

Improving the Consumer Expenditure Survey: A View from the Research Community

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Overview

- Chris Carroll will discuss
 - CE's role in constructing weights for the CPI
 - Use of non-CE data for improving CE measures
- John Sabelhaus will discuss (w/ input from Orazio Attanasio, Thomas Cossley, and Jon Parker)
 - Joint distribution of consumption and income
 - Deteriorating ratio of CE/NIPA totals
 - Using CE panel aspect to measure consumption responses to tax rebates and other shocks

Expenditure Weights and the CPI

- CPI: a “Principal Economic Indicator” (PEI)
- With great power comes great responsibility!
 - OMB Statistical Directive Number Three
 - Timing, etc of PEI’s
 - Requires ongoing comparison with external measures of accuracy, statistical rigor, etc; regular review of performance compared to benchmarks etc

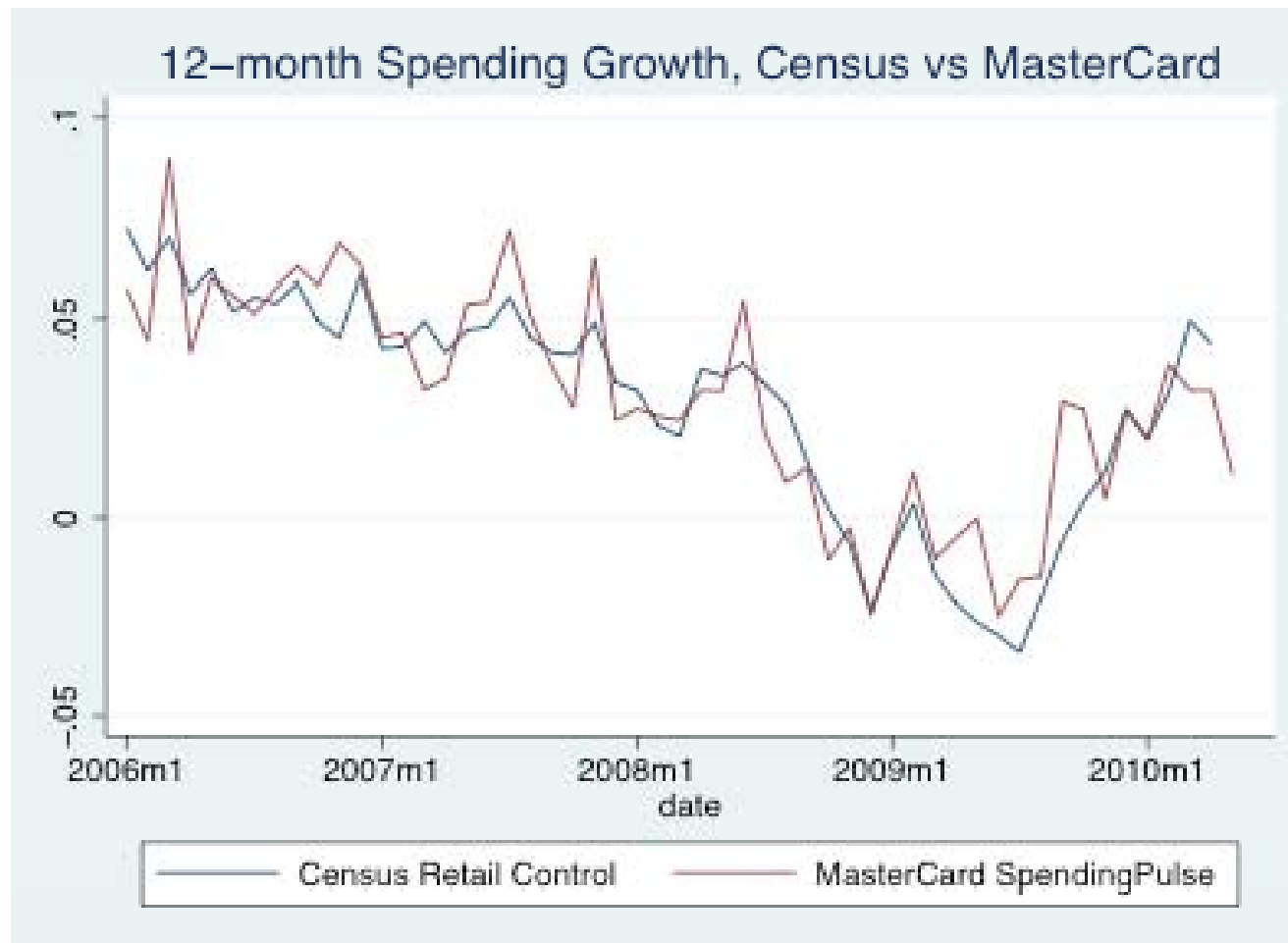
Charles Plosser

- Philly Fed President WSJ Interview (2010/04):
 - CPI substantially understates “true” inflation
 - Housing overweighted
 - Falling housing prices, rents drag down CPI too much
 - If Fed believes “true” inflation higher, might tighten
 - Does it matter if it’s true?
 - No: Point is that doubts about CE weights are serious
 - Yes: If housing weights wrong, others also wrong, we are mismeasuring inflation

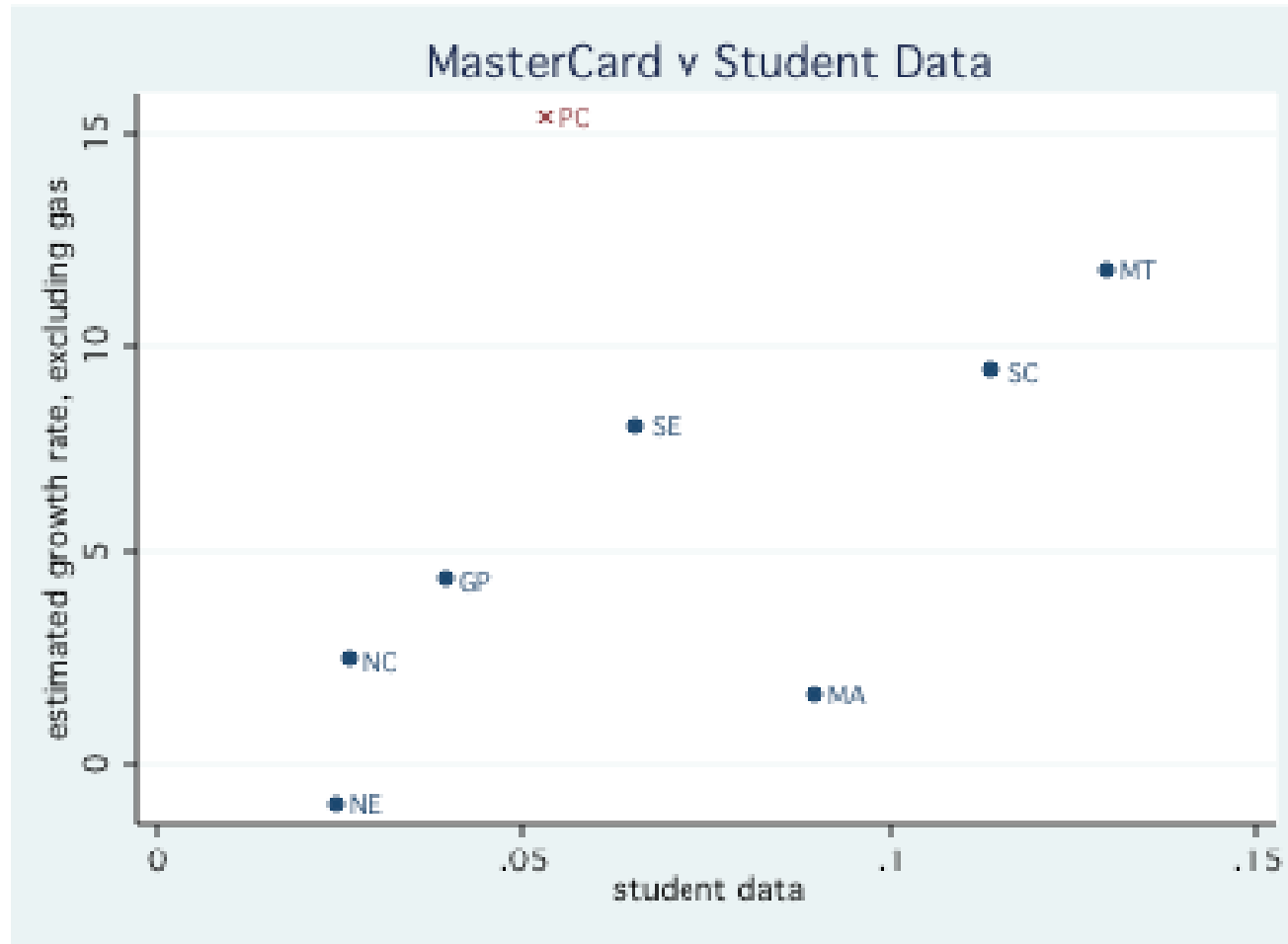
How To Fix?

- Unless CE data validated by multiple external sources, credibility will always be under fire
- Pick measures of greatest importance
- For CPI expenditure weights, natural external metric is PCE expenditure weights
- PCE weights derived from Census Retail Sales

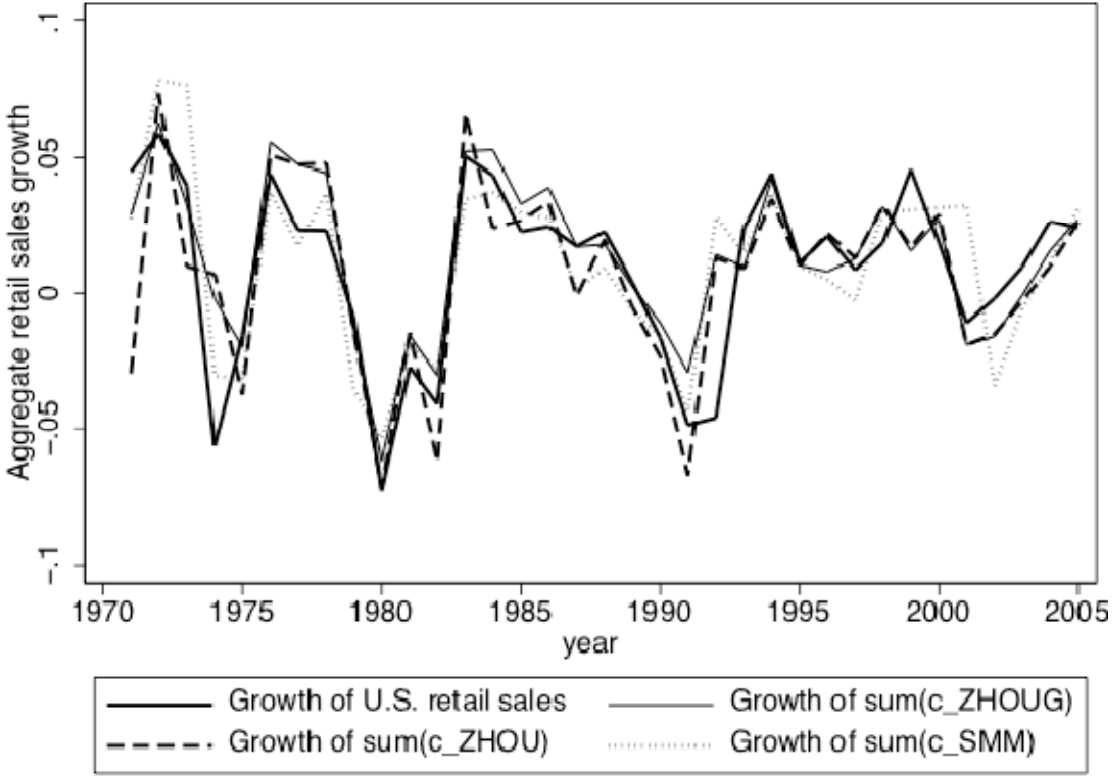
Retail Sales vs Alternatives



Regional Growth Rates, 2006



Census vs State-Level Tax Data



Implications of CPI Weighting

- For macro policymakers, CPI credibility means credibility about expenditure weights
- Natural external measure is BEA's PCE derived from Census Retail Sales data

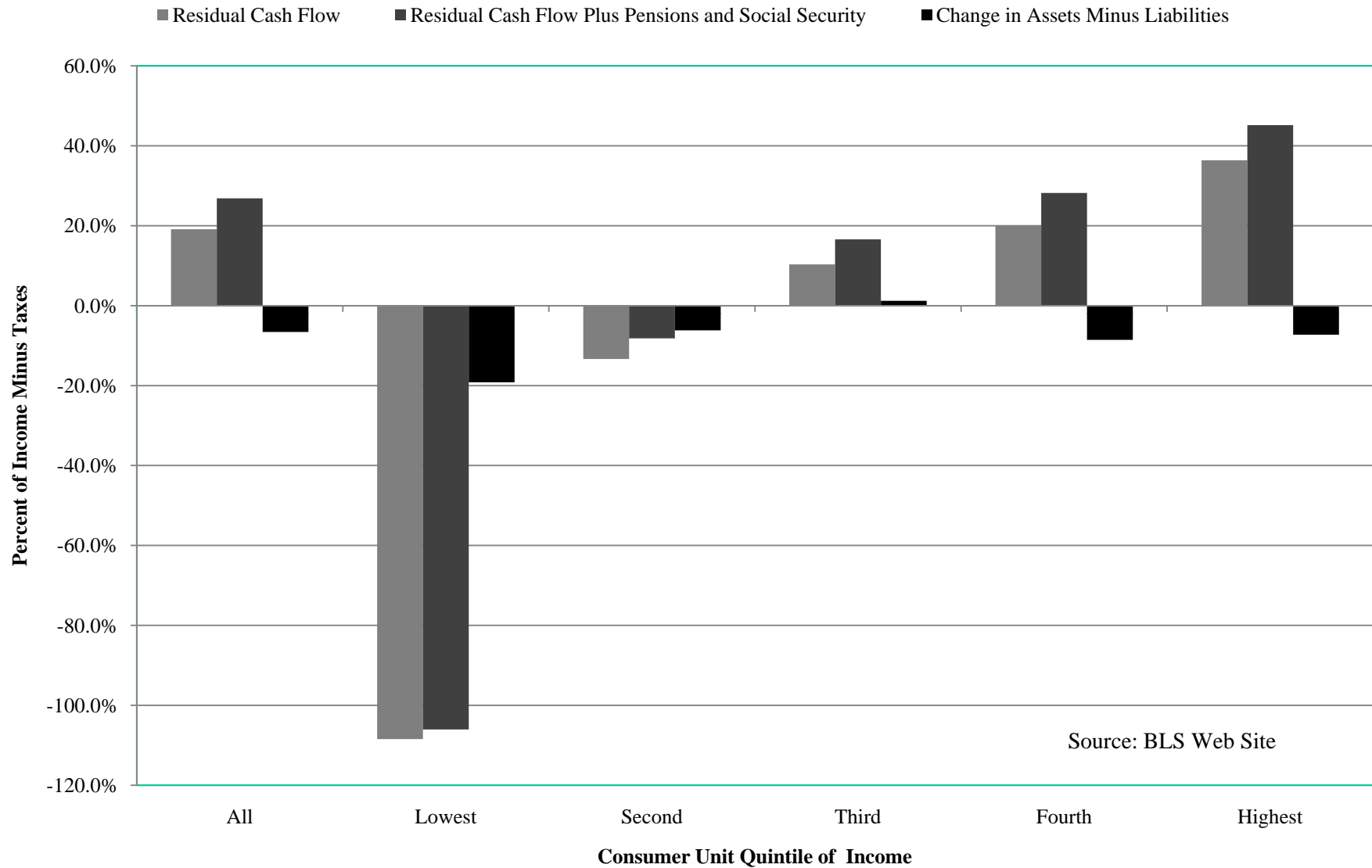
The Joint Distribution of Consumption and Income

- Many CE research questions are based directly on the joint distribution of consumption and income
 - Saving rates across groups and time
 - Distribution of income versus consumption taxes
 - Alternative measures of economic well-being
- Three ways to measure ‘saving’ using CE
 - (1) Income minus taxes minus expenditures
 - (2) Same as (1), but exclude Social Security and pension contributions from expenditures
 - (3) Change in assets minus change in liabilities

Joint Distribution of C/Y, Cont

- Analysis here based on published BLS tables with spending by earnings quintile. BLS tables combine interview and diary to measure spending
- What follows is based on means by income quintile; same results show up at household level (forthcoming book by Attanasio, Battistin, Padula)
- In other words: outliers within quintiles (like a few very high spenders in the low income groups) are not what's driving the results

Figure 1. Cross Section Net Cash Flows as a Percent of Disposable Income, 2008 Consumer Expenditure Survey



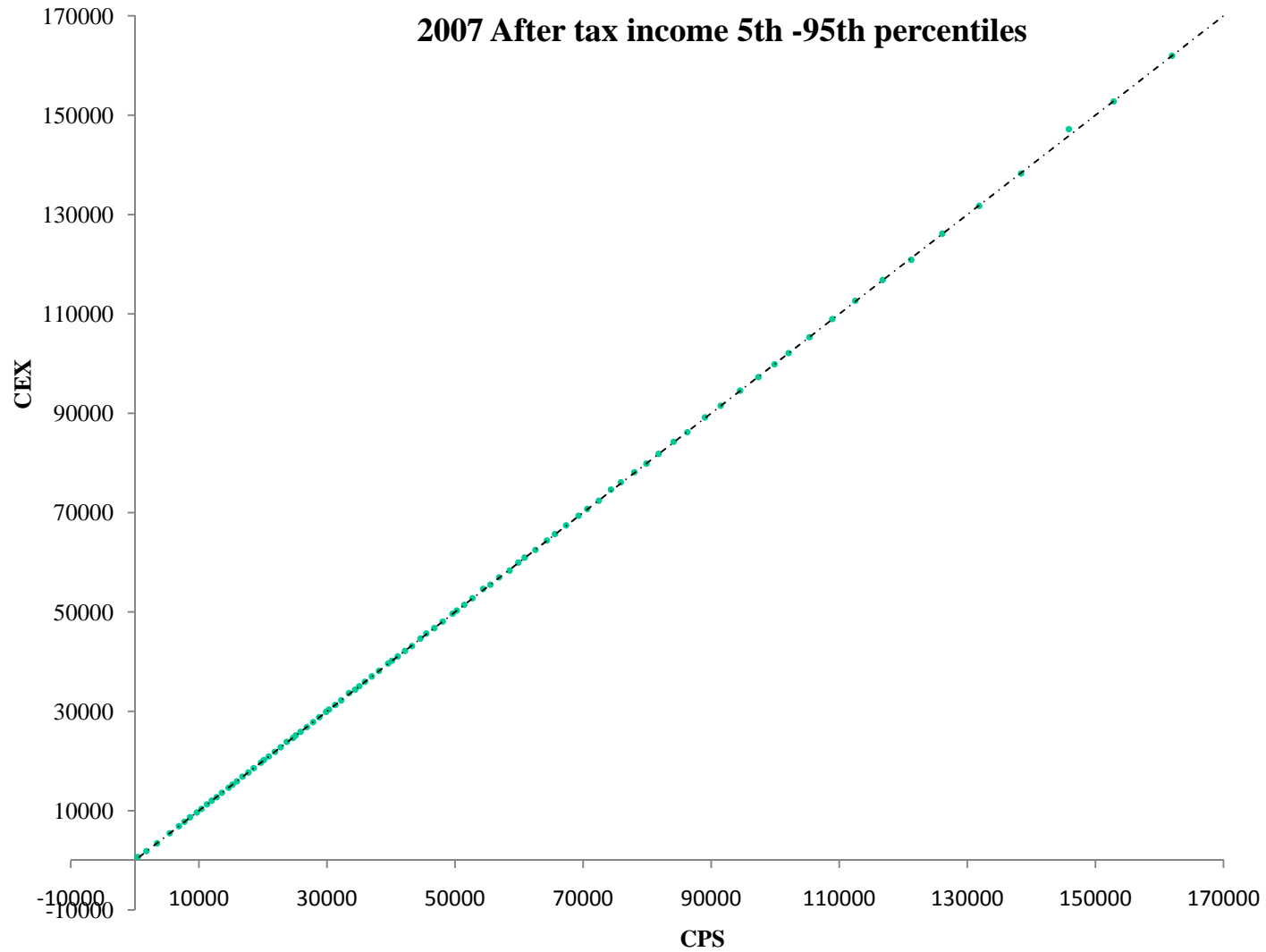
Reconciling C/Y by Income

- Theory: saving should increase w/income...
 - People “smooth” temporary income fluctuations; some households in bottom quintile this year usually have higher earnings
 - Life cycle patterns; households save when middle aged/income is high, spend down assets when retired/income is low
- But theory cannot explain the magnitudes...
 - Income variability exists, but is simply not large enough
 - SCF ratio of debt to income in bottom quintile is 13.5%; only 25% in bottom quintile even have credit cards, median balance \$1,000
 - SCF wealth to income ratios for top quintile would be much higher if they really saved 40% on average

Realistic Explanations

- Systematic under-reporting of consumption due to cognitive and time burdens; varies by category but overall C/Y way too low
- Also some under-reporting of income; those households (by construction) in bottom quintile
 - If true, survey-based income statistics may be biased, because CE incomes match CPS for all but highest
- Some support for this from Canadian Survey of Household Spending “balance edit” natural experiment

Income Distributions in CE and CPS



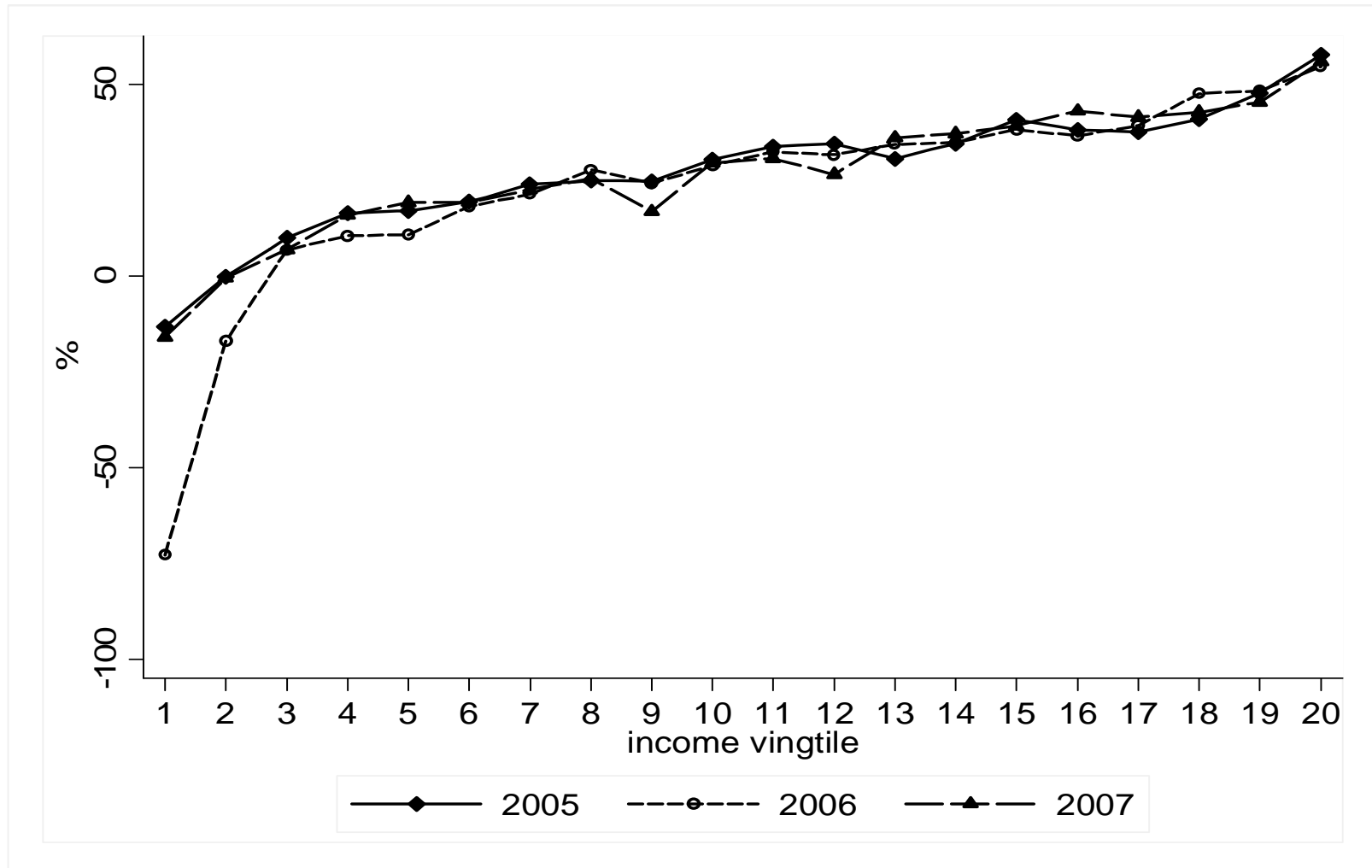
Balance Edit in the Canadian Survey of Household Spending

- Canadian household budget survey based on recall, conducted by face-to-face interviews. Until 2006, field recording using paper and pencil.
- Field methodology included a data quality control measure called the “balance edit”; identified households where expenditure was more than 20% different from income + asset changes.
- The interviewer was instructed to try to collect additional information from such households in order to balance expenditure with income and changes in assets within 15%.
- At the processing stage, household records that were still “out of balance” (more than 20%) were deemed unusable. Because the edit was conducted in the field, it was not possible to examine the effect of the edit in detail, although Statistics Canada reported that most of the adjustment was to income and asset changes.

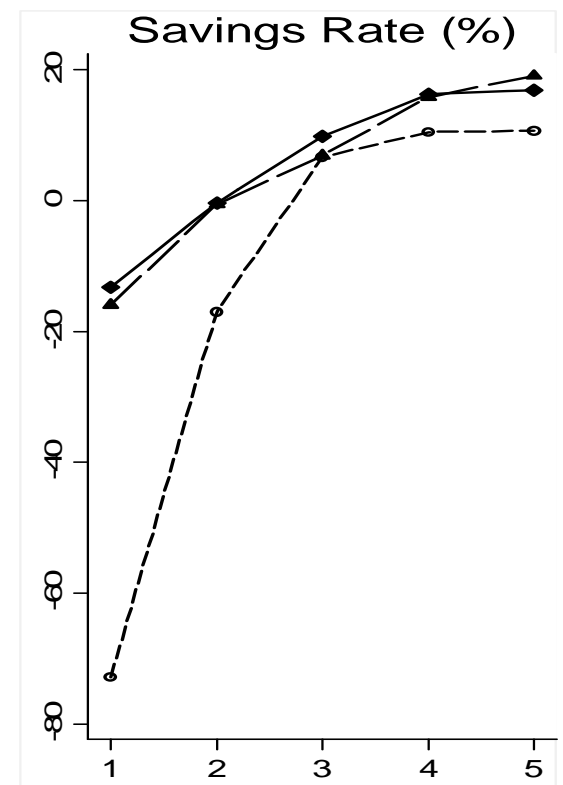
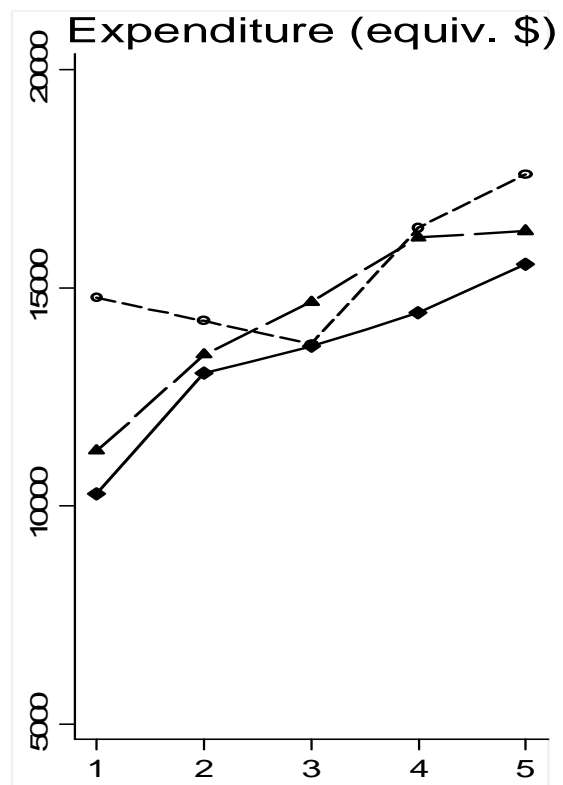
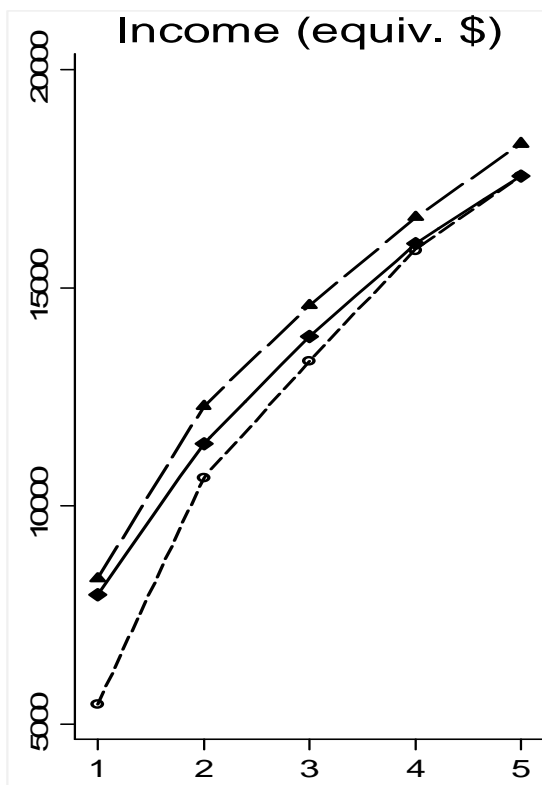
Balance Edit in the Canadian Survey of Household Spending (Cont.)

- In 2006, Statistics Canada adopted CAPI for the household budget survey (the Survey of Household Spending. In this first year of CAPI, the balance edit was not applied.
- Without the field balance edit, the number of unbalanced (>20%) records increased from 546 in 2005 to 4,300 (29.4% of completed questionnaires.) Statistics Canada decided it could not discard this many records so unbalanced records included.
- The balance edit was reintroduced (within CAPI) in 2007. Thus it is possible to infer something about the effect of the balance edit by comparing 2006 data with data from 2005 and 2007. (In following slides, 2006 (no balance edit) is the line with open dots.)

Effect of the Balance Edit, Saving Rate



Effect of the Balance Edit, First 5 Vingtiles



—◆— 2005 - - -○- - - 2006 - -▲- - 2007

Implications of C/Y Measurement Errors

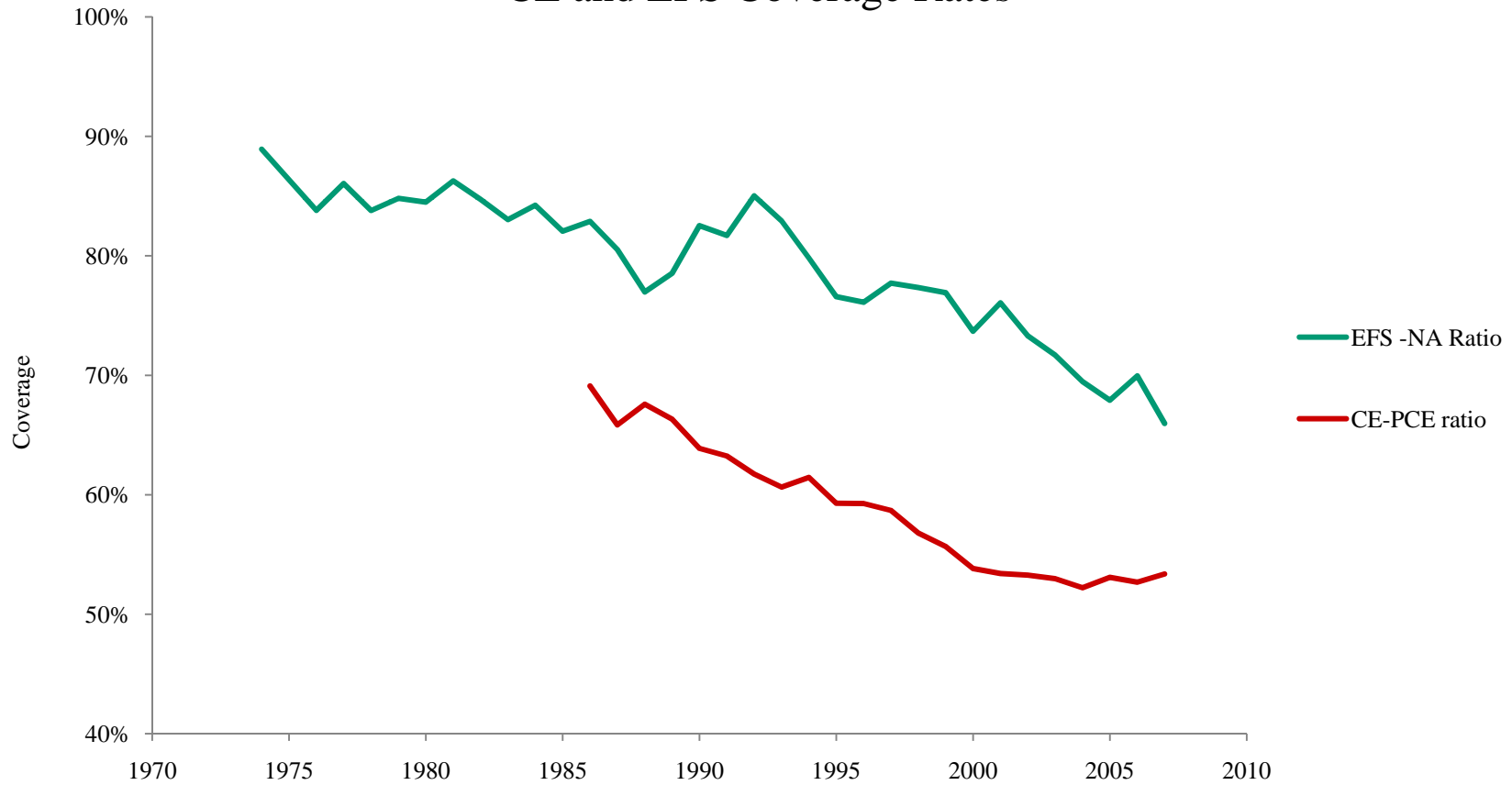
- We don't know how saving varies with income; analysis of changes over time/groups is suspect
- We don't know how tax burdens would change under a consumption tax; but patterns of C/Y by Y in CE data is still used in distributional analysis
- We can't evaluate alternatives to CPS incomes when measuring economic well-being across groups and time

Trends in CE/NIPA Aggregates

- Attanasio/Crossley analysis confirms BLS and other studies; ratio of CE total spending to NIPA aggregate measure has fallen steadily
- Also shows that U.K. EFS survey experienced same decline, and response rates have fallen over time as well

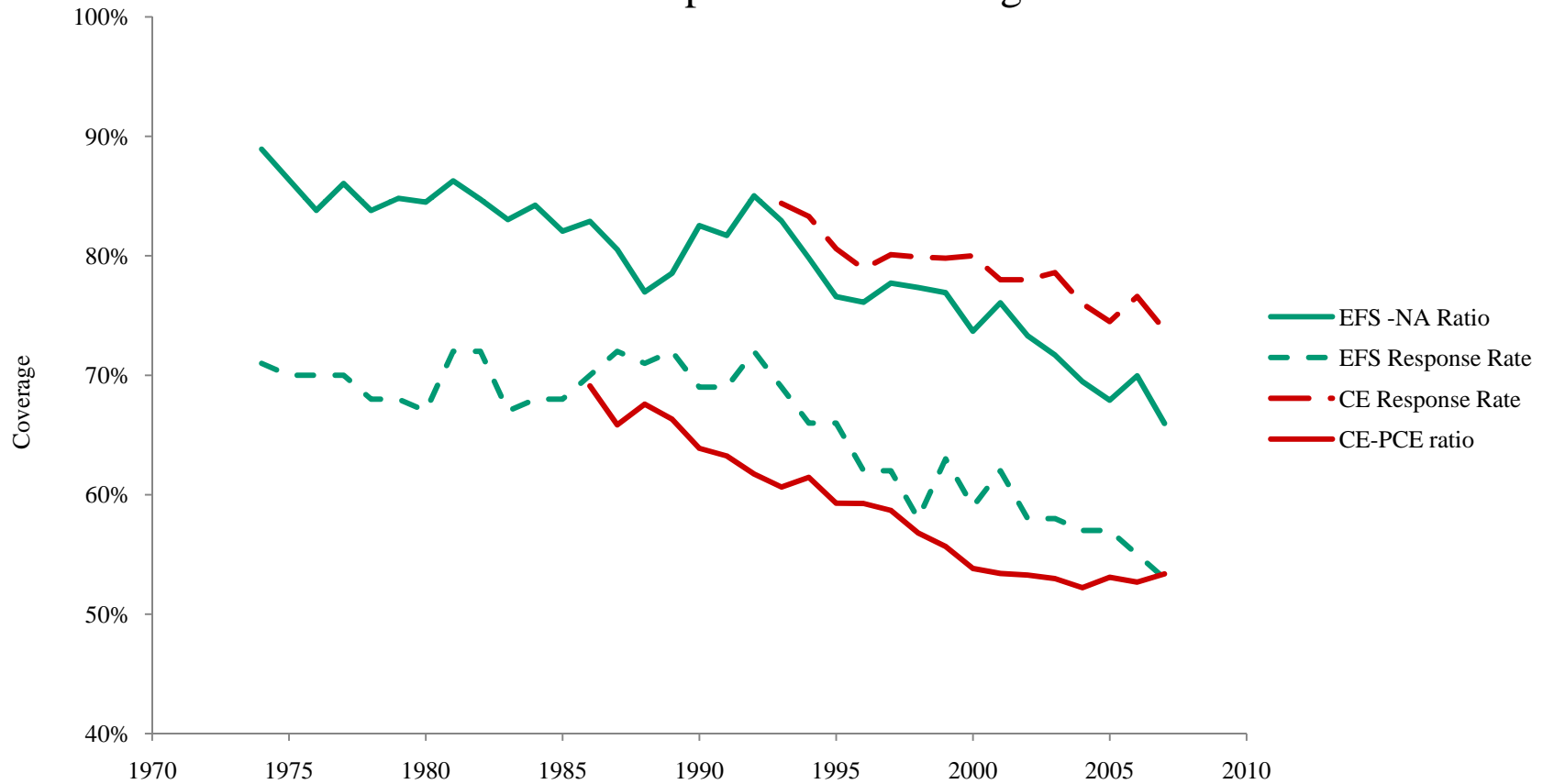
Ratio to National Accounts in US and UK

CE and EFS Coverage Rates



Ratio to National Accounts and Response Rates in US and UK

CE and EFS Response and Coverage Rates



Possible Explanations for the Decline

- CE sample is becoming less representative of higher-income households over time
- Composition of spending is shifting towards harder to measure goods and services
- Measuring any given spending category in a survey setting has become more difficult (payment methods changed; people less willing to answer the question well)

Explaining the Aggregate Trends

- Probably some combination of the three explanations, sorting it out should be a focal point for the CE redesign process
- Mixed evidence (comparing to CPS) on whether CE representativeness is worse
 - Sample characteristics seem to match CPS
 - Trend analysis on total incomes limited because CE began imputing missing income post-2000

Figure 2. Ratio of Average Income in the Consumer Expenditure Survey to Average Income in Current Population Survey by Quintile

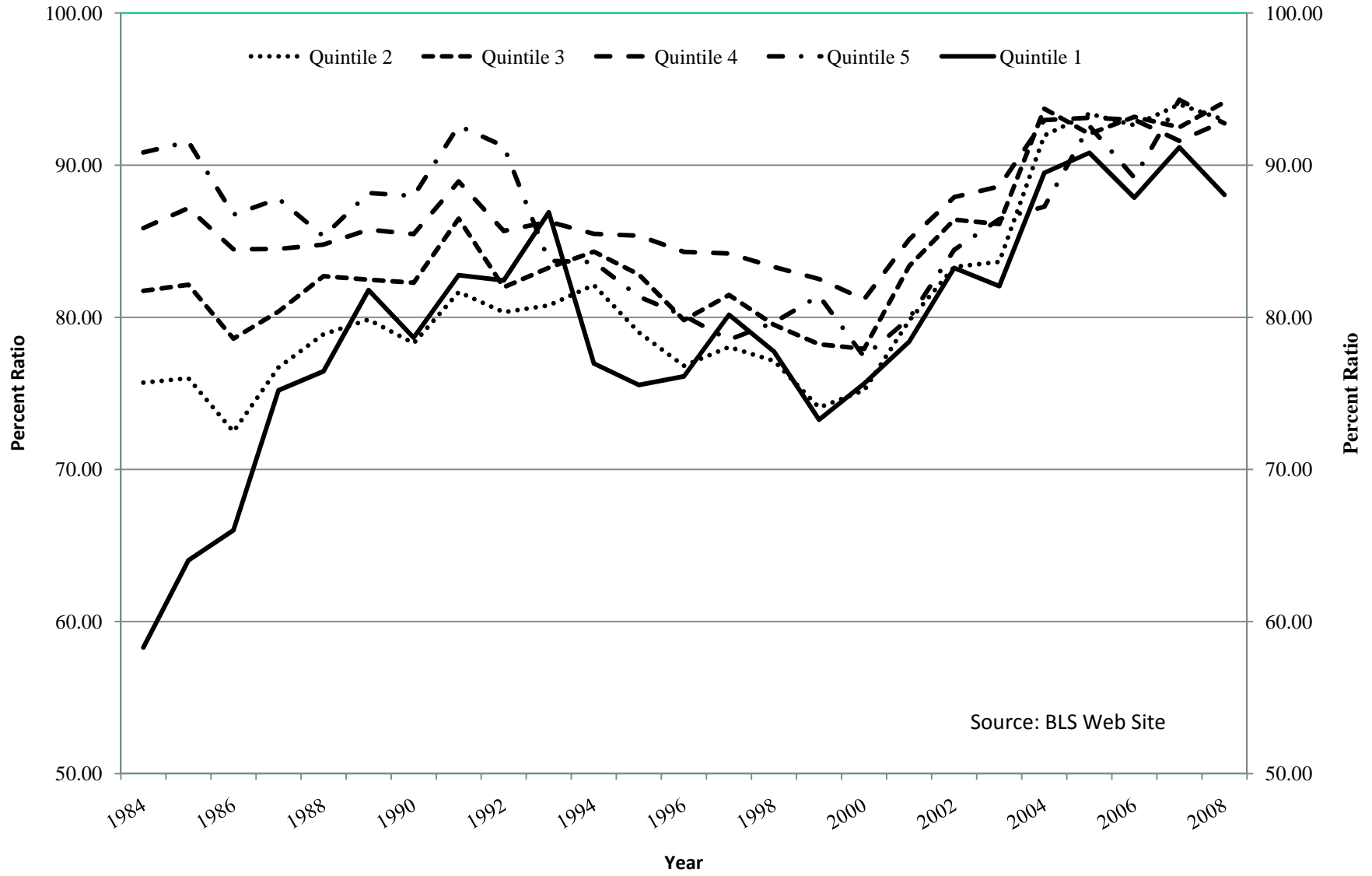


Figure 3. Ratio of Average Expenditure to Average Income in the Consumer Expenditure Survey by Quintile

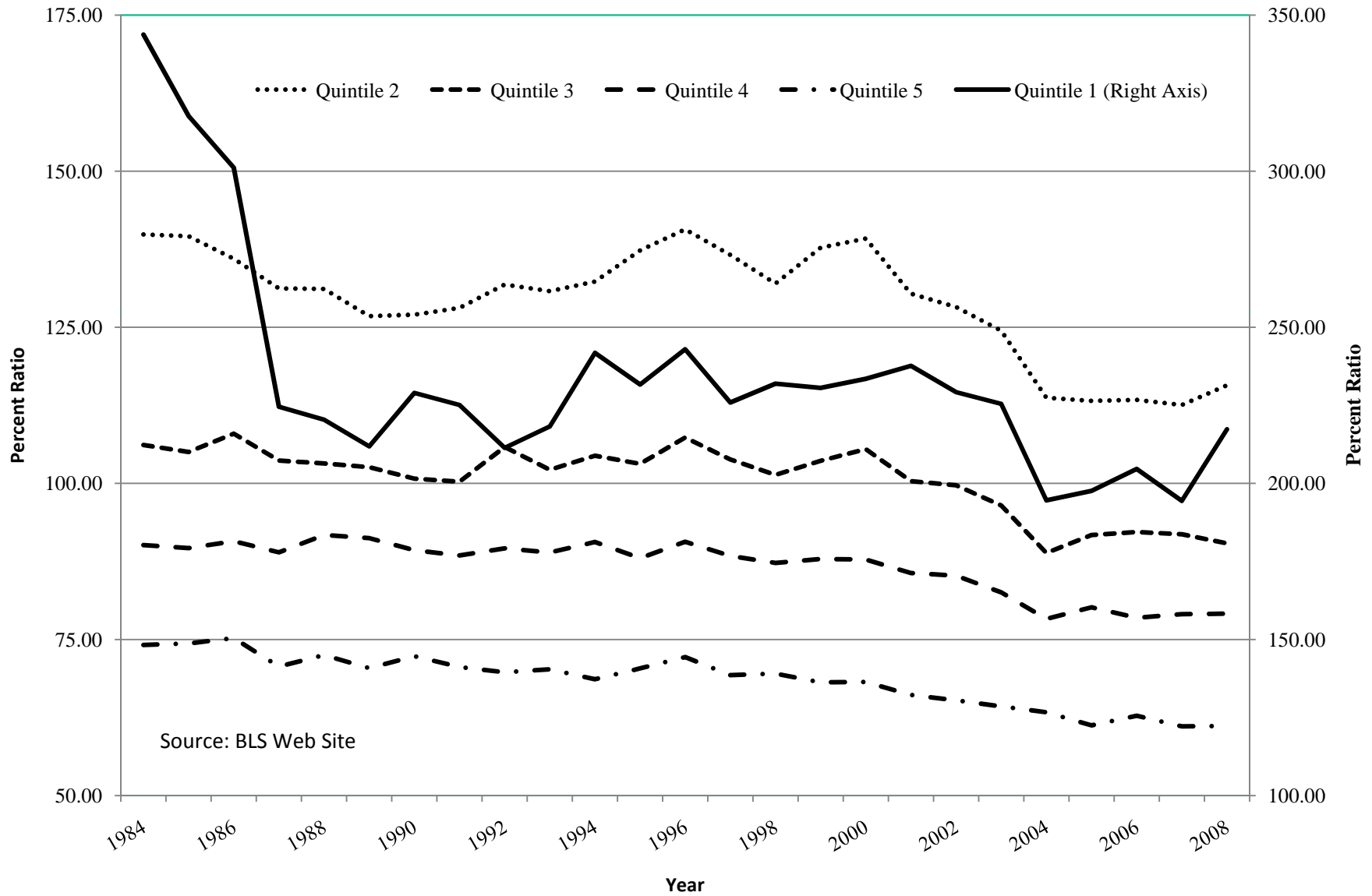
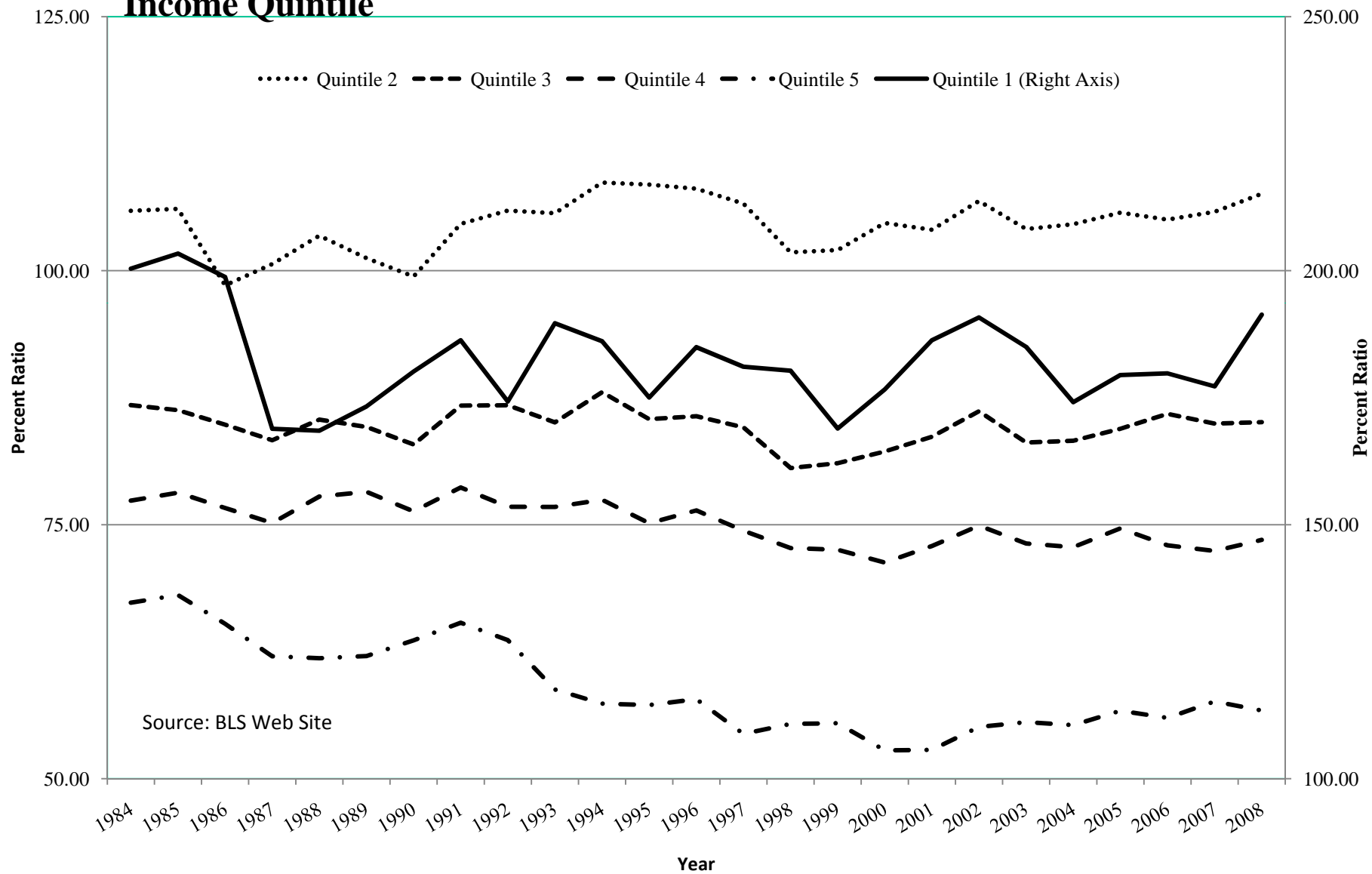


Figure 4. Ratio of Average Expenditure in Consumer Expenditure Survey to Average Income in the Current Population Survey by Income Quintile



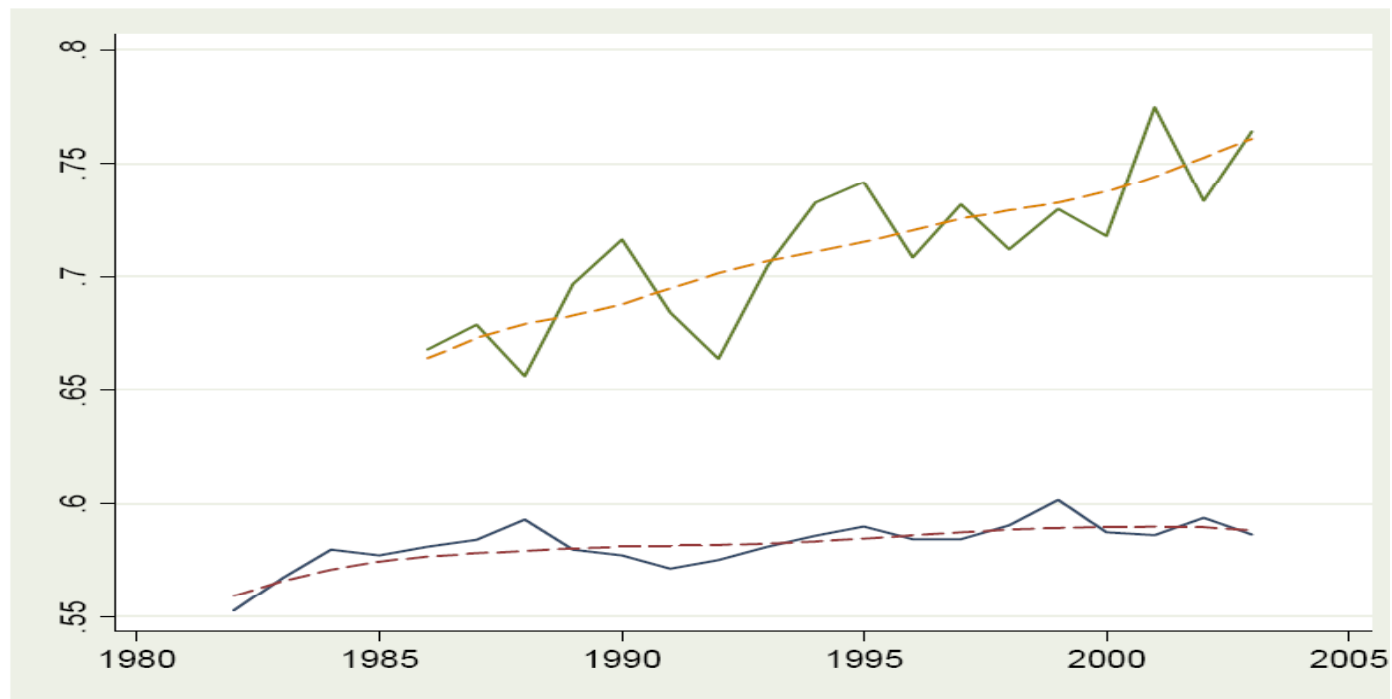
Implications of Trends

- Income imputations make it look like all groups are saving more (C/Y is lower) post 2000
- Concerns about the joint distribution of C/Y have not changed (in fact, existed in 1972-73 as well)
 - CE spending relative to CPS income suggests collection always problematic, only trend is in quintile five
 - Supports increasingly unrepresentative sample idea
- Lack of resolution means analysis of (for example) trends in spending inequality are suspect

Trends in Inequality

Figure 1.

Non-durable consumption inequality from the interview and the diary survey



Note: the figure plots the time evolution of the coefficient of variation of non-durable consumption as measured in the CEX Diary and in the Interview Survey. The dashed lines are obtained by a locally weighted regression on a linear time trend.

Source: Attanasio, Battistin, Padula, 2009

Consumption Change in CE Panel

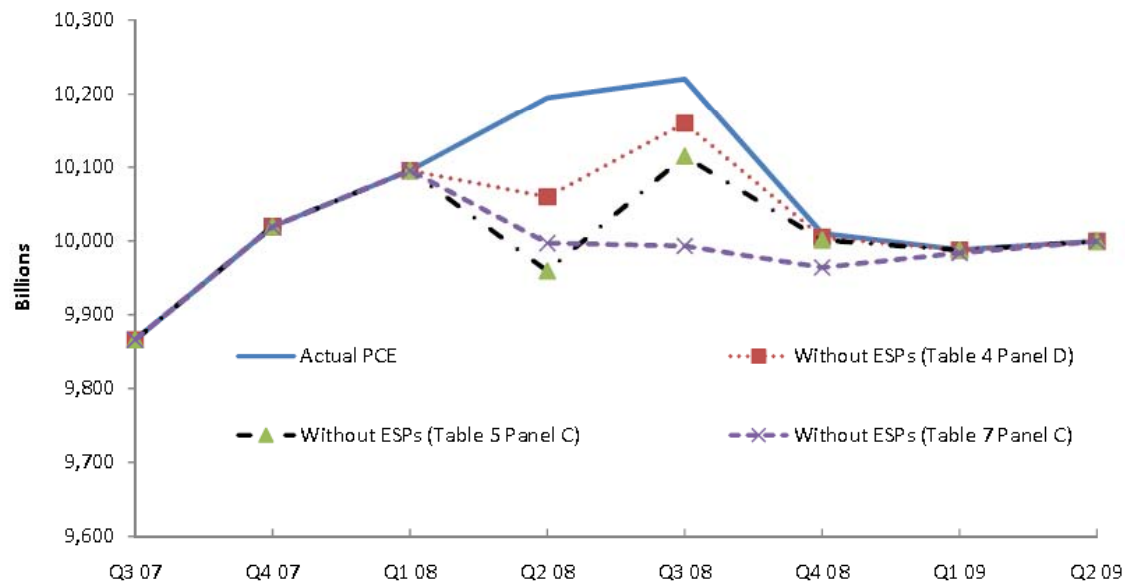
- Many uses for panel dimension of CE—quarterly growth variability is interesting in its own right, but also response of consumption to various types of shocks (especially policy changes)
- One example is the efficacy of fiscal stimulus in increasing consumption in times of recession (and when monetary policy is constrained by the zero lower bound)

To What Extent Do Tax Rebates Stimulate Consumption Demand?

- Much recent information from CE in papers: Parker (1999); Souleles (1999, 2002); Barrow, McGranahan (2000); Hsieh (2003); Stephens (2003); Johnson, Parker, Souleles (2006); Johnson, Parker, Souleles (2009); Parker, Souleles, Johnson, McClelland (2010)
- PSJM (2010):
 - look at change in CE three-month spending for a household when receive Economic Stimulus Payment (ESP)
 - compare among households that received at *randomly* different times
 - identifies effect on consumer demand of receipt of ESP
 - CE shows, in three months of arrival of check:
 - 31 percent of ESP spent on broad nondurables (SE: 11 %)*
 - 91 percent of ESP spent (extra mostly new cars) (SE: 34 %)*

Estimated Impact of Economic Stimulus Payment (ESP)

Figure 1: Actual aggregate personal consumption expenditures and alternatives



Notes: Alternative scenarios subtract only the direct effect of the stimulus payments on spending. The aggregate effect is calculated by applying the estimated average share of stimulus payments spent to the actual monthly time series of payments. We assume that the measured contemporaneous share spent is spent evenly over the month of receipt and the subsequent month, and that any lagged spending occurs evenly over the following three months.

How to Study Effect of Tax Rebates?

- JPS (2006/2009) and PSJM (2010) use special questions added to CE
- In 2001, BLS added questions rapidly in response to legislation authorizing rebate payments to households
 - generally within scope of CE mission in that measures income
 - but really more generally of use to policymakers, social scientists, . . .
- In 2008, BLS also added subjective questions about *what spent money on* -- big step for CE as serving broader mission and doing greater good
- Alternative data has also proved very useful in addressing key questions: credit card data and Homescan data
 - CE data analysis has large statistical uncertainty despite sample size due to poor measurement of **total/broad-category** spending