BEA
BUREAU OF ECONOMIC ANALYSIS
U.S. DEPARTMENT OF COMMERCE

A Consistent Data Series to Evaluate Growth and Inequality in the National Accounts

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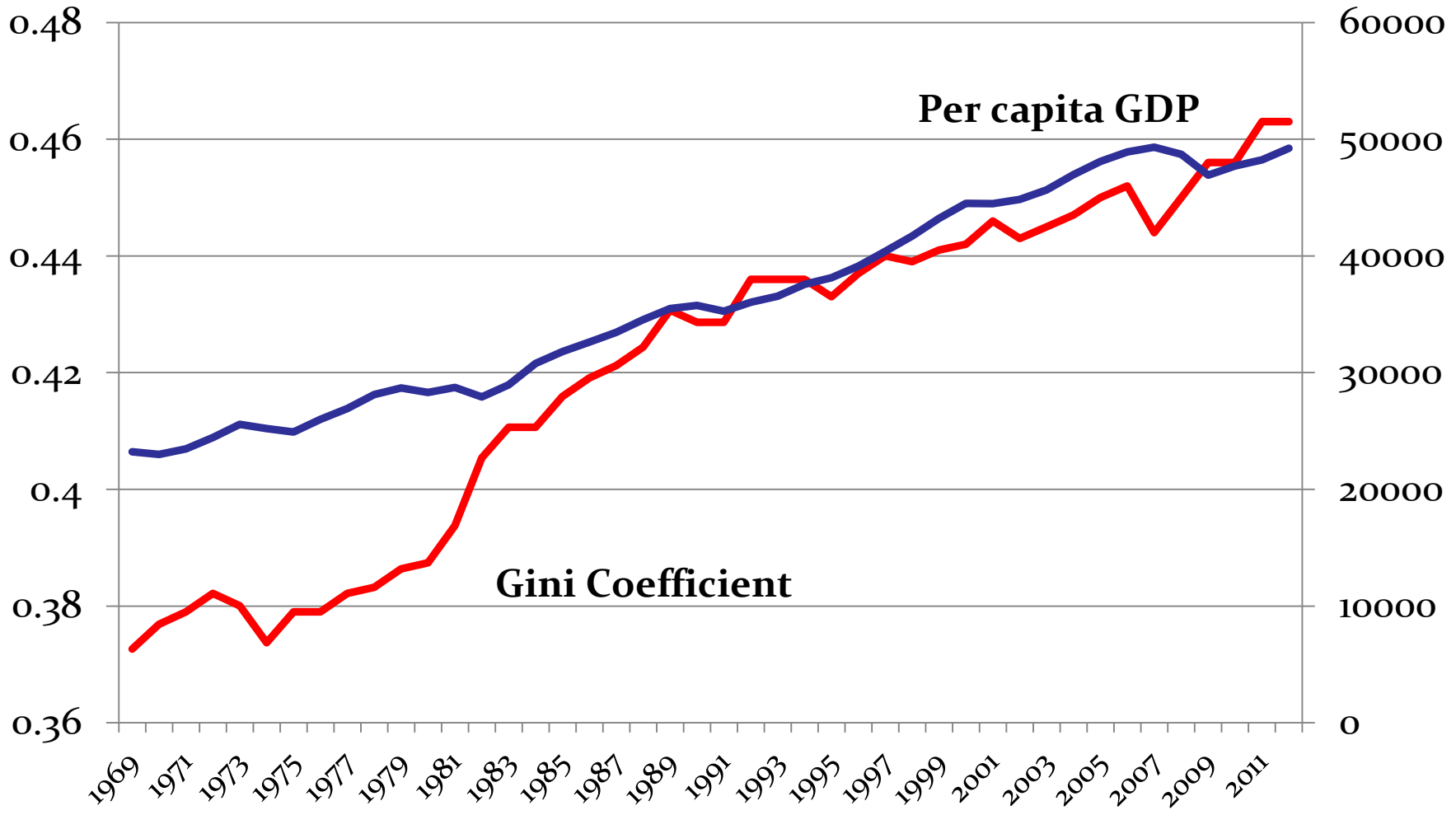
Frontiers of Measuring Household Economic Behavior

April 27, 2015

Is Inequality related to Growth
Is there a Kuznets Curve



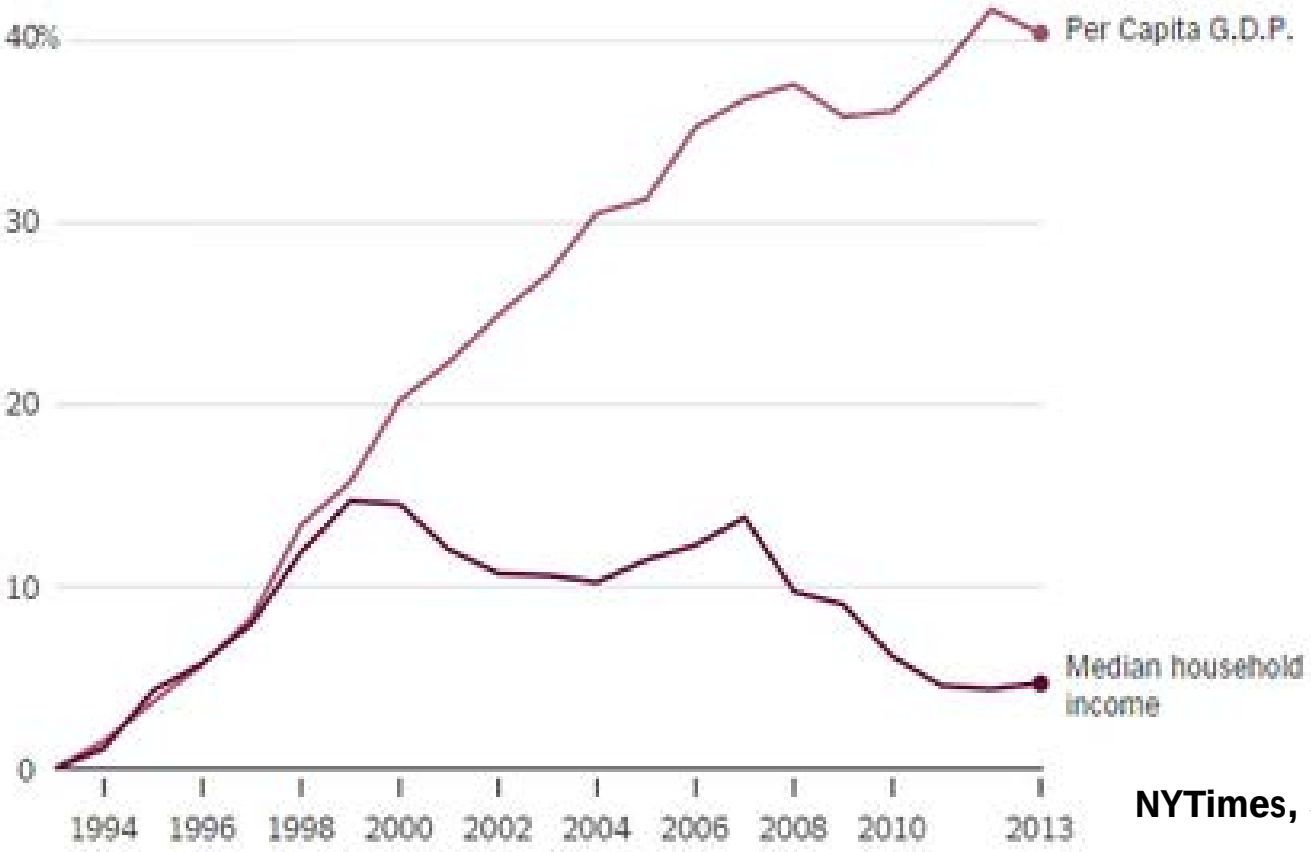
Source: US Census Bureau, Equivalent money income; Bureau of Economic Analysis

What happens when growth and median household income diverge?

Growth Hasn't Translated Into Gains in Middle-Class Income

Until around 1999, overall economic growth tended to correspond with growth in earnings for middle-income Americans. Since then, the two have diverged sharply.

Percent change indexed to 1993 level



NYTimes, Sept 17 2014

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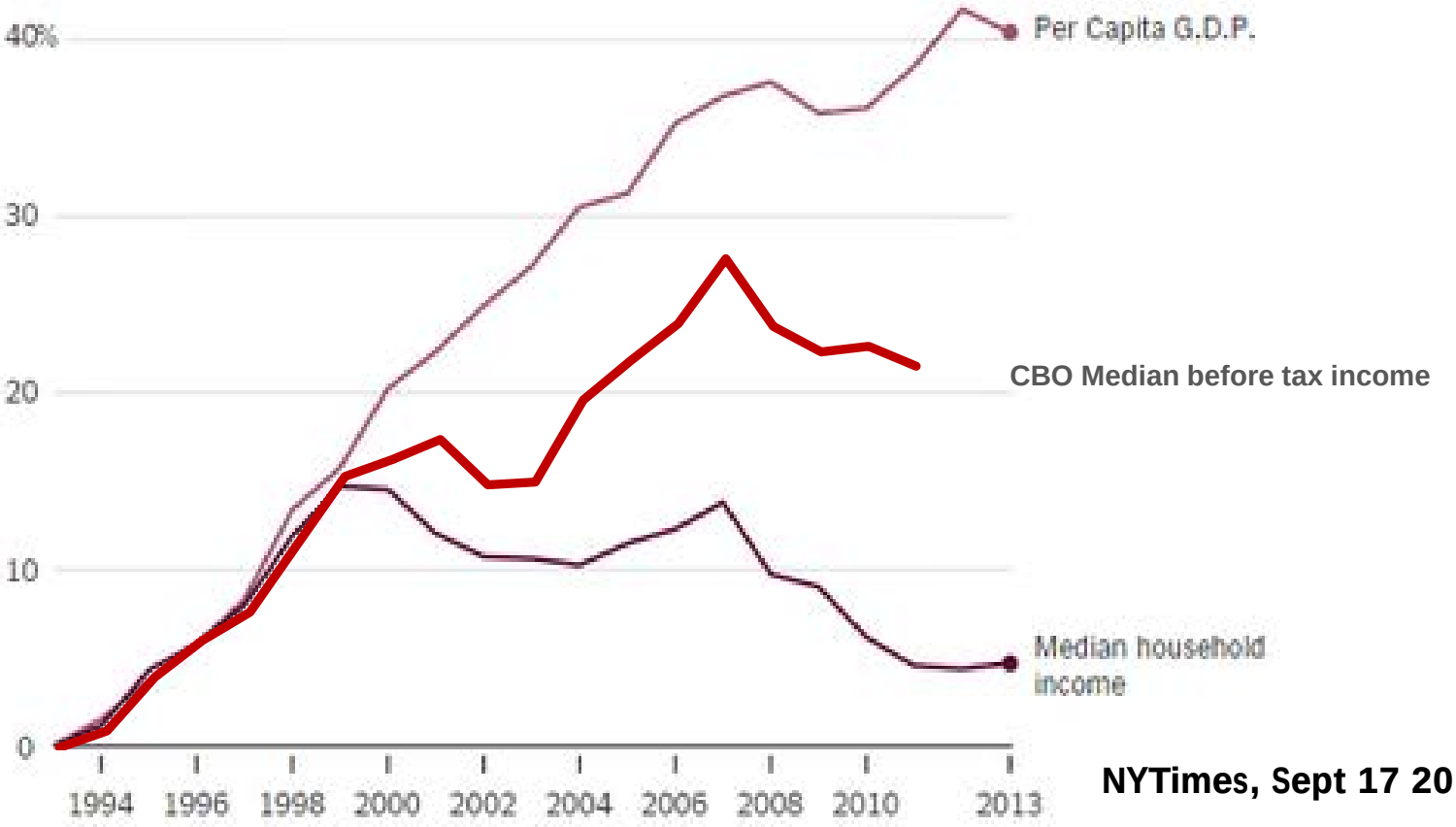

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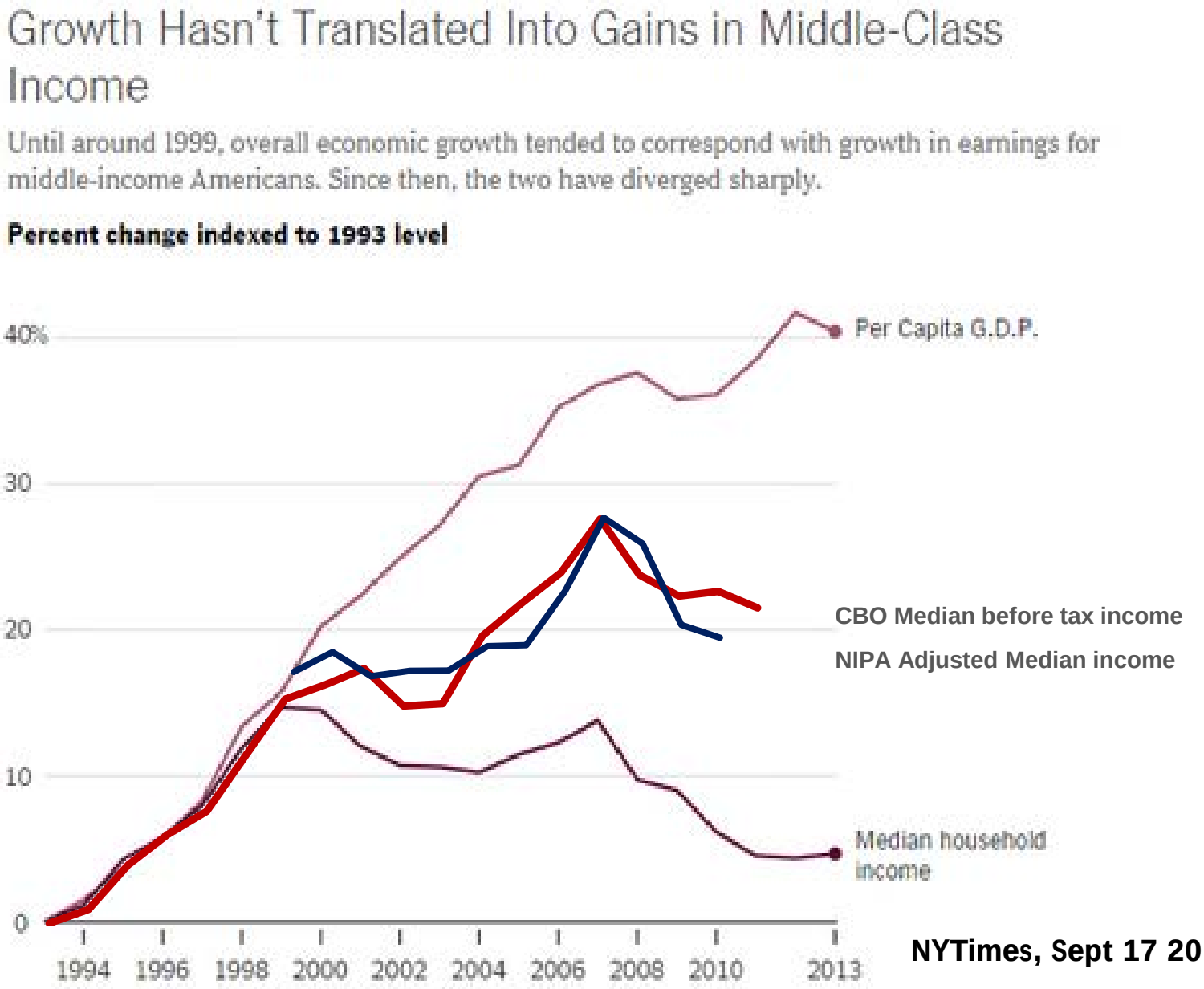

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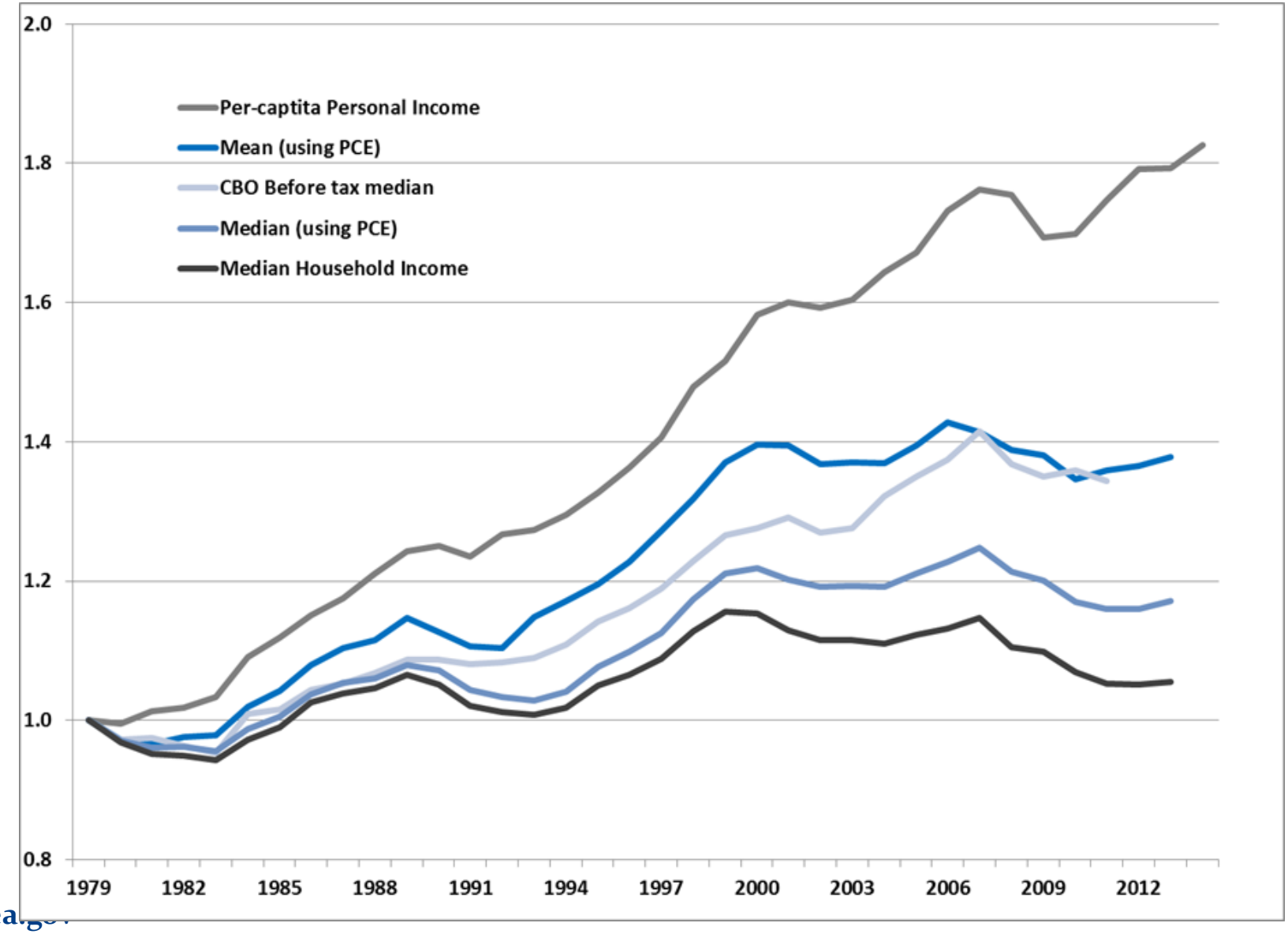
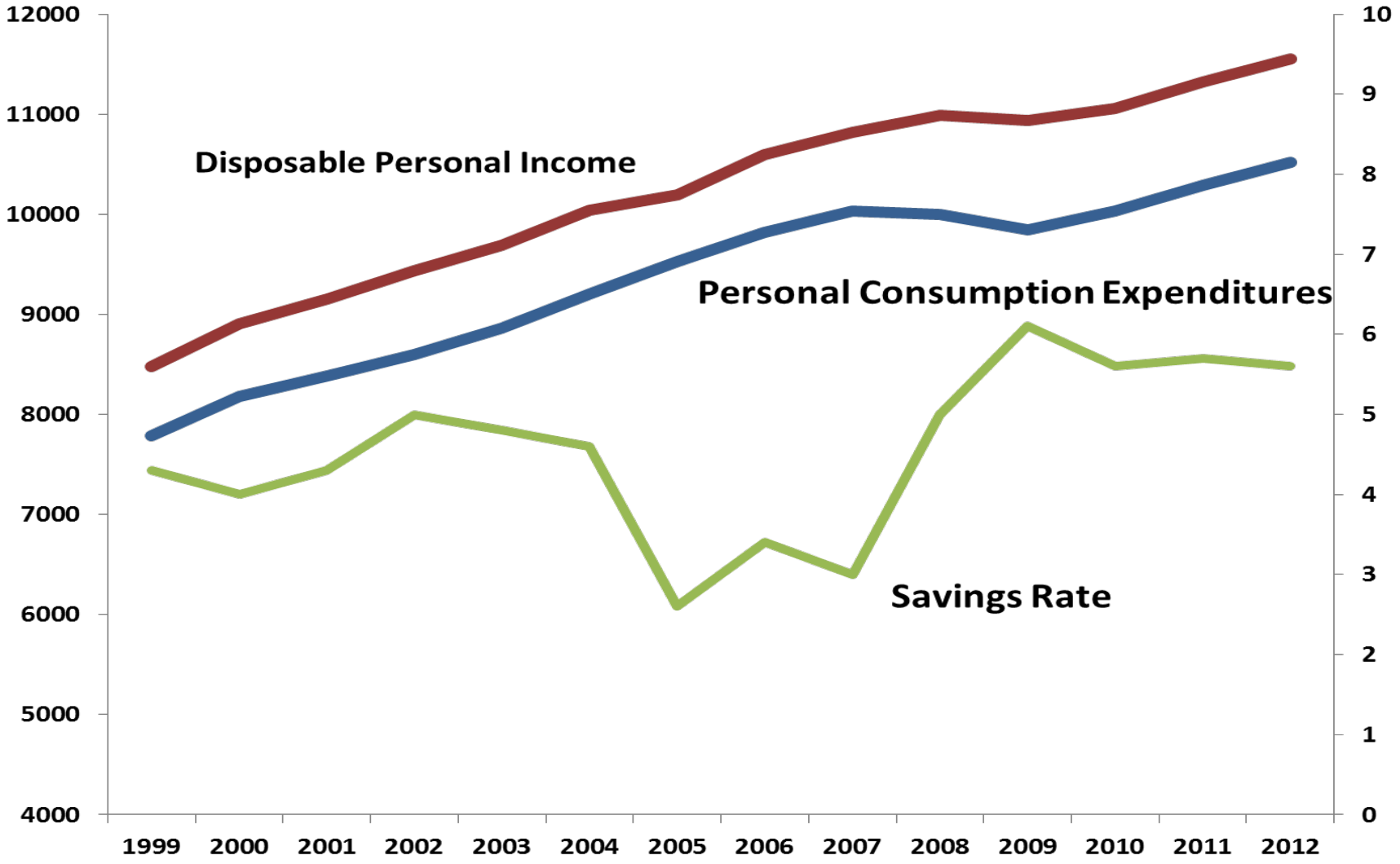
Income measures and price index matters



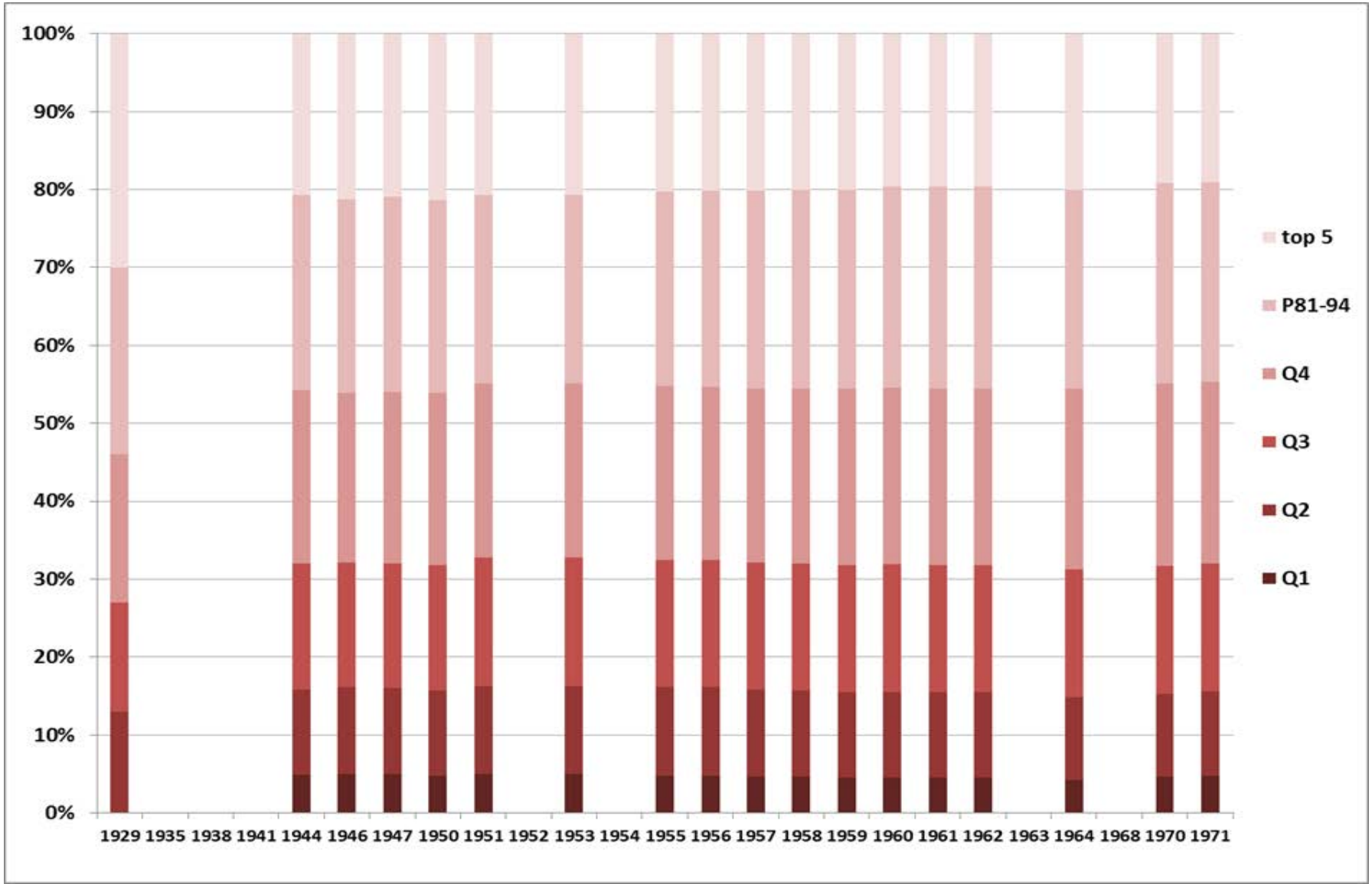
Goal is to measure the distribution of both income and consumption in the National Accounts



Purpose of Research

- BEA FY11 budget proposal, which included producing "a decomposition of personal income that presents median as well as mean income…"
- Because survey data suffer from under-reporting, determine how to deal with measurement error in income
- Demonstrate that one can use NIPA data to adjust survey data to obtain alternative distributions and measures of inequality.
- Build on earlier work at BEA to produce distributional estimates (mean, median, Gini and by quintile) fully consistent with the national accounts

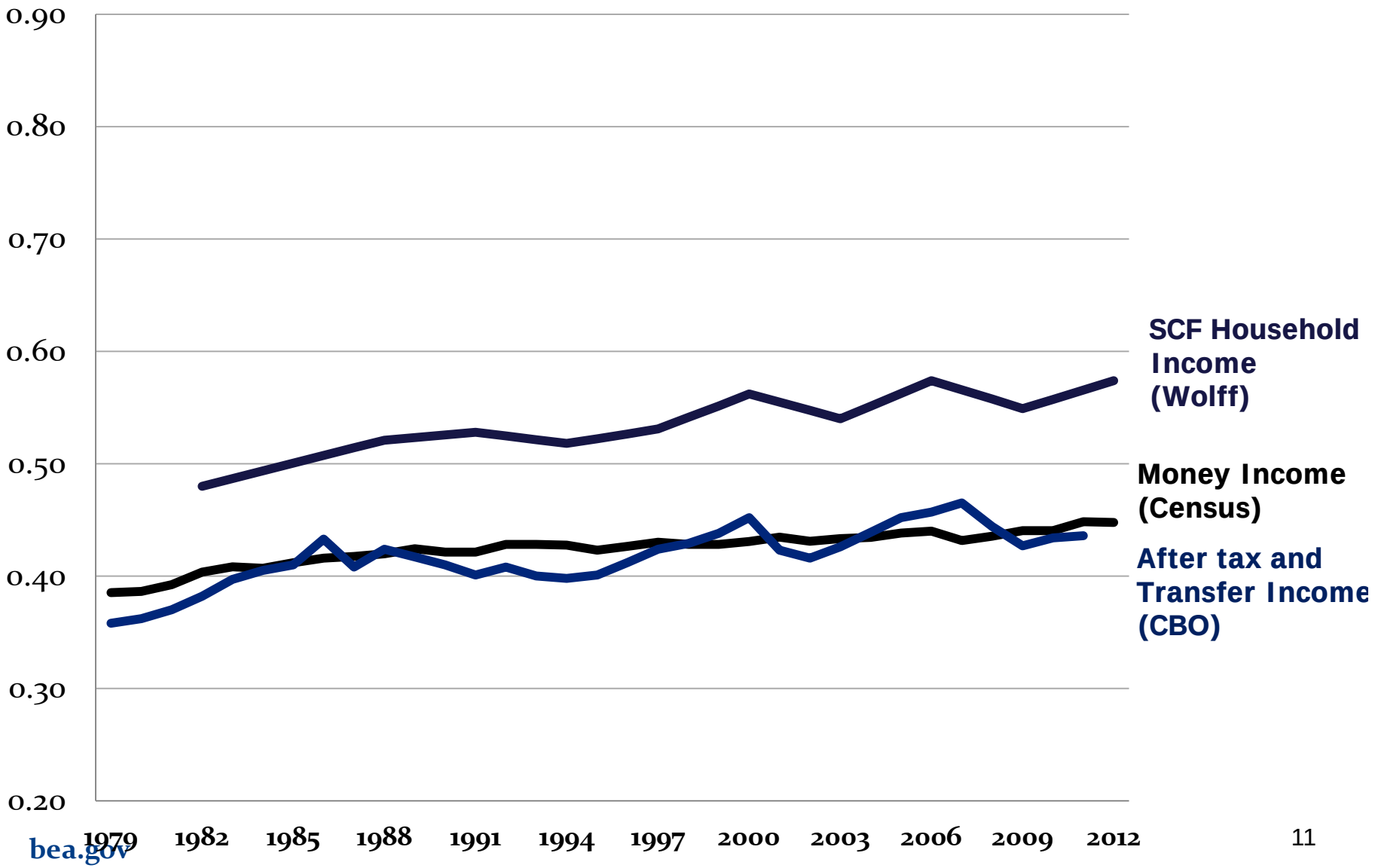
BEA (and OBE before) produced regular estimates of the distribution of personal income



Need a Consistent Measure of Income

SOURCE	Haig/ Simons	Census	PI (BEA)	CBO	SCF
Employment income	Yes	Yes	Yes	Yes	Yes
Employer contribution to Soc Sec	Yes	No	Yes	Yes	No
Employer-provided benefits	Yes	**No**	**Yes**	Yes	Yes
Investment income	Yes	Yes	Yes .	Yes	Yes
Imputed investment income	Yes	**No**	**Yes**	No	No
Government cash transfers	Yes	Yes	Yes	Yes	Yes
Employee contribution to Soc Sec	Yes	**Yes**	**No (subtract)**	Yes	No
Retirement income	Yes	**Yes**	**No (only int.)**	Yes	Yes
Cash assistance from others	Yes	**Yes**	**No**	Yes	Yes
Realized capital gains	Yes	No	No	Yes	Yes
Lump sum (IRA disbursements)	Yes	No	No	Yes	Yes
In-kind government transfers*	Yes	**No**	**Yes**	Yes	Yes (housing)
Other In-kind transfers*	Yes	No	No	No	No
Home production	Yes	No	No	No	No
Imputed rent*	Yes	**No**	**Yes**	No	No
Unrealized capital gains	Yes	No	No	No	Yes (stock)
Savings withdrawals	Yes	No	No	No	No

Various Ginis for income



Distributional Measures are important in US and Internationally

- Stiglitz-Sen-Fitoussi Report (2009):
  - Recommendation 4: National statistical offices should "give more prominence to the distribution of income, consumption, and wealth."
  - "…Developing distributional measures of full [national account] income is, however, a formidable task. The most difficult challenge is to allocate to various groups those income flows that have been imputed at the macro level…for example, imputed rents from own-occupied housing." (pg. 136)
- The Organization for Economic Development and Cooperation (OECD) created an "expert group" (2010 – present) to examine the feasibility of constructing such estimates

Data and Methods

- Begin with Household Income from Current Population Survey, 2006-2012
- Integrate spending, benefits and housing data from the Consumer Expenditure Survey, 2006-2012
- Statistically match CE to CPS microdata using a variety of demographic characteristics.
- Create a concordance for Personal Income for over 65 detailed categories
- Ratio adjust each category for each household so that total Personal Income matches NIPA totals.
- Adjust measures to 2006($) using PCE deflator

Creation of Pseudo Income – basically Money income less retirement and some disability

Category	Source	Addition/ Subtraction
Wage and salary disbursements	CPS	Add
Farm	CPS	Add
Nonfarm	CPS	Add
Other private business rental income (includes tenant-occupied housing & royalties)	CPS	Add
Received by persons including fiduciaries, IRA-KEOGH, mutual fund private pensions	CPS	Add
Household dividend income	CPS	Add
Social security /1/	CPS	Add
Unemployment insurance	CPS	Add
Railroad retirement	CPS	Add
Pension benefit guaranty	CPS	Add
Veterans' life insurance	CPS	Add
Workers' compensation	CPS	Add
Temporary disability insurance	CPS	Add
Veterans pension and disability	CPS	Add
Veterans readjustment (education & training)	CPS	Add
Black lung benefits	CPS	Add
Supplemental security income	CPS	Add
Other public assistance and income maintenance	CPS	Add
Education assistance	CPS	Add
All other government social benefits	CPS	Add
Household current transfer receipts from NPISHs	CPS	Add
Alimony received	CPS	Add
Child support received	CPS	Add

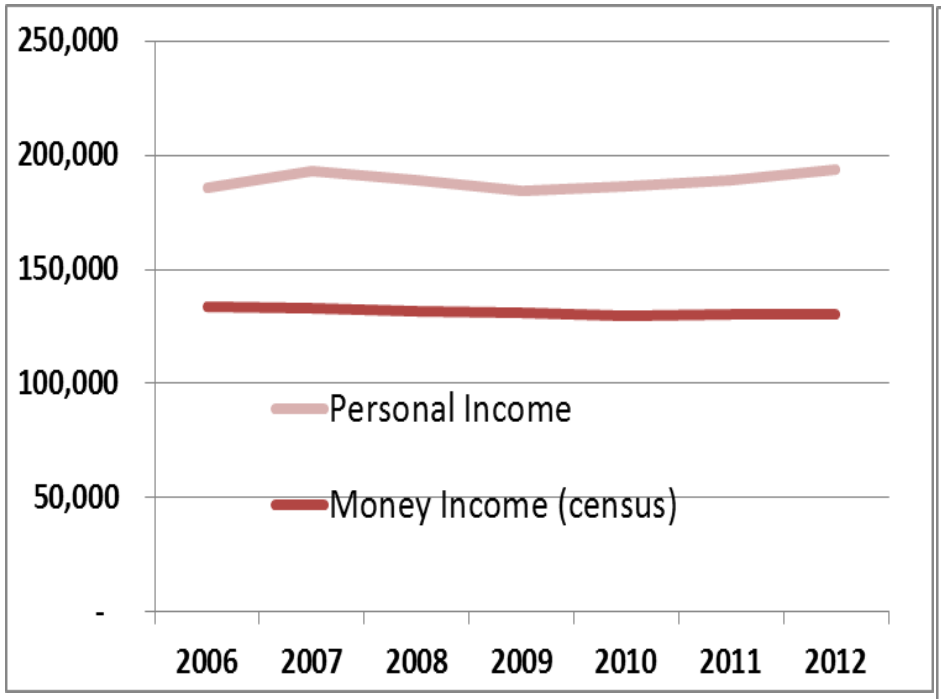
Personal Income is Pseudo income plus/minus these items (from both CPS and CE)

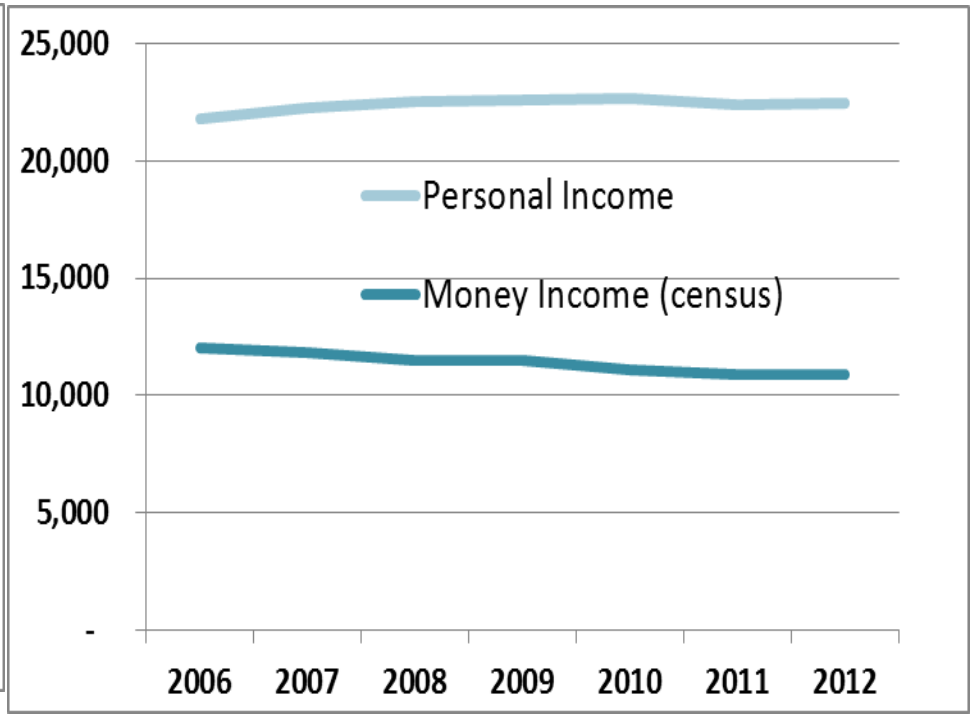
Medicare /2/	CPS	Add
Medicaid	CPS	Add
Group health insurance	CPS	Add
Old-age, survivors, disability, and hospital insurance	CPS	Add
Military medical insurance	CPS	Add
Military medical insurance	CPS	Add
Other state & local medical care	CPS	Add
Supplementary medical insurance (Medicare)	CE	Subtract
Pension and profit sharing	CPS	Add
From employee pension plans	CPS	Add
Imputed interest received by households from depository institutions	CE	Add
RICs to persons	CE	Add
RICs to private pensions	CPS	Add
Life insurance carriers	CE	Add
Imputed interest received from property and casualty insurance companies	CE	Add
From employee pension plans	CE	Add
Group life insurance	CPS	Add
Rental value of owner-occupied dwellings	CE	Add
Intermediate expenses	CE	Subtract
Taxes on production & imports less subsidies	CPS	Subtract
Current transfer payments (net insurance settlements)	CE	Subtract
Net interest	CE	Subtract
Consumption of fixed capital	CE	Subtract
Alaska dividend payments	CPS	Add
Workers' compensation	CPS	Add
Supplemental unemployment	CPS	Add
Other	CPS	Add
Supplemental Nutrition Assistance Program (SNAP) (formerly Food Stamps)	CPS	Add
Refundable tax credits	CPS	Add
Energy assistance	CPS	Add
WIC Food	CPS	Add
Retired military personnel & dependents at nonmilitary facilities	CPS	Add
State & local employment & training	CPS	Add
Other current transfer receipts, from business (net)	CE	Add
Employer's actual social contributions	CPS	Subtract
Employee's actual social contributions	CPS	Subtract
Self-employed	CPS	Subtract

Comparison of income measures

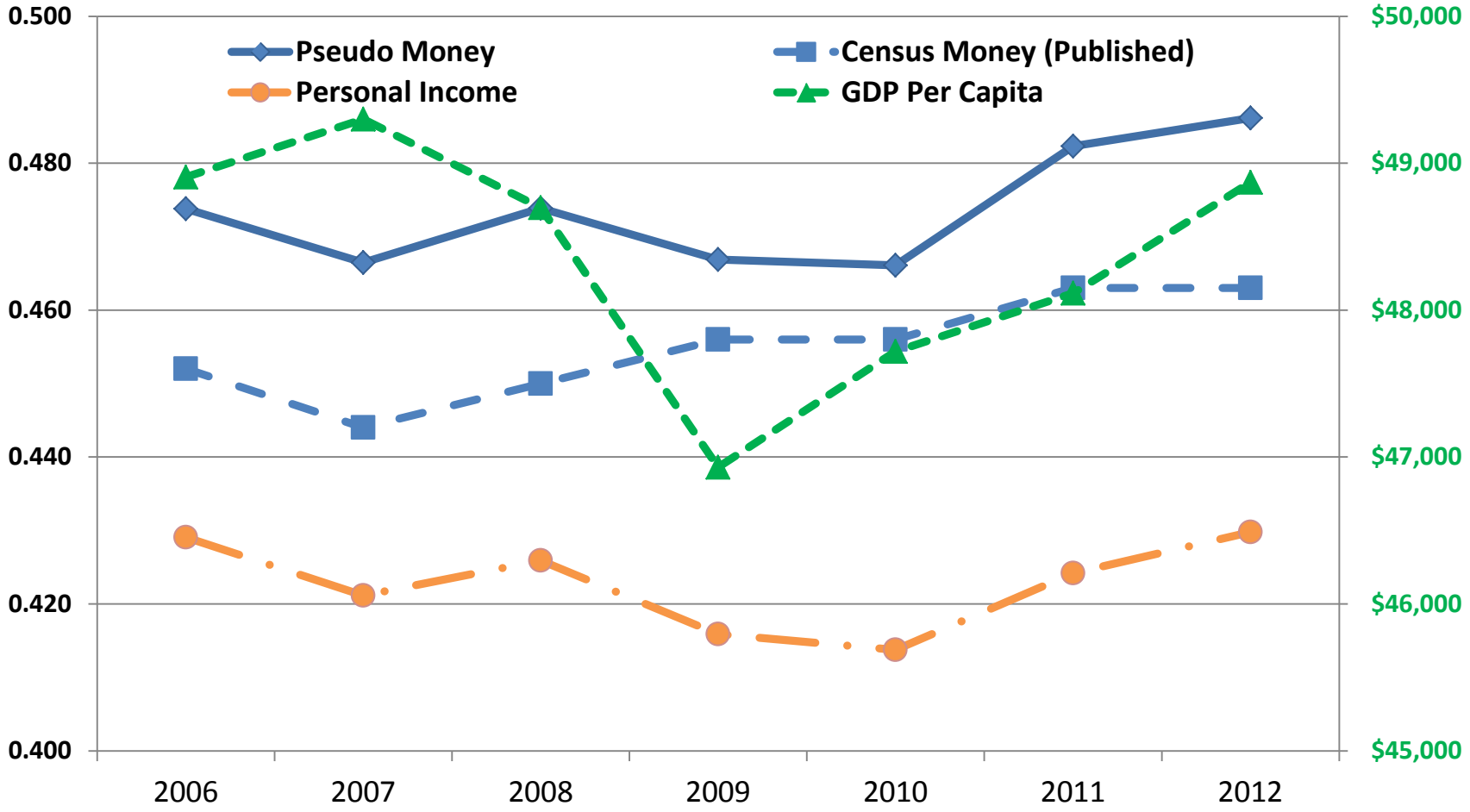
	Estimated from CPS (not scaled)	Adjusted to match NIPA (scaled)
Money Income (Census)	$ 63,593	N/A
Wages and Salaries	$ 47,857	$ 50,091
Finance and Business (interest, dividends, farm/non farm, rent)	$ 6,058	$ 17,003
Government transfers	$ 5,924	$ 7,779
Retirement and other	$ 3,754	N/A
less comingled factors	$ 213	N/A
equals Pseudo Income	$ 59,626	$ 76,137
plus financial	$ 13,765	$ 13,765
plus health and other transfers	$ 5,517	$ 8,304
health	$ 9,370	$ 12,274
net transfers (payouts less contributions)	$ (3,853)	$ (3,970)
equals Personal Income	$ 78,908	$ 98,206

Comparing 10th and 90th percentile income for Money and Personal income

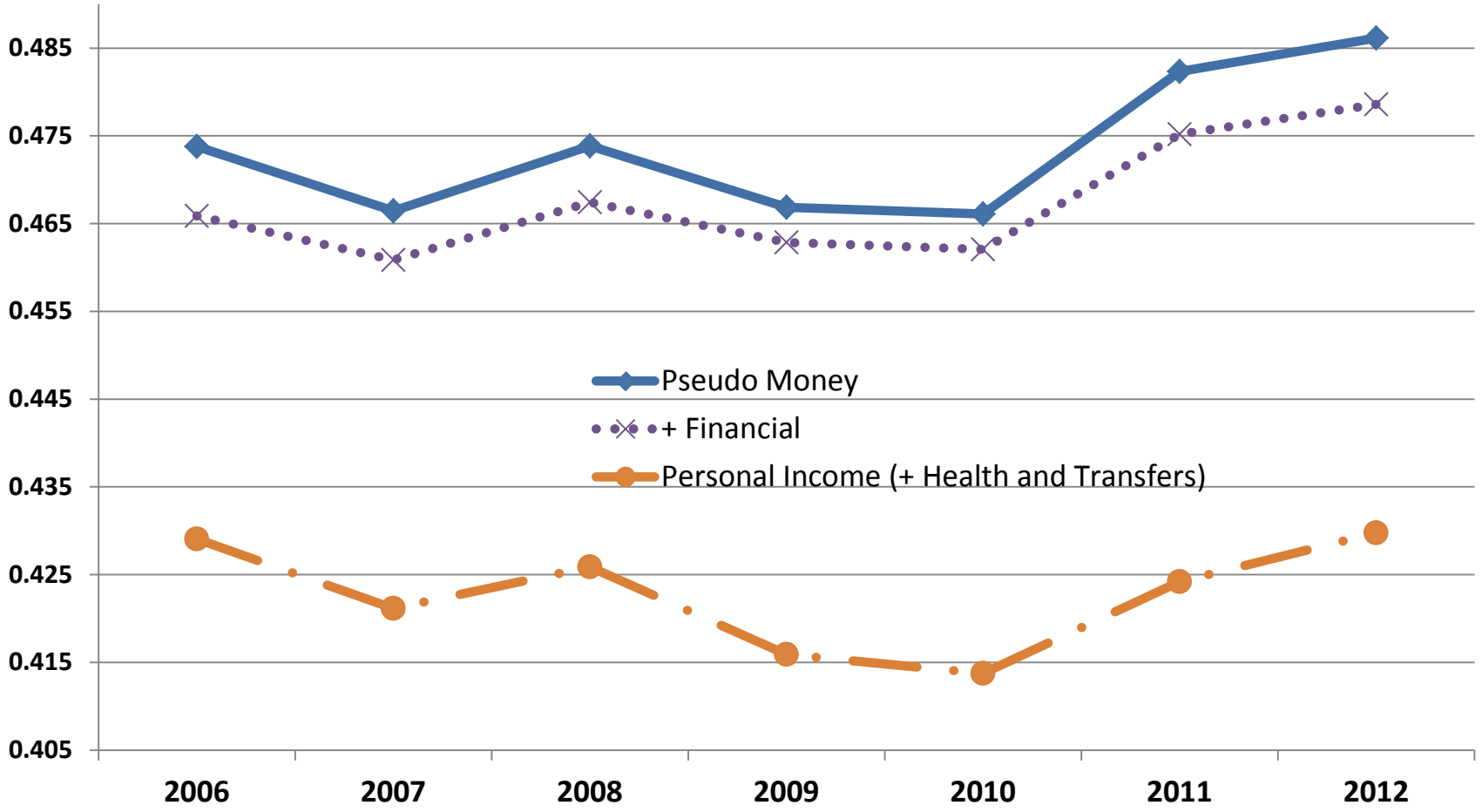




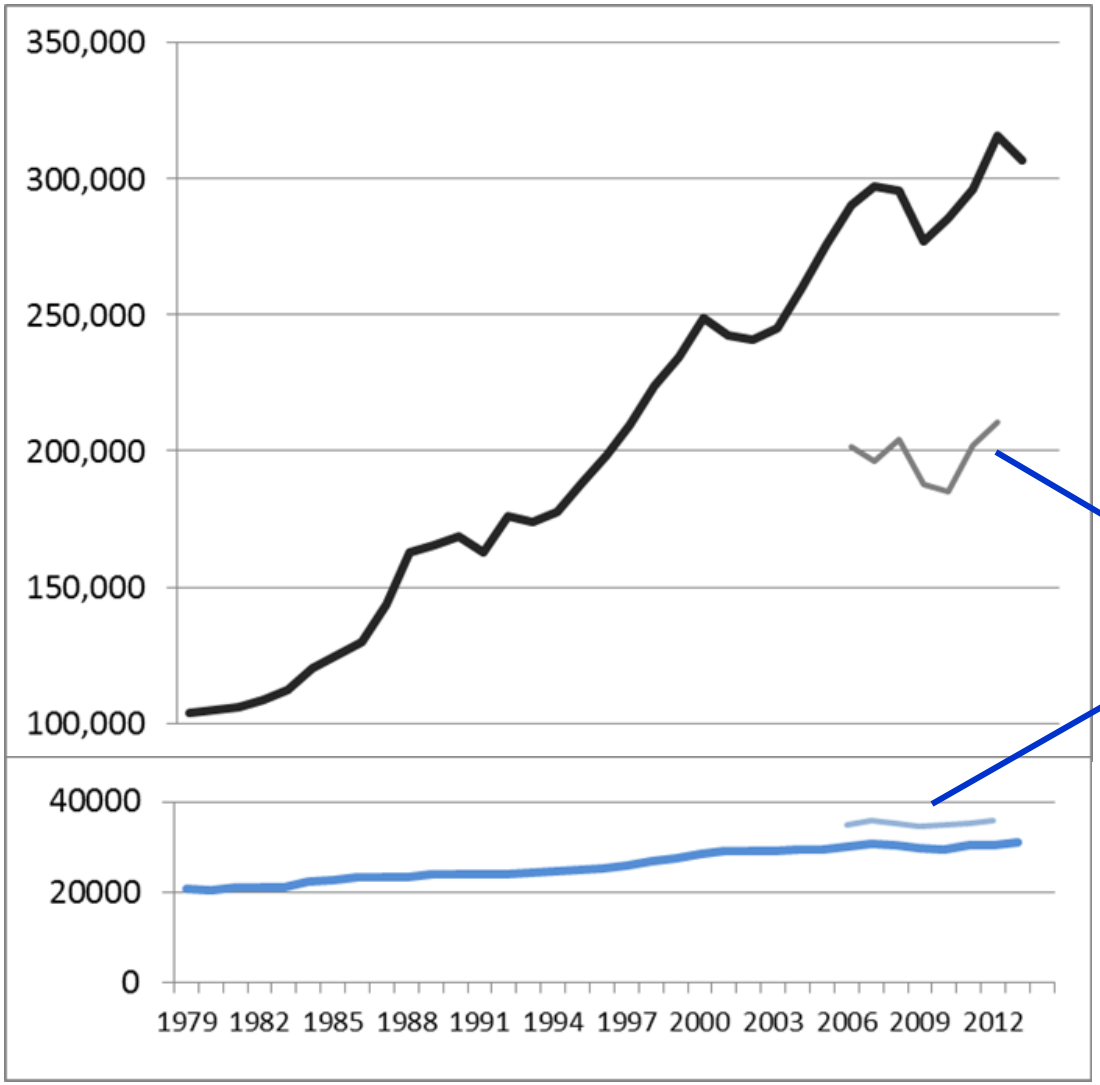
Gini for Personal income is lower than for money income, and trend is flatter



The lower Gini is due to Health and Transfers, and the flatter trend



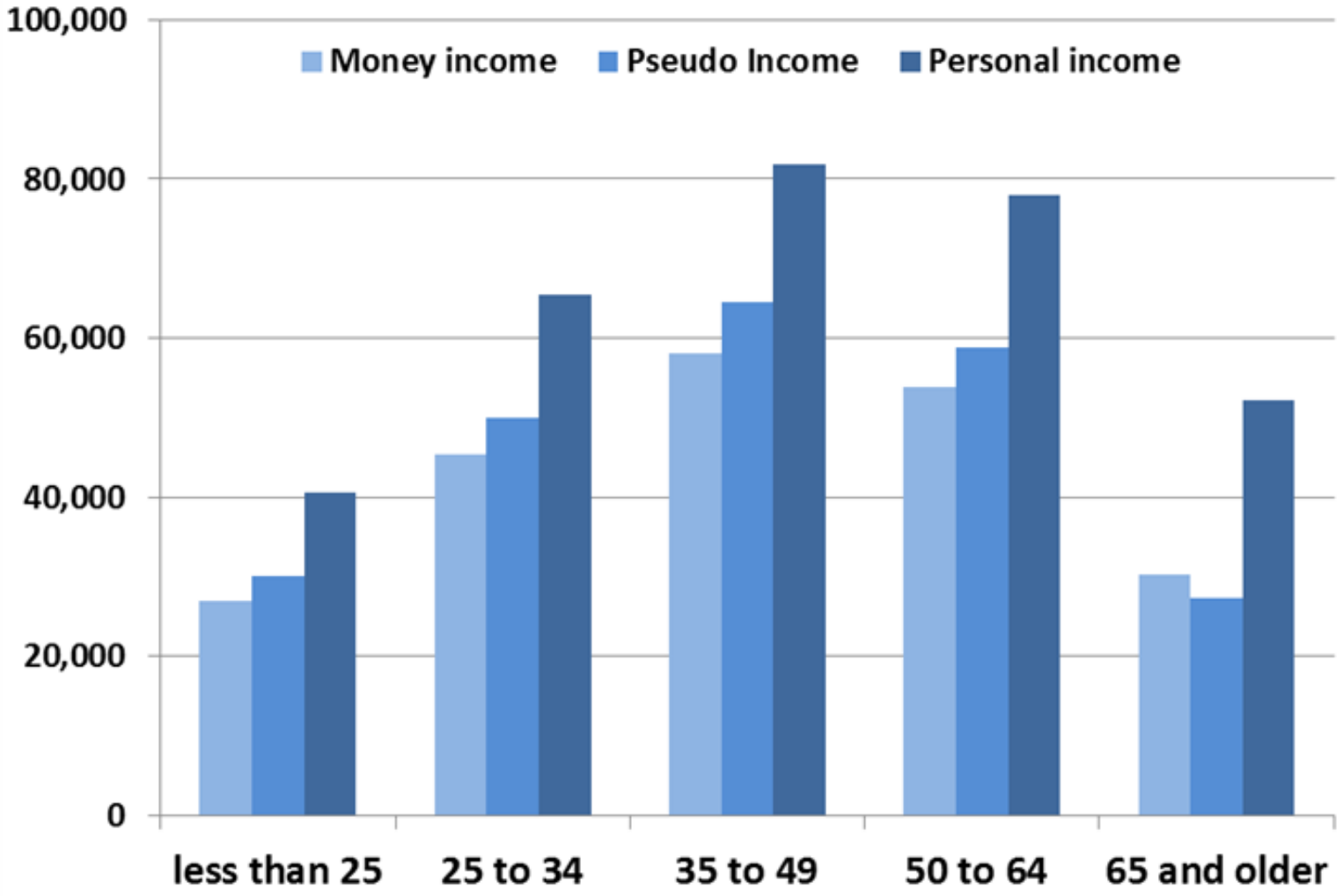
Comparing our results to Jones (2015) on the mean for the top 5%



Uses Top-income Database

Ours

Life-cycle inverted U-shape appears in all income measures – even though Pseudo and Personal income excludes retirement income



Need Income, Consumption and Wealth

- Workhorse Life-cycle model

$$\sum \beta^t \, \mathrm{U}(c_t, \alpha_t)$$

$$\textbf{s.t. } c_t + a_{t+1} \leq y_t + a_t(1 + r_t)$$

Hence

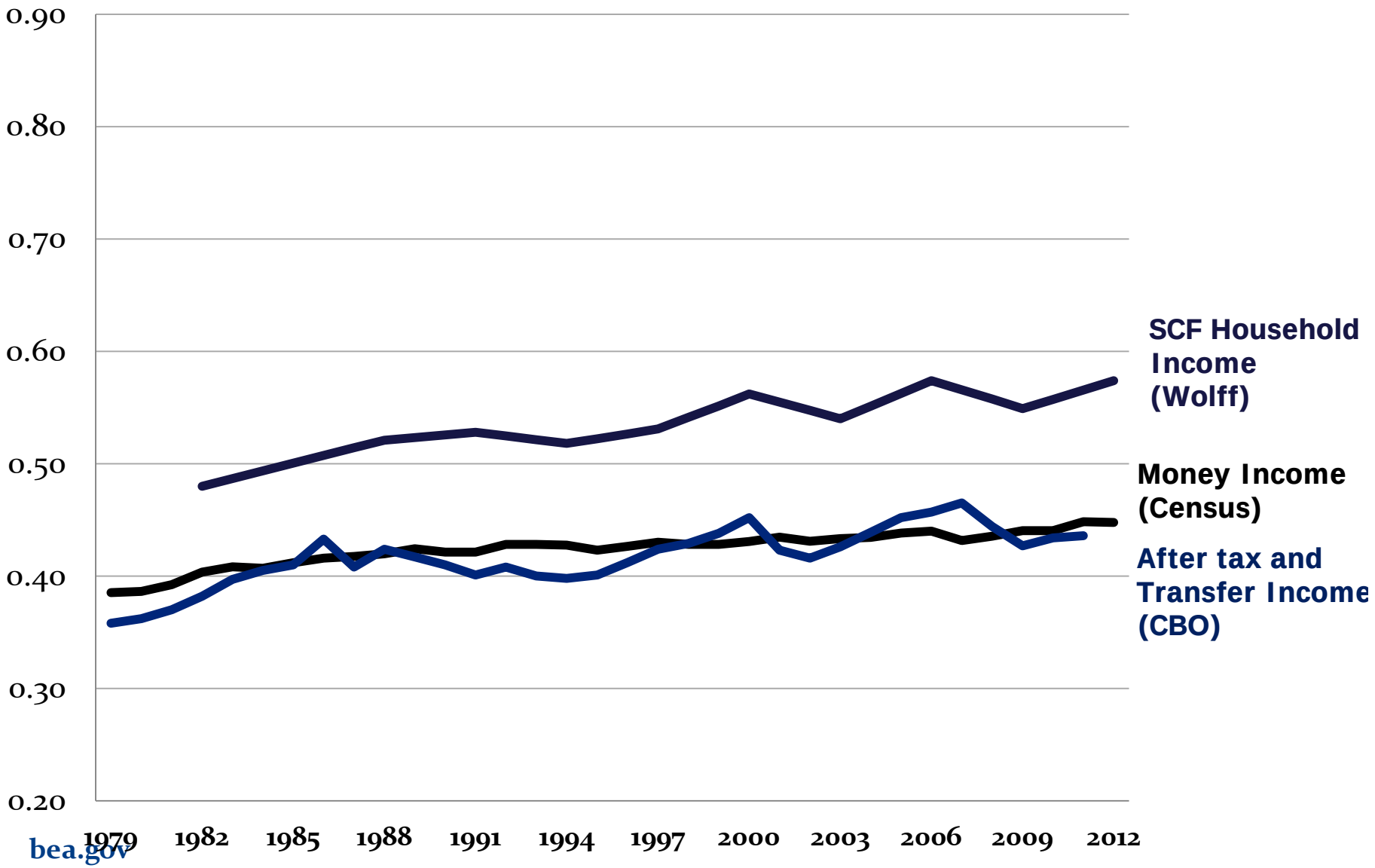
$$y_t = c_t + a_{t+1} - a_t(1 + r_t)$$

$$y_t = c_t + \Delta \mathrm{NW}$$

Y = C + ΔNW - Haig-Simons measure

  - If Y > C, W rises by saving or loaning
  - If Y < C, W falls by dissaving or borrowing
- Need a consistent measure of C, I and ΔNW.

Ginis for income, consumption and wealth



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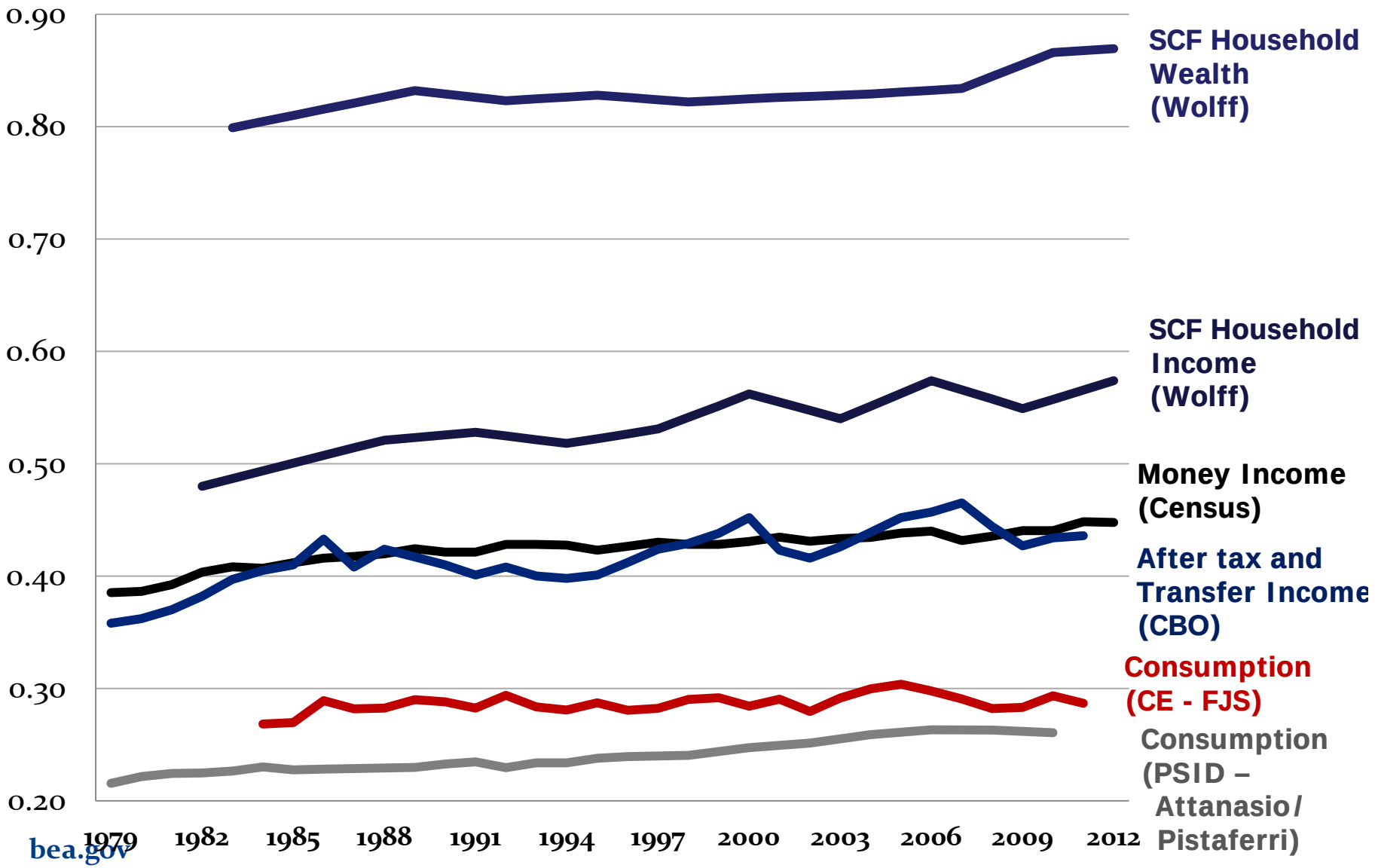
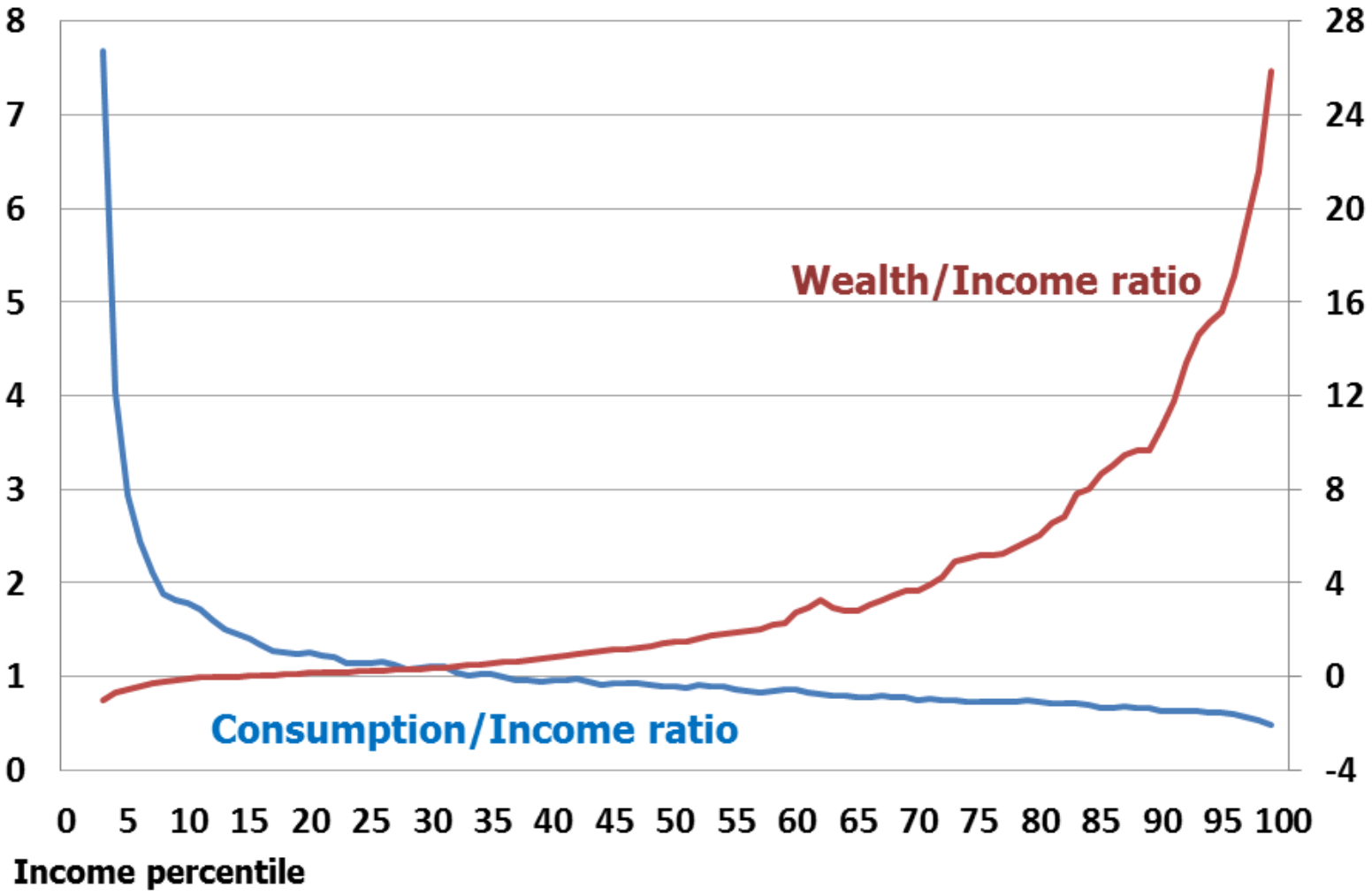
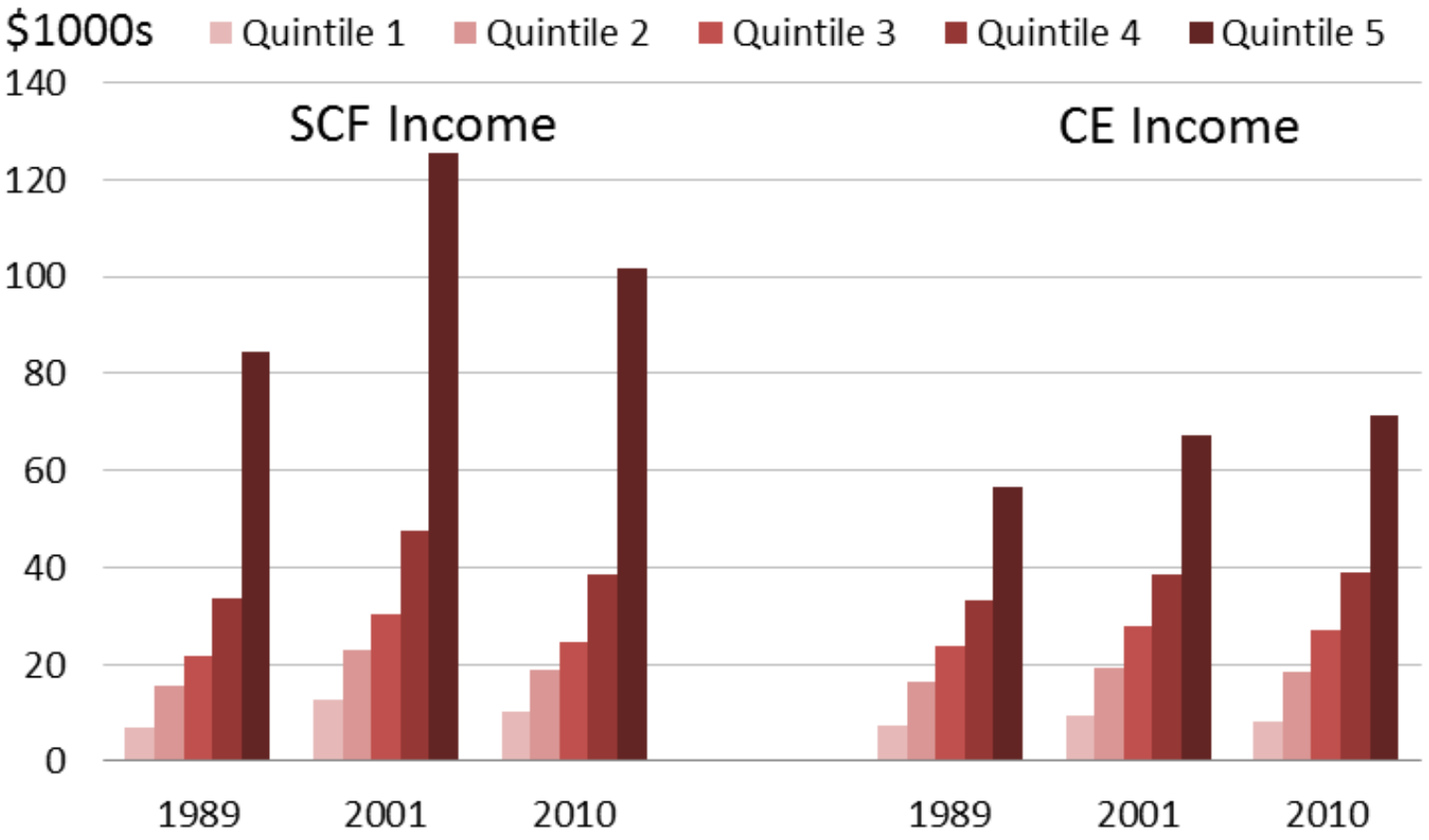


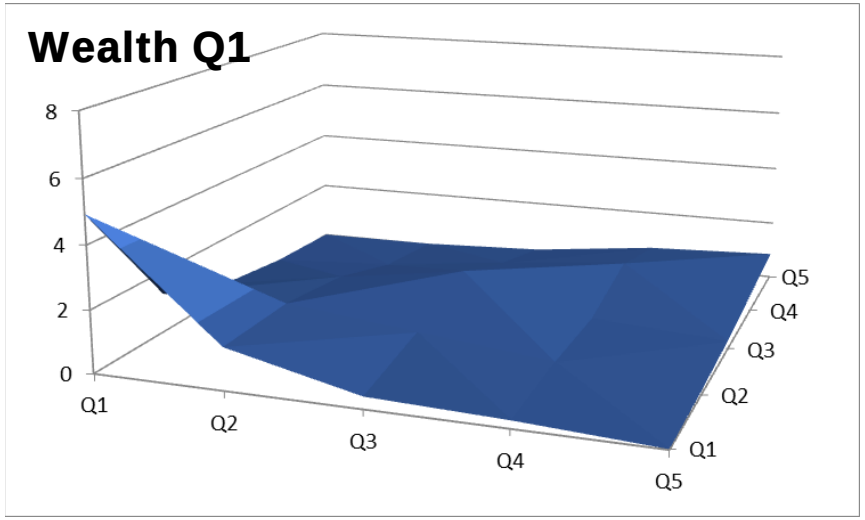
APC falls with income and wealth increases

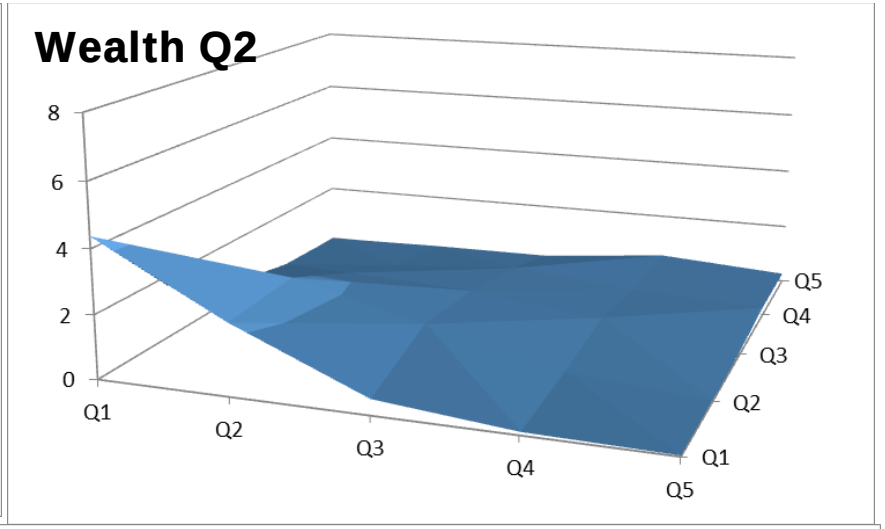


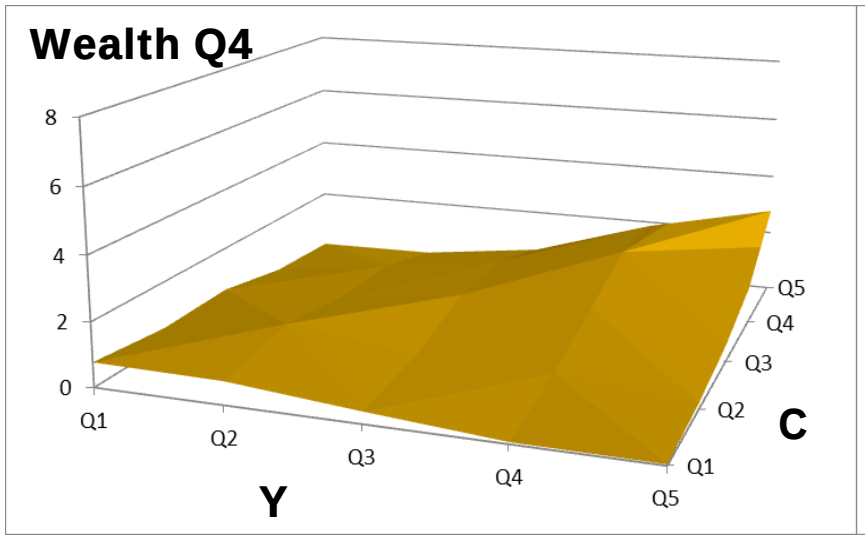
Survey Matters: CE and SCF income are similar except at the top

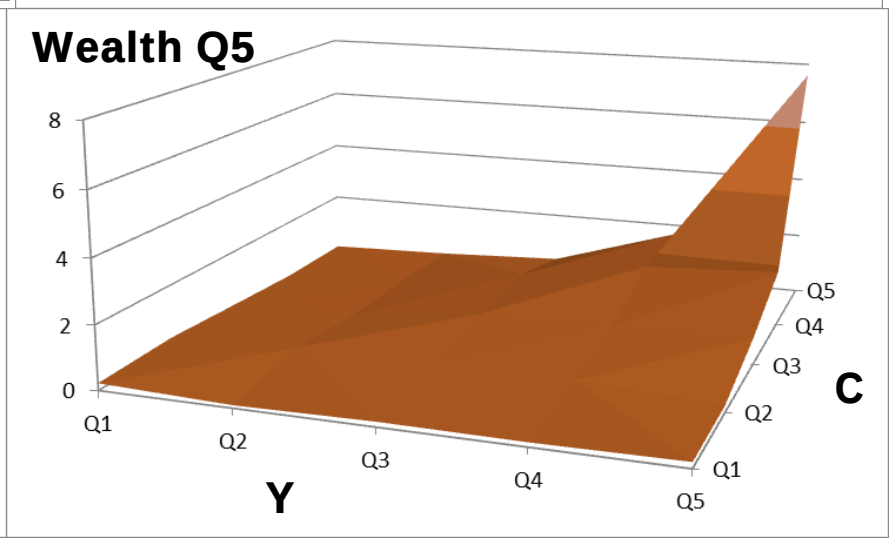


PSID transitions for all three – I, C, and W – 2011
Income quintile by Consumption quintile for Wealth quintile







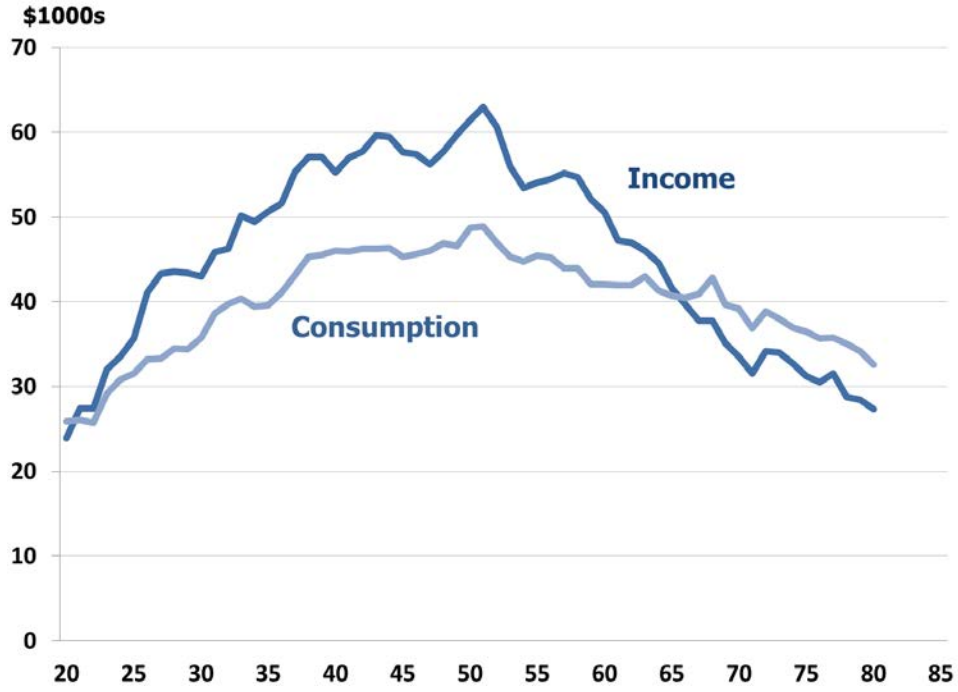


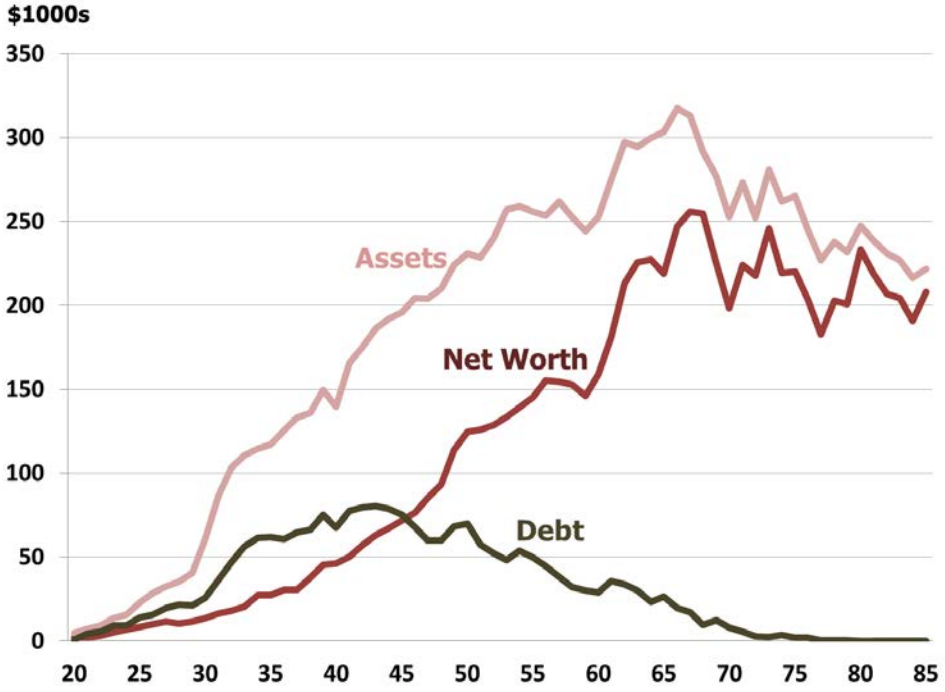
Issues and Future work

- Extend the estimates back to 1979
- Construct a distribution for PCE, and obtain the average propensities to consume
- Differential under-reporting -- scaling factors may be larger for higher income
- Improve the imputations and creation of synthetic data
- Compare to the distribution in the tax data
- Continue to evaluate income, consumption and wealth and link the distributions to the national accounting framework

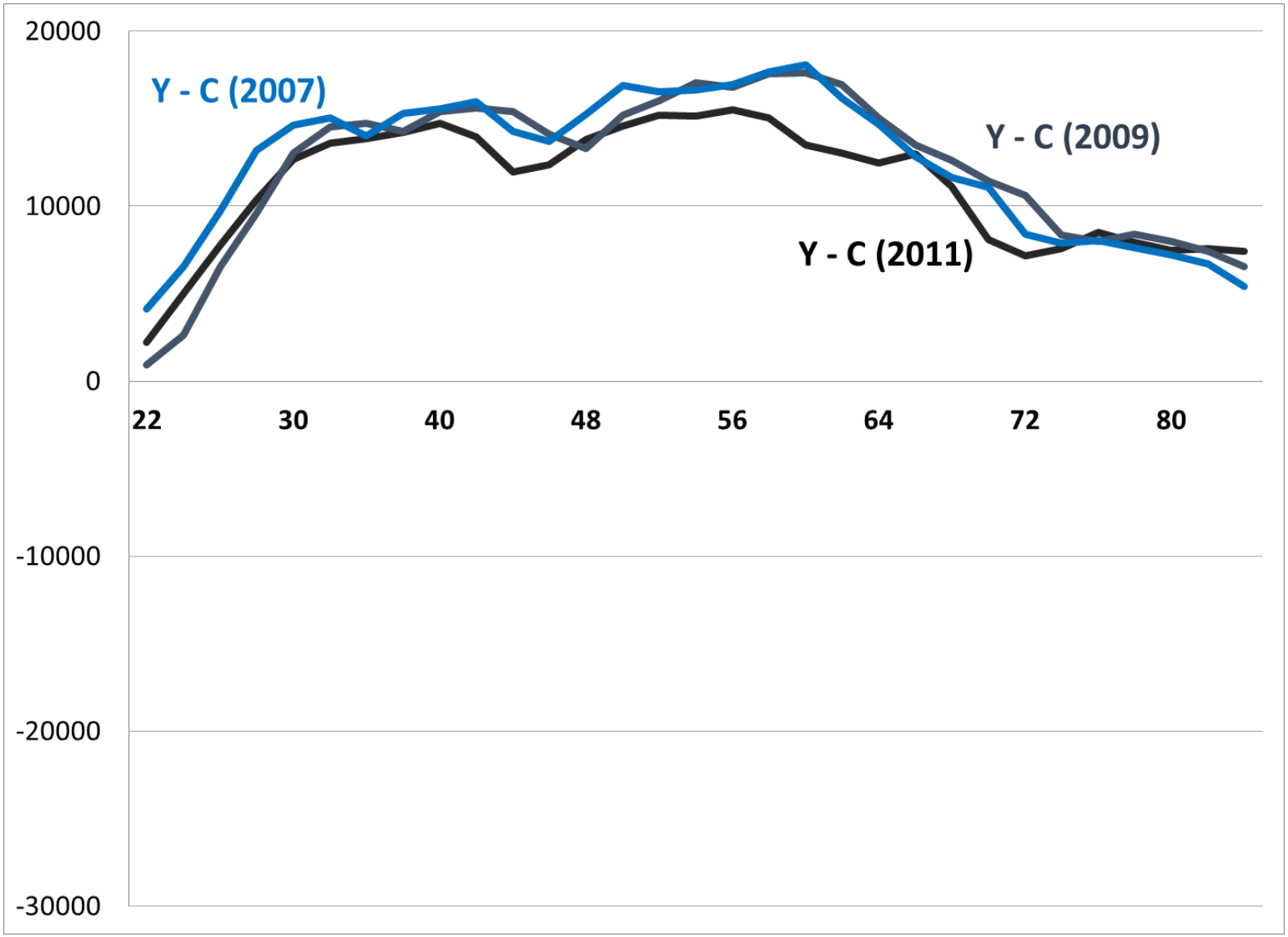
EXTRA SLIDES

Life-cycle changes in income, consumption and net worth mean





Does Y – C = ΔNW? by age



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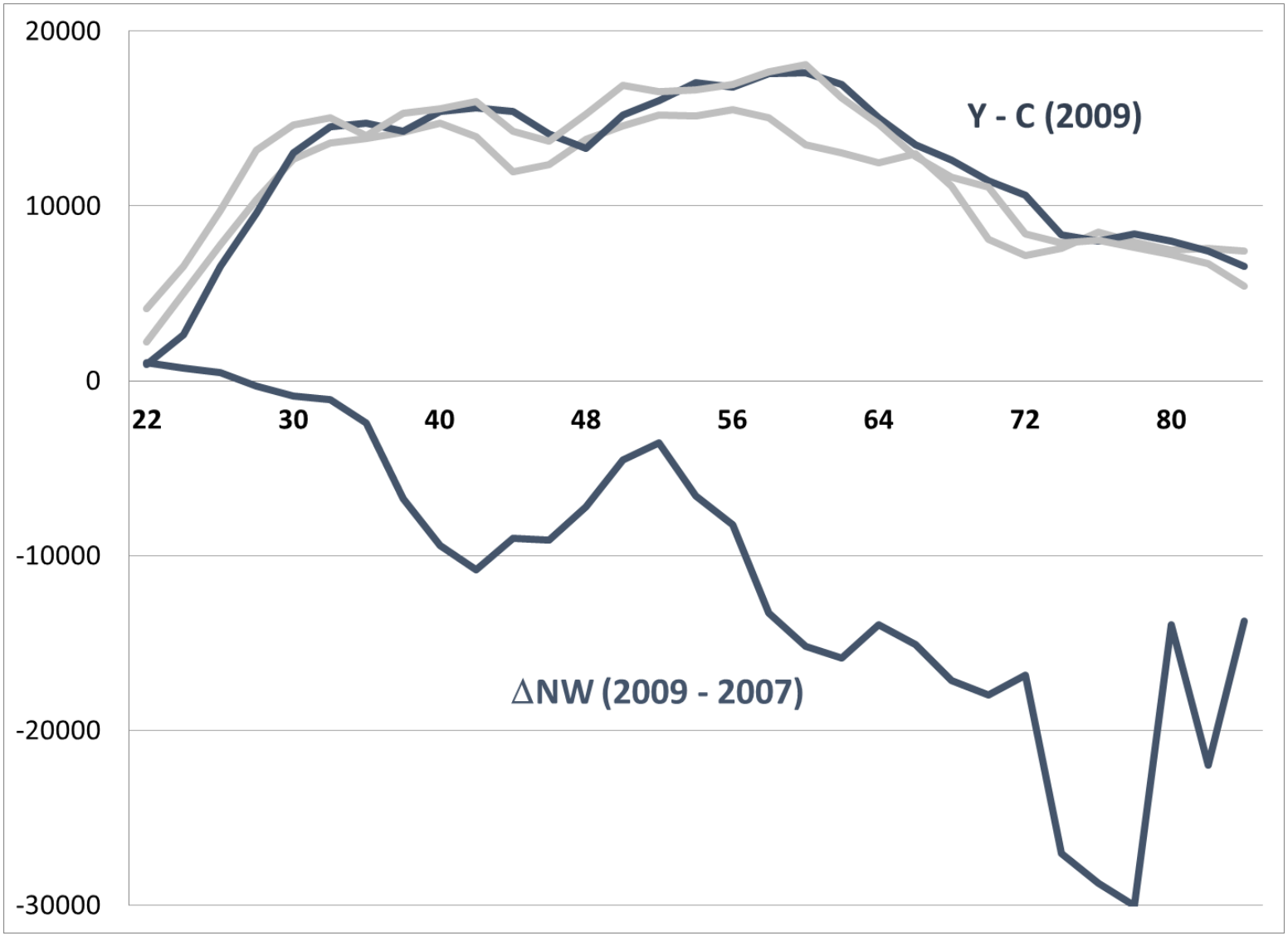

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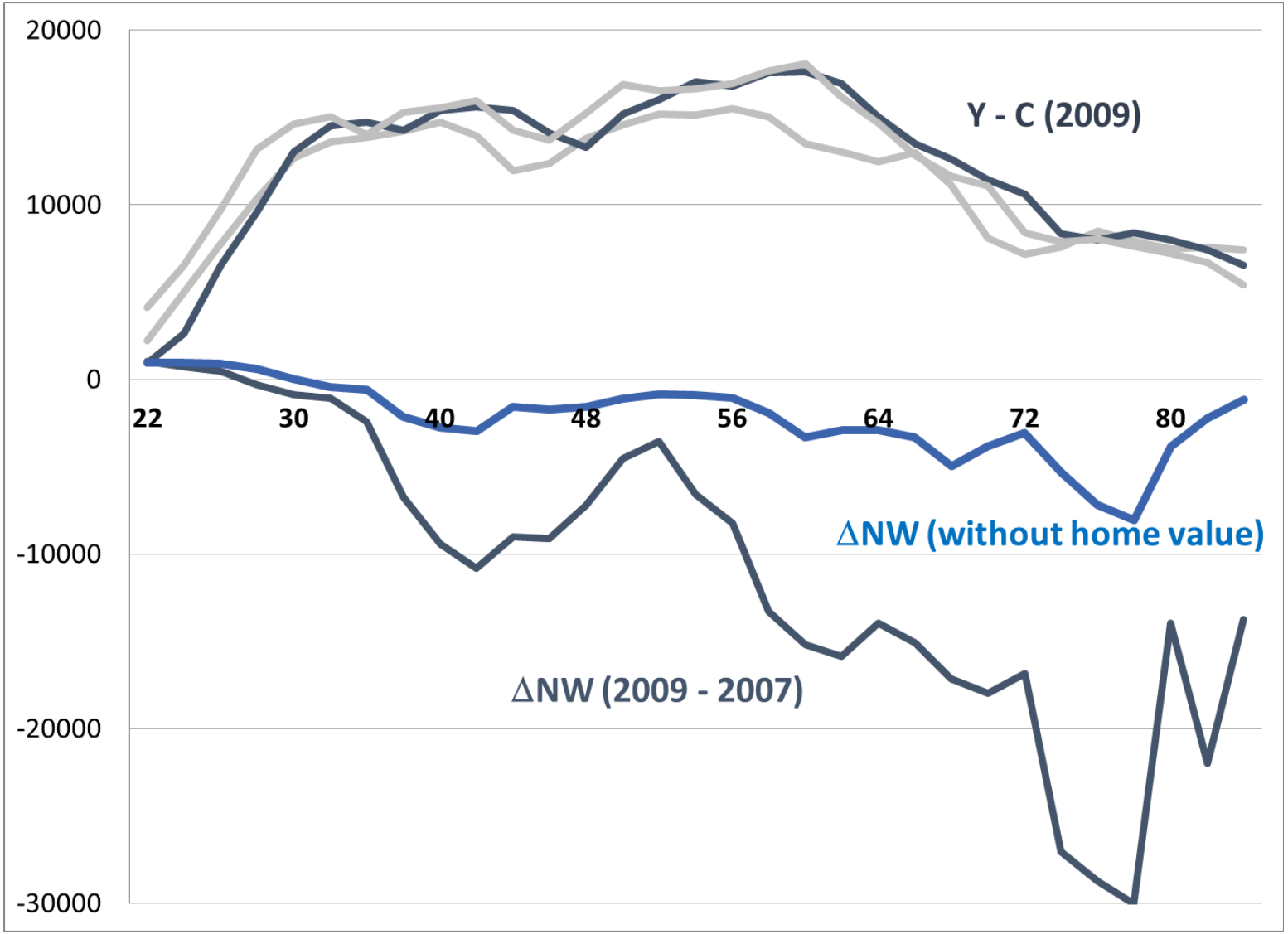
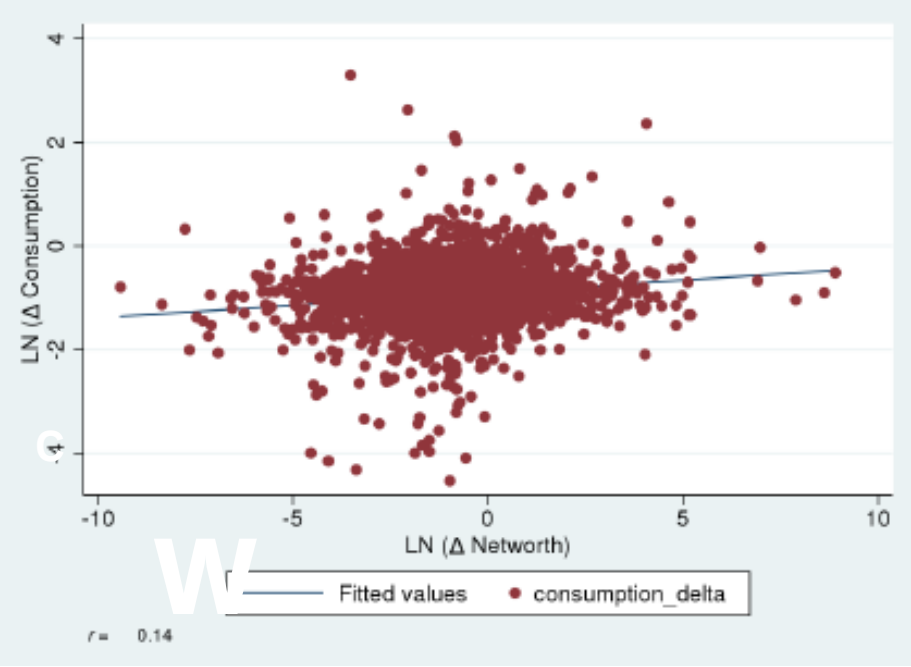
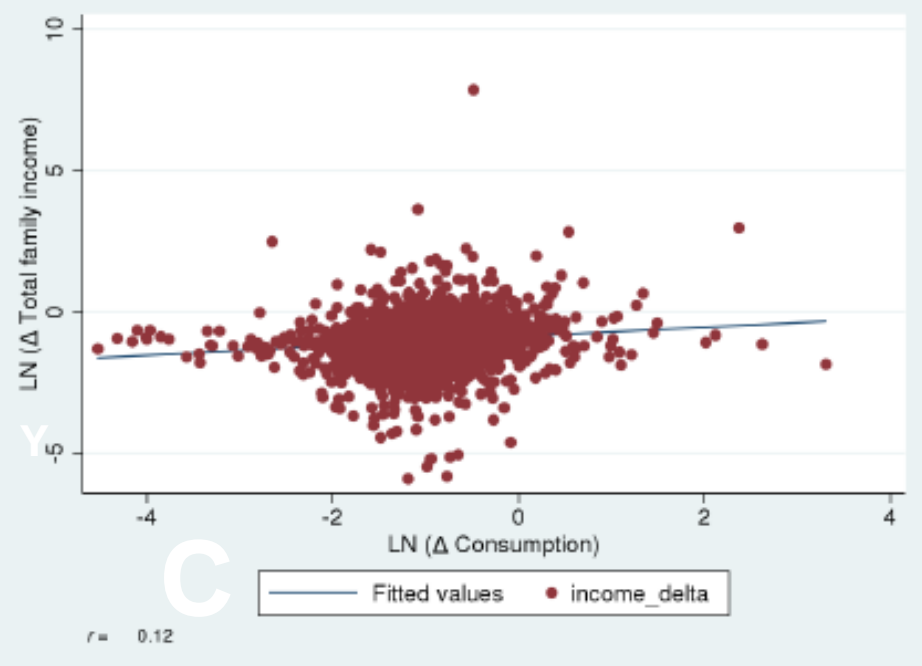


The change in Net Worth and income affect consumption





Comparing the absolute levels in wealth, income and consumption by quintile