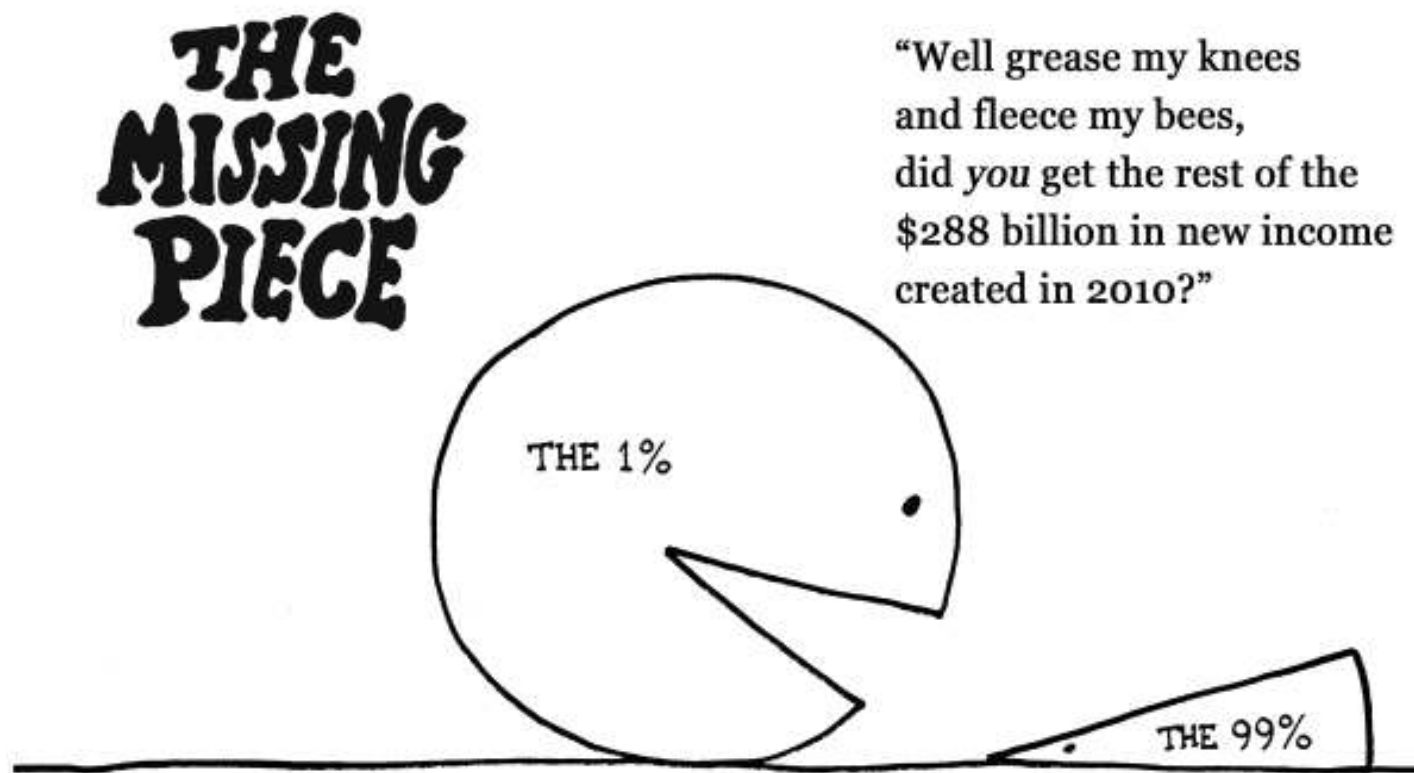


Improving the Measure of the Distribution of Personal Income



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BEA Advisory Committee; May 10, 2019**

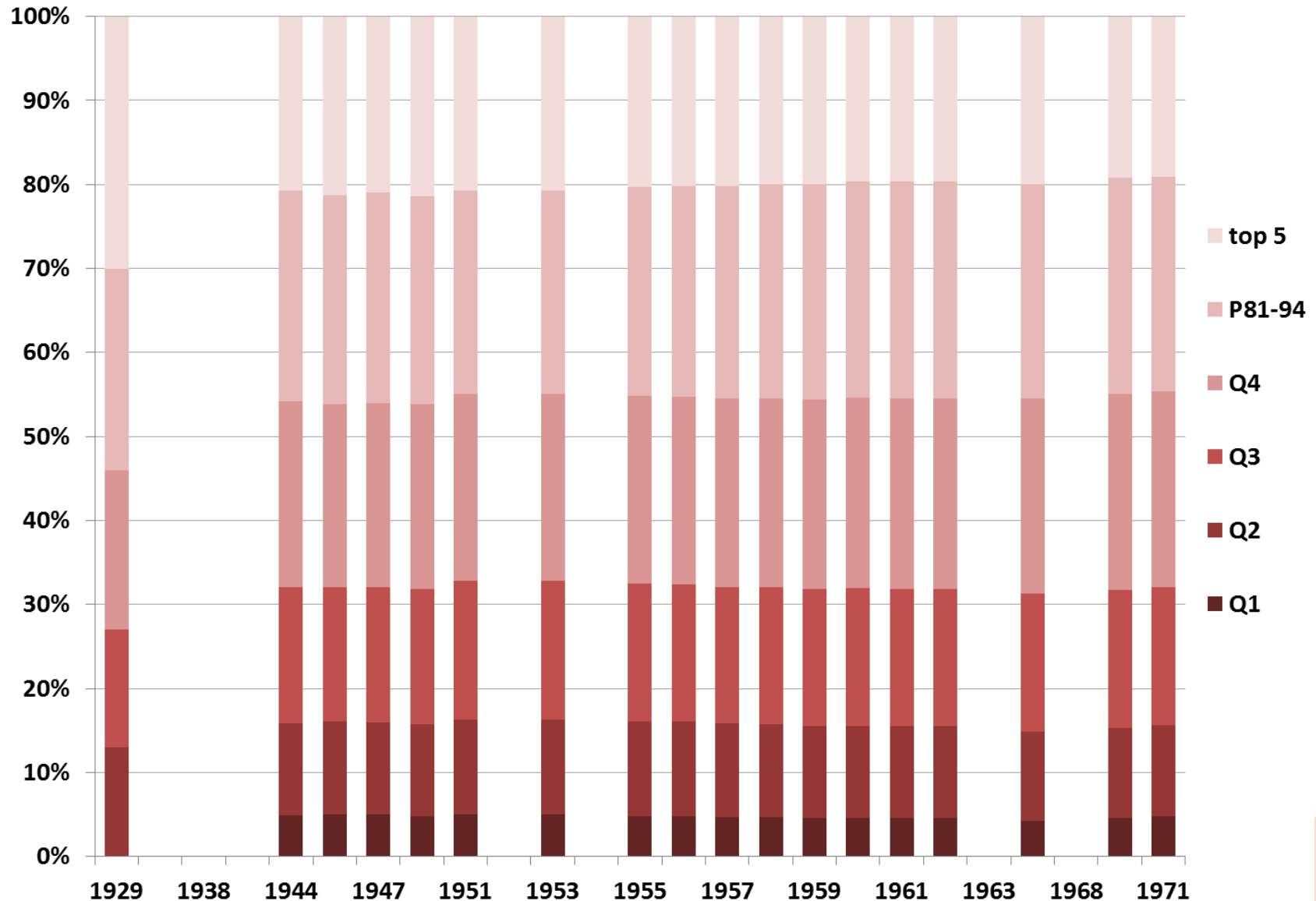
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Distribution is part of GDP – not *Beyond it*



- Simon Kuznets in report to Congress (1934): “Economic welfare cannot be adequately measured unless the personal distribution of income is known.”
- Stiglitz report: National statistical offices should “give more prominence to the distribution of income, consumption, and wealth.”
- Survey of Current Business (1955): “Income Distribution in the United States, 1950-53”
- BEA FY11 budget proposal, which included producing “a decomposition of personal income that presents median as well as mean income...”

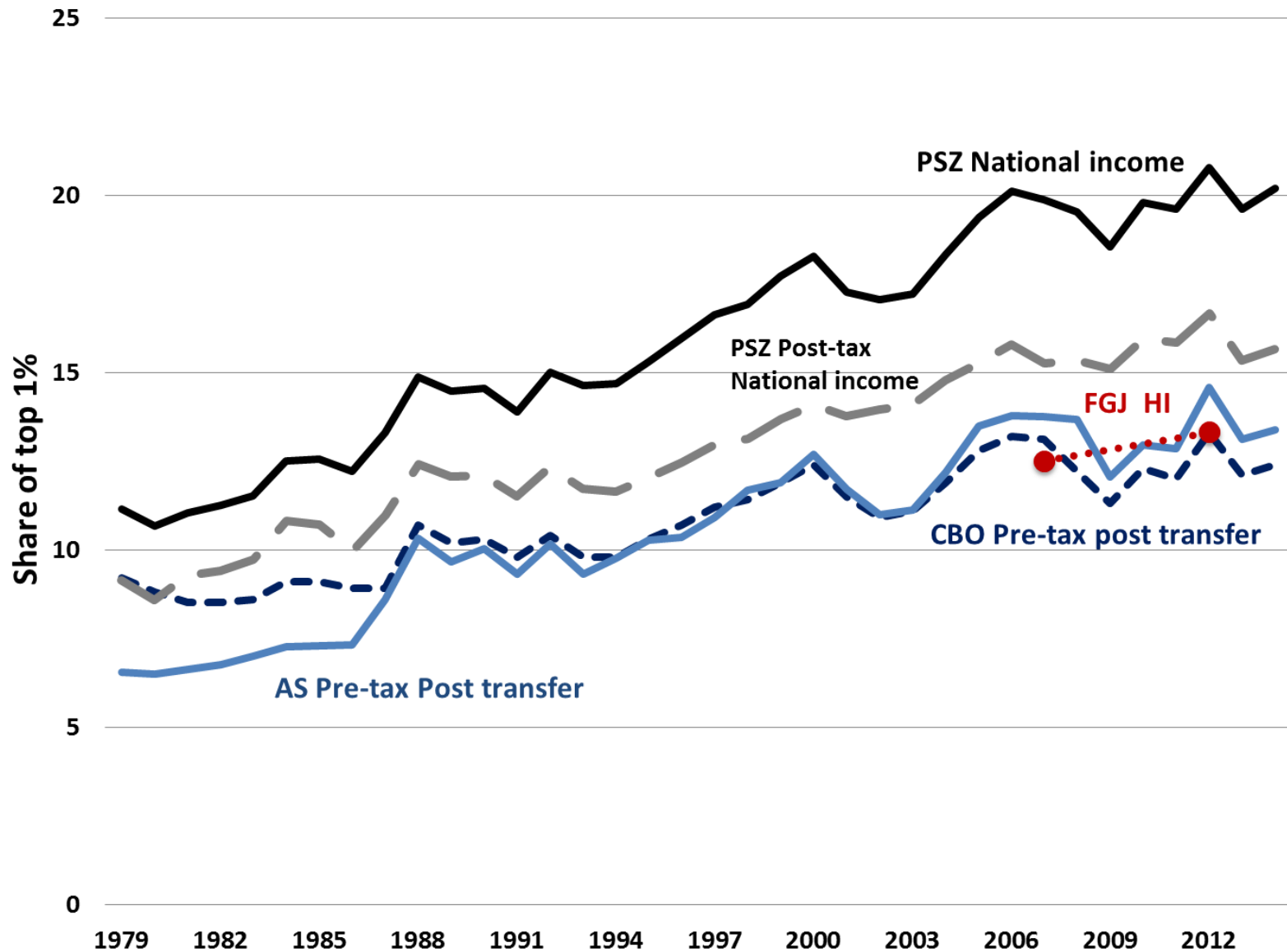
BEA historically produced a distribution of the national accounts



Renewed interest in distribution

- Increasing interest in relationship between distribution of growth, based on national accounts and inequality, based on survey data/tax data
 - GDP is increasing: what share of growth accrues to what part of the distribution?
 - Congressional Bill, “Measuring American Growth Act”
 - Efforts to bridge “micro-macro” gap
 - Piketty, Saez and Zucman (PSZ) 2018
 - Auten and Splinter (AS) 2018
 - OECD EG-DNA

Inequality has increased; but how much?



Our Previous Research



- Fixler and Johnson, “Accounting for the Distribution of Income in the US National Accounts,” NBER Volume (2014)
 - Presented at CRIW/IARIW, Aug 2012
 - BEA Advisory Committee, Nov 2012.
- Fixler, et al. “A Consistent Data Series to Evaluate Growth and Inequality in the National Accounts,” *Review of Income and Wealth*
- Fixler, et al. “Toward National and Regional Distributions of Personal Income,” *Survey of Current Business*
- Fixler, Gindelsky, Johnson “Improving the measure of the distribution of Personal Income”
 - IARIW General Conference, 2018
 - Revised version, AEA P&P, May 2019

Background

- PSZ (2018): Compute pre-and-post-tax inequality based on national income
 - $NI = GDP - \text{capital depreciation} + \text{net income received from abroad}$
 - Unit of observation: “adult individual”
 - Construct micro files consistent with macro aggregates
 - Start with tax data to capture top (add synthetic obs based on CPS)
- Auten and Splinter (2018): re-estimate top shares due to a different treatment of underreported income (esp. business) on tax data
 - Construct estimate of pre-tax/after-transfer income
 - Correct for tax law changes
 - Use equivalized income
 - Find lower income shares than PSZ
- Our paper
 - Construct distribution of household income as major component of personal income
 - Personal income is more intuitive for moving to consumption/PCE
 - Use CPS and supplement with tax data to obtain top tail of distribution
 - Create household dataset to generate distributions, which can be public
 - Can use data to generate distributions by household type (ala OECD)

BEA is a data aggregator using multiple sources of data (lag time)



- Primary Sources:
 - Micro: Public Use CPS ASEC 2008 & 2013 (earnings years 2007 & 2012) (9 mos)
 - Macro: NIPA Tables (latest revision)
- Supplementary Sources (include):
 - Survey of Consumer Finances (public) (10 mos)
 - Centers for Medicare & Medicaid Services (public) (18 mos)
 - Consumer Expenditure Survey (public) (8 mos)
 - Congressional Budget Office (public) (24-36 mos)
 - 1040 Microdata (internal) (15-18 mos)

Methodology

1

- Begin with CPS ASEC households (survey years 2008 and 2013)
- Adjust top incomes with a Pareto imputation

2

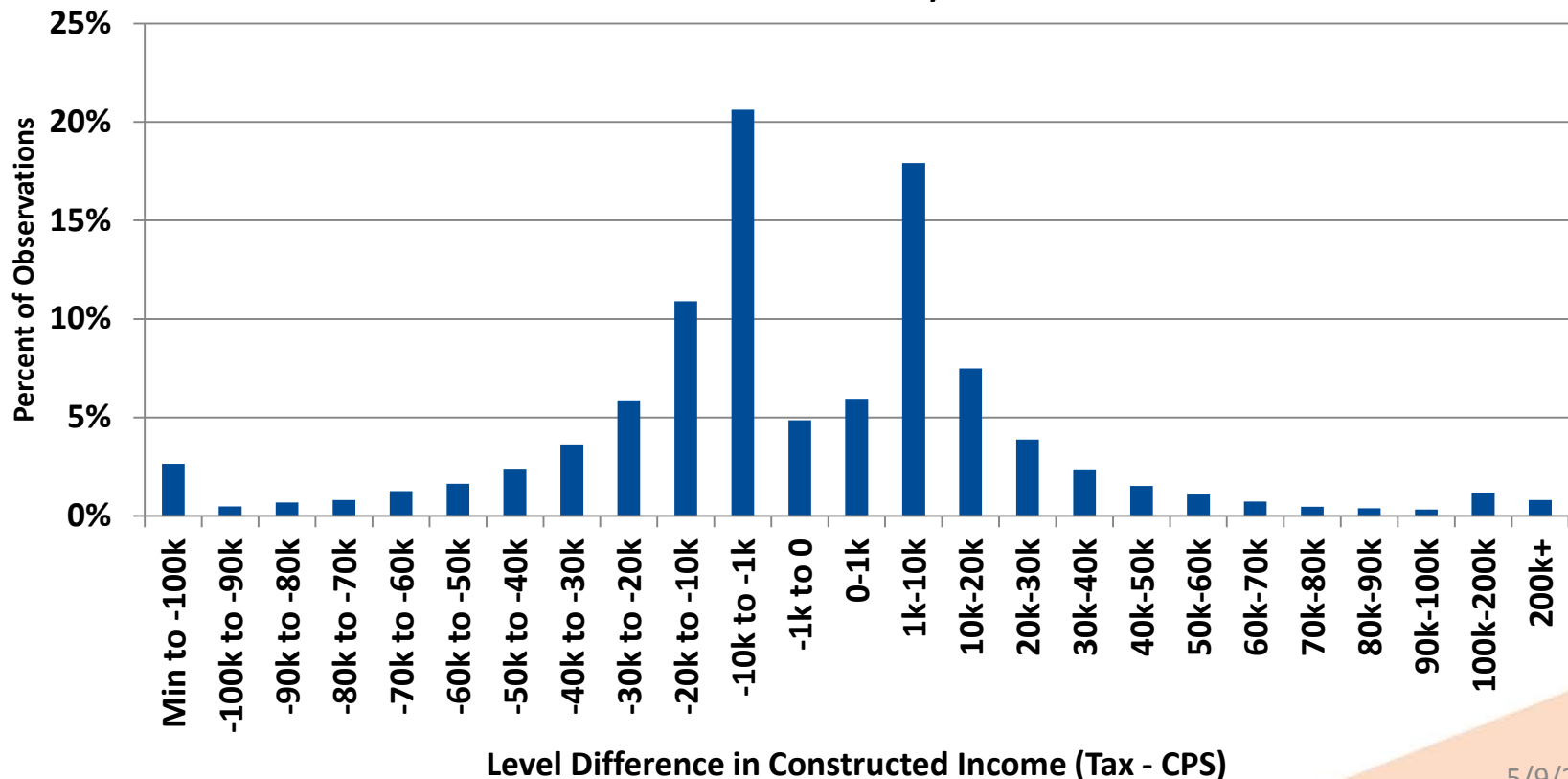
- Distribute NIPA totals for components of household income according to relevant CPS variables
- Use supplemental data sources to provide additional distributional information

3

- Aggregate resulting imputations for each component up to PI
- Construct inequality statistics for equivalized household income for 2007 and 2012

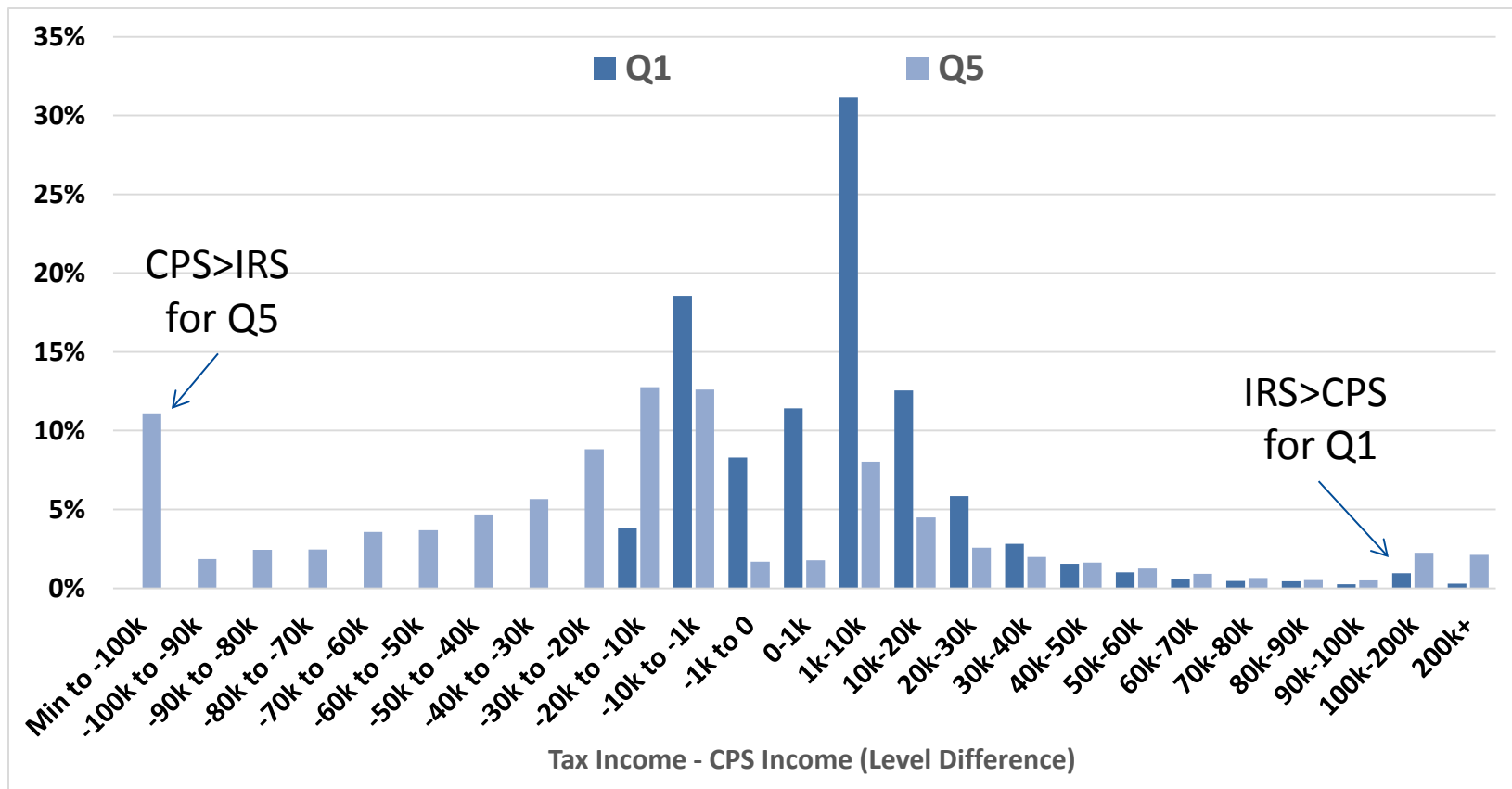
Tail Adjustment

- CPS underrepresents top incomes due to topcoding and “missing” observations
- We explored a “matching” strategy for adjusting the tail
- We found significant differences between the CPS and tax income for the same households, and hence, simply replacing the survey income for the administrative income data is not satisfactory



And Large Differences at Top

- A large share of households showed differences between CPS and tax income for the same households in the top and bottom quintiles
- With tax > CPS at bottom and CPS > tax at top



- Given distribution of differences between linked 1040 microdata housed at the Census Bureau and CPS data, the following strategy was used
 - Using the 1040 microdata, we fit a Pareto distribution for tax units with money incomes $\geq \$500k$
 - Using the resulting Pareto coefficient (alpha), imputed a distribution to CPS households with money incomes $\geq \$500k$

Methodology - Example

Starting point: A household with \$600,000 of pseudo income

1

- Household has \$60 of dividend income in CPS (unweighted)
- Tail adjustment: household receives a new pseudo income of \$700,000. Correspondingly, dividend income is proportionally adjusted to \$70.

2

- Total dividend income in CPS is summed (with weights) to be \$123b
- NIPA total for dividend income is \$808b
- Household receives imputed dividend income, $(70/123b) * \$808b = \460
- Aggregate weighted household dividend income will be \$808b

3

- Other components are scaled as well, such that the household may end up with \$900,000 of household income, consistent with NIPA

- Components of personal income
- Distribution of household income by quintile
- Inequality comparison across income definitions and time

Components of Personal Income

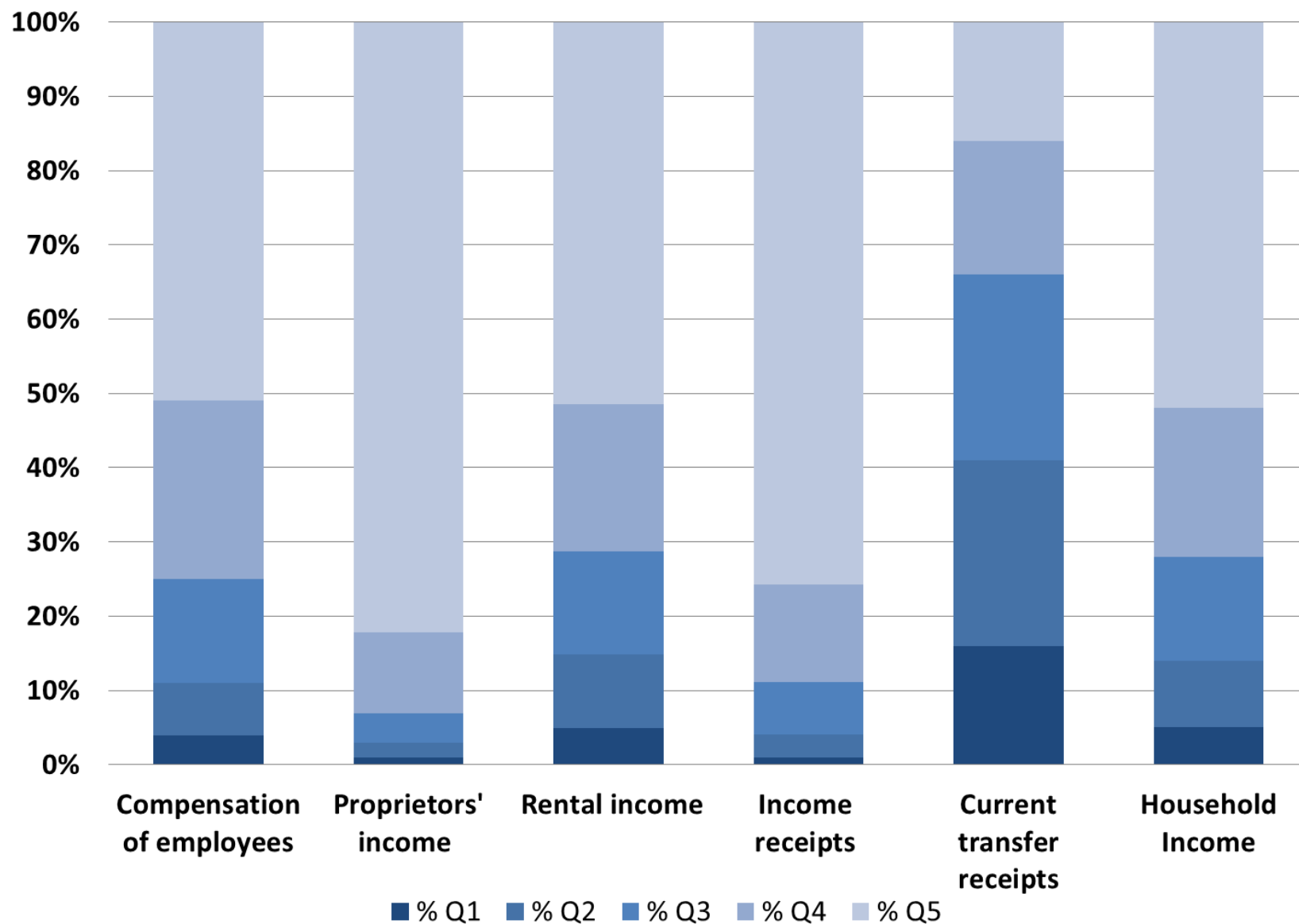
2012	Household average	Totals (billions)
Pseudo Income	\$87,636	\$10,732
Plus		
Financial	\$14,998	\$1,837
Health	\$16,062	\$1,967
Net Transfers	-\$4,359	-\$534
Equals		
Household Income	\$114,336	\$14,001.6
+NPISH	\$70	\$8.6
Personal Income	\$114,406	\$14,010

Pseudo Income = money income – retirement – other comingled factors

It is defined as in Fixler et al. (2017)

PI = Household Income – transfers from NPISH + NPISH income – transfers from households

Distribution of Household Income by Quintile, 2012



Distribution of Household Income by Quintile

2012, NIPA Table 2.9



Household income	Total (\$B)	% Q1	% Q2	% Q3	% Q4	% Q5
Compensation of employees	8567	4%	7%	14%	24%	51%
Proprietors' income with inventory valuation and capital consumption adj.	1347	1%	2%	4%	11%	83%
Rental income of households with capital consumption adj.	509	5%	10%	14%	20%	52%
Household income receipts	2119	1%	3%	7%	13%	75%
Household interest income	1311	2%	4%	9%	17%	67%
Household income	808	0%	1%	3%	7%	89%
Household current transfer receipts	2410	16%	25%	25%	18%	16%
Government social benefits	2300	16%	26%	26%	17%	14%
From business (net)	24	1%	4%	11%	24%	60%
From nonprofit institutions	86	5%	8%	14%	26%	47%
Less: Contrib. for government social insurance, domestic	950	4%	10%	17%	26%	43%
Household Income	14002	5%	9%	14%	20%	52%

Inequality Comparison

	Mean	Gini	90/50	90/10	Top 5% Share	Top 1% share
	2012					
Eq. HH Money Income	\$46,587	0.456	2.64	9.54	22.2%	8.8%
Eq. HH Pseudo Income (with tail adj.)	\$57,166	0.524	3.04	10.91	29.7%	14.1%
Eq. HH Income	\$74,407	0.463	2.72	6.33	27.1%	13.3%
	2007 (in 2012 dollars)					
Eq. HH Money Income	\$48,279	0.441	2.59	9.05	21.6%	7.4%
Eq. HH Pseudo Income (with tail adj.)	\$46,848	0.502	2.86	9.91	28.2%	12.9%
Eq. HH Income	\$73,022	0.453	2.65	6.25	26.5%	12.5%

Eq. HH Income = HH Income/sqrt(# in hh)

Inequality Comparison

Definition	2007	2012	Source
	Top 1% Share		
Eq. HH income	12.5%	13.3%	FGJ 2018
Pre-tax/Post-transfer	13.1%	13.3%	Auten & Splinter 2018
Pre-tax National Inc. (equal split indiv)	19.9%	20.8%	PSZ 2018
HH inc. Pre-tax/Post-transfer w/o CapG	13.8%	14.6%	CBO
	Gini		
Eq. HH income	0.453	0.463	FGJ 2018
HH inc. Pre-tax/Post-transfer	0.491	0.487	CBO
Eq. HH Money Income	0.444	0.463	Census Bureau

Next Steps

- Extend annual distribution 2007 to 2012, 2013 to 2016 this year
- Extend distribution to 2017 (or 2018) in 2020
- Extend to regional distributions (ala SCB article)
- Extend to Personal Income and National Income (what about GDP)

Do we need a distribution of GDP?

\$17,582	Personal income Less: Personal current transfer receipts Less: Personal income receipts on assets Plus Current surplus of government enterprises Business current transfer payments (net) Net interest and miscellaneous payments on assets Contributions for government social insurance, domestic Taxes on production and imports less subsidies Corporate profits with inventory valuation and CC adj
\$17,544	Equals: National Income Plus: Consumption of Fixed Capital
\$20,818	Equals: Gross National Income Plus: Income payments to the rest of the world Less: Income receipts from the rest of the world
\$20,557	Equals: Gross Domestic Income Less: Statistical Discrepancy
\$20,494	Gross domestic product (GDP)

Next Steps

- Extend annual distribution 2007 to 2012, 2013 to 2016 this year
- Extend distribution to 2017 (or 2018) in 2020
- Extend to regional distributions (ala SCB article)
- Extend to Personal Income and National Income (what about GDP)
- Develop distributional measures for PCE (following OECD working group)
- Examine alternative data for transfers, such as CID
- Compare to Distribution of Financial Accounts
- Participate in OECD groups, EG-DNA and EG-ICW (Joint distribution of Income, Consumption and Wealth)
- Evaluate savings, APC and fiscal multiplier