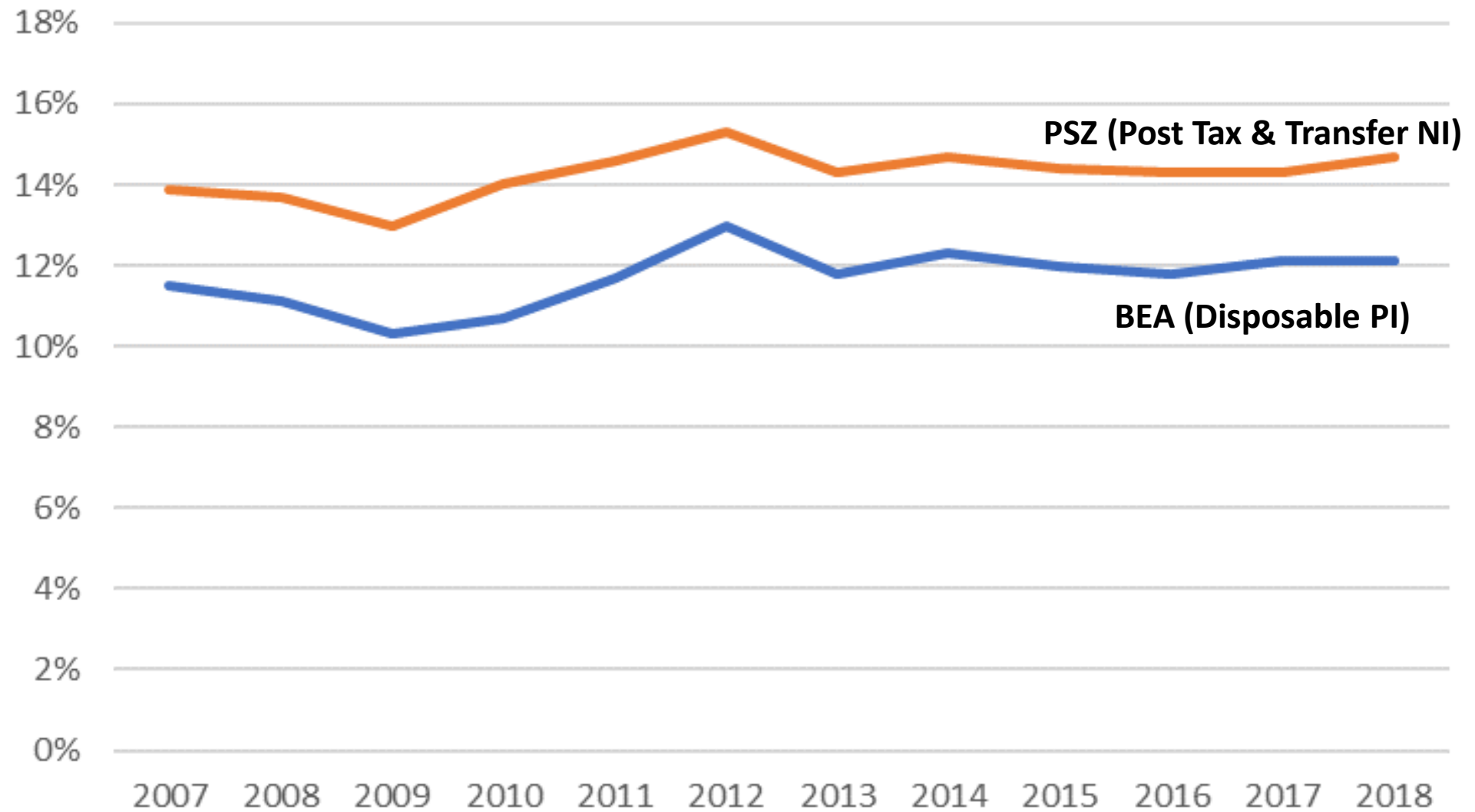


Distribution of Personal Income (Income)

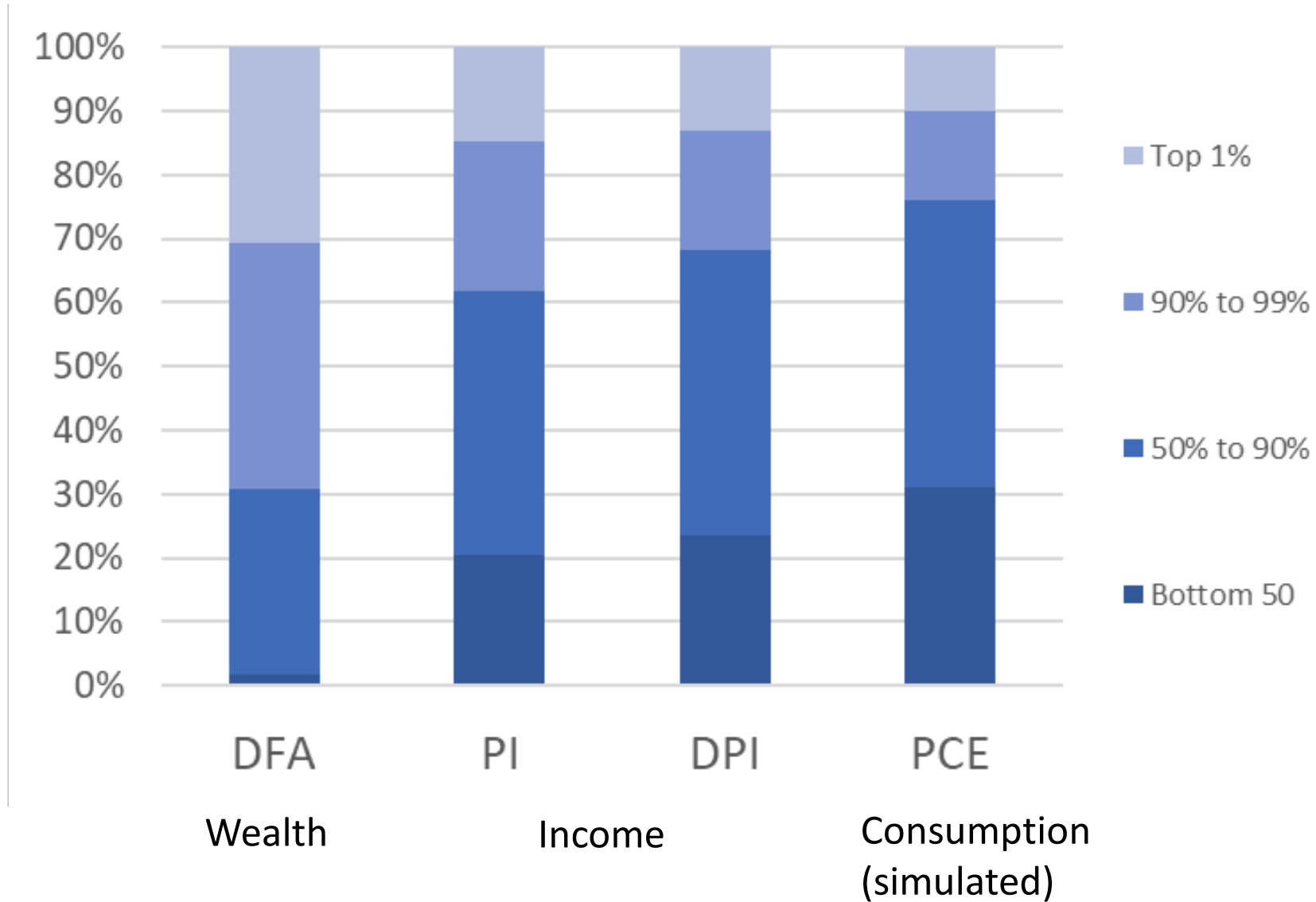


Source: Federal Reserve Board and Bureau of Economic Analysis

# Post-tax and transfer top 1% shares are similar for BEA and Piketty, Saez, Zucman (2018)



# Distribution of ICW for National Aggregates



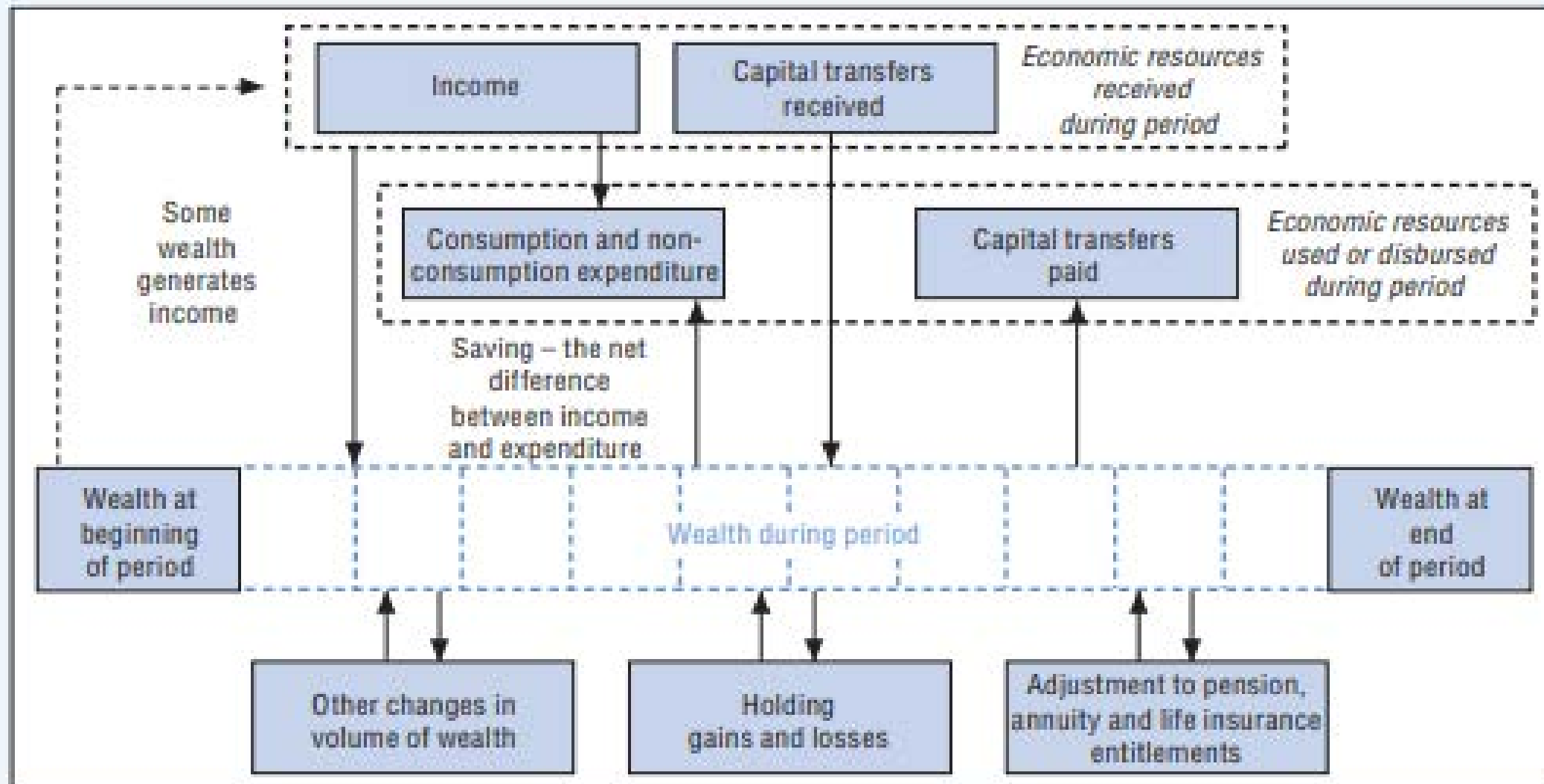
# Next steps: National Academies of Sciences, Engineering and Medicine Consensus Panel

- *Committee on National Statistics*—Convenes distinguished experts for open and closed meetings for two years, draft consensus reports, evaluate statistical programs, policies, methods, measures, data sources used for national statistics
- Panel: *An Integrated System of U.S. Household Income, Consumption, and Wealth Data and Statistics to Inform Policy and Research*
- This Panel will facilitate efforts and collaborations of the federal statistical system to improve and integrate income, consumption, and wealth data and statistics.
  - Comprehensively document similarities and differences among the major series
  - Examine underlying concepts, types of income, consumption, or wealth, household and family definitions, data sources, sampling error (for surveys), non-sampling errors, timeliness of release, and geographic and population specificity.
  - Recommend short-term improvements in data series and consistency among them together with a longer-term agenda of steps towards a fully integrated system.

# Future of 3D: Issues in Integrating ICW and evaluating the synergies in their distributions

- Develop consistent definitions of ICW – national aggregates, Canberra, OECD.
- Choose a set of indicators
- Integrate ICW; create a database with all three via linkages or survey or both
- Could we create CE, SCF, CPS linked to tax records
- Evaluate methods of linkage – Census, PIK, Tax, Admin, survey.
- Issue of under-reporting in household surveys (e.g., missing high income households)
- Consistent methods of imputation (micro-macro gaps) and allocation (e.g., health ins)
- Ability to aggregate to the National Accounts
- Ability to decompose by source of ICW
- Evaluate horizontal equity and by demographics
- Importance of international comparability
- Determine the best frequency, timeliness, granularity

# OECD ICW flow diagram

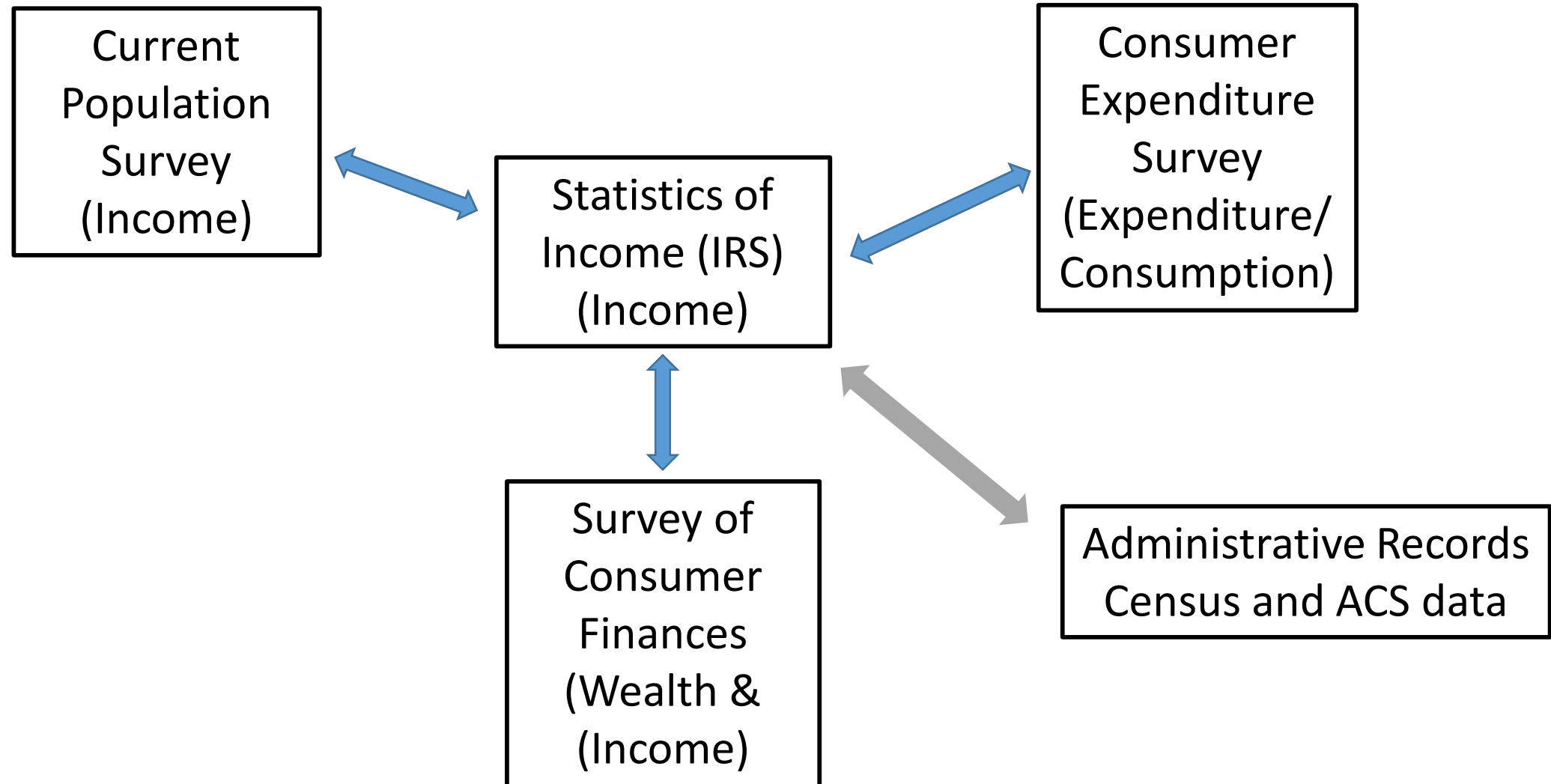


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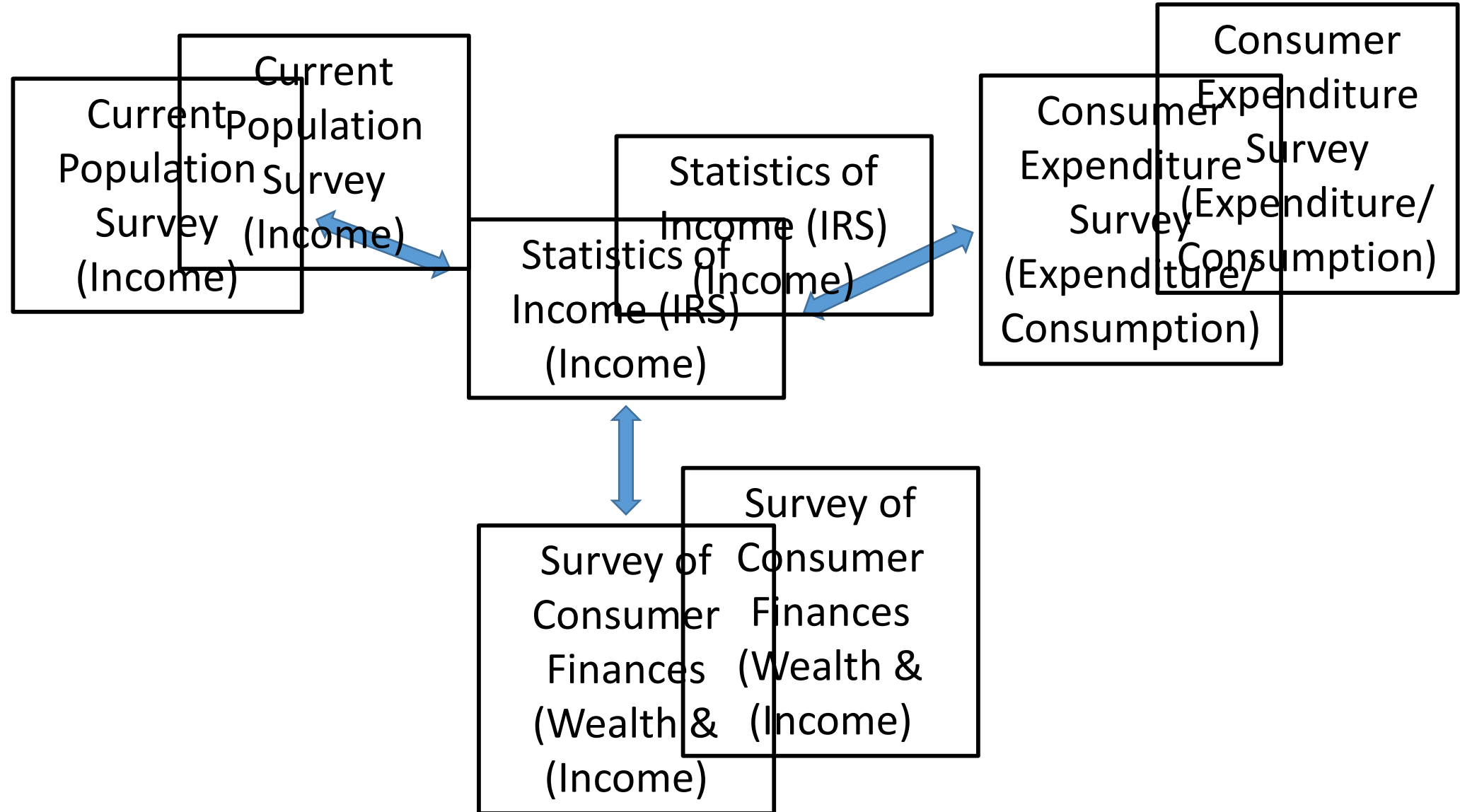
# Possible Data Integration by linking 3 surveys to tax records



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And linking over time could create longitudinal data on ICW



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# THANKS!!



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