Improving the Measurement of Household-Level Spending and Income

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Background

- Consumer Expenditure Survey (CE): principal U.S. micro data set with household-level spending and income
  - Survey design dates from late 1970s

- CE redesign now underway at BLS
  - Primary focus: Reduce measurement error
  - Constraint: Survey must provide CPI weights, which requires over 300 spending categories across regions, months, demographic groups

Overview for Presentation

- Review of timeline of CE redesign events
- Our view of CE's major problems
- Sketch agenda for NBER/CRIW conference on "Measuring Consumer Expenditure," Washington, DC Nov 4th and 5th, 2011
  - Looking for feedback, input, and involvement
  - Lots of questions are at current cutting edge of statistical, economic, research frontiers
  - Email us with comments, suggestions, at cemeasure@gmail.com

CE Outside Researchers' Timeline

- NBER/CRIW Summer Institute July '09
- BLS Users' Forum June '10
- BLS Methods Workshop December '10
- CNSTAT Panel begins February '11
- NBER Summer Institute July '11
- CNSTAT Panel Meetings throughout '11
- NBER/CRIW Conference November '11
- CNSTAT Panel Report early spring '12

BLS CE Users' Forum June 2010

- CE users from government and academia
- Us: Problems of the current CE data for research (consumption, saving, inequality, tax policy, business cycles, …)
- Others: problems for measurement of CPI
- Synthesis: The two are inextricably linked – neither CPI nor research results will be credible if weights are wrong

Five Main Points, Data User's Forum

1. CPI weights are suspect: Cross-category differences don't line up with data from other sources; e.g, housing may be over-weighted by as much as a factor of 2

2. Ratio of CE totals to corresponding NIPA numbers is low, falling (NIPA is credible)

3. Unclear what explains low, deteriorating ratios (sample representativeness?)

Points from Users' Forum (Cont.)

4. Joint distribution of total C and income in CE data is flawed; this biases results on trends and levels of saving rates by group, consumption-based inequality, incidence of consumption taxes, labor supply measures...

5. Maintaining the panel dimension should be a key component of any CE redesign

1. CPI Weights

- CPI requires detailed weights
- Redesign will cut back on spending detail
  - Even if BLS needs spending on [pencils], no point in asking questions people can't answer
- One approach: Use CE for broad category weights, supplement with drill-down modules and/or other sources
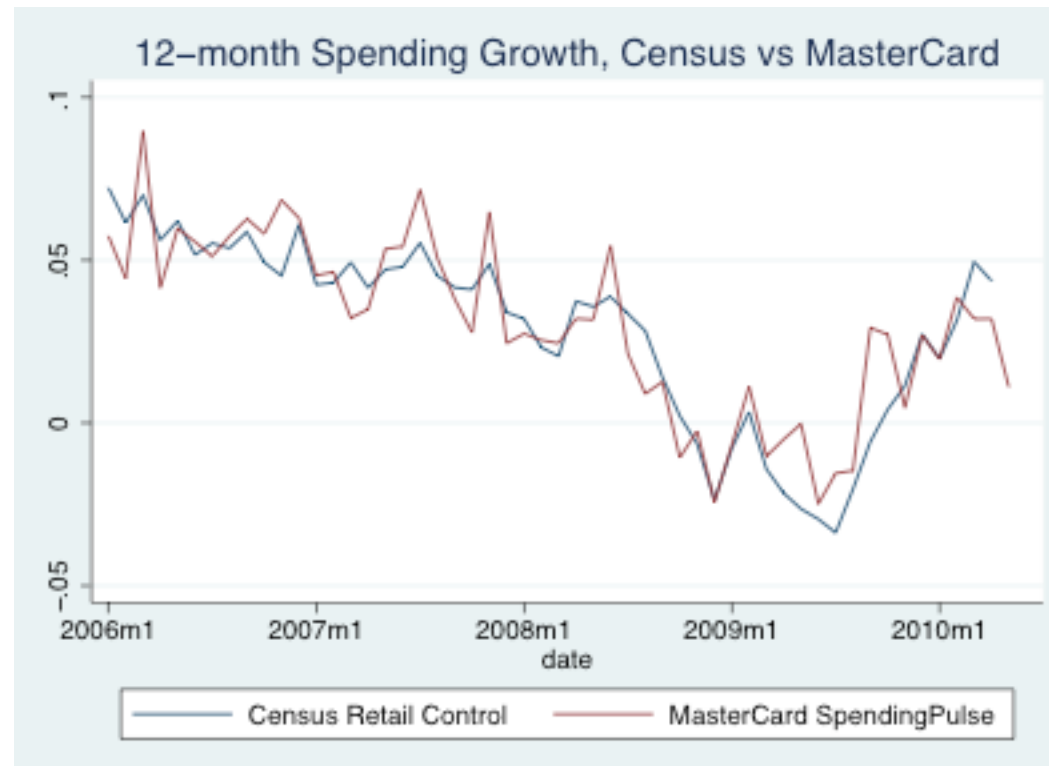 - Not every HH needs to answer every question

Inflation Rate: Changes in Core CPI and PCE Index

January 2000 - September 2010

Percent Change from Year Earlier

Core PCE

Core CPI

Recession
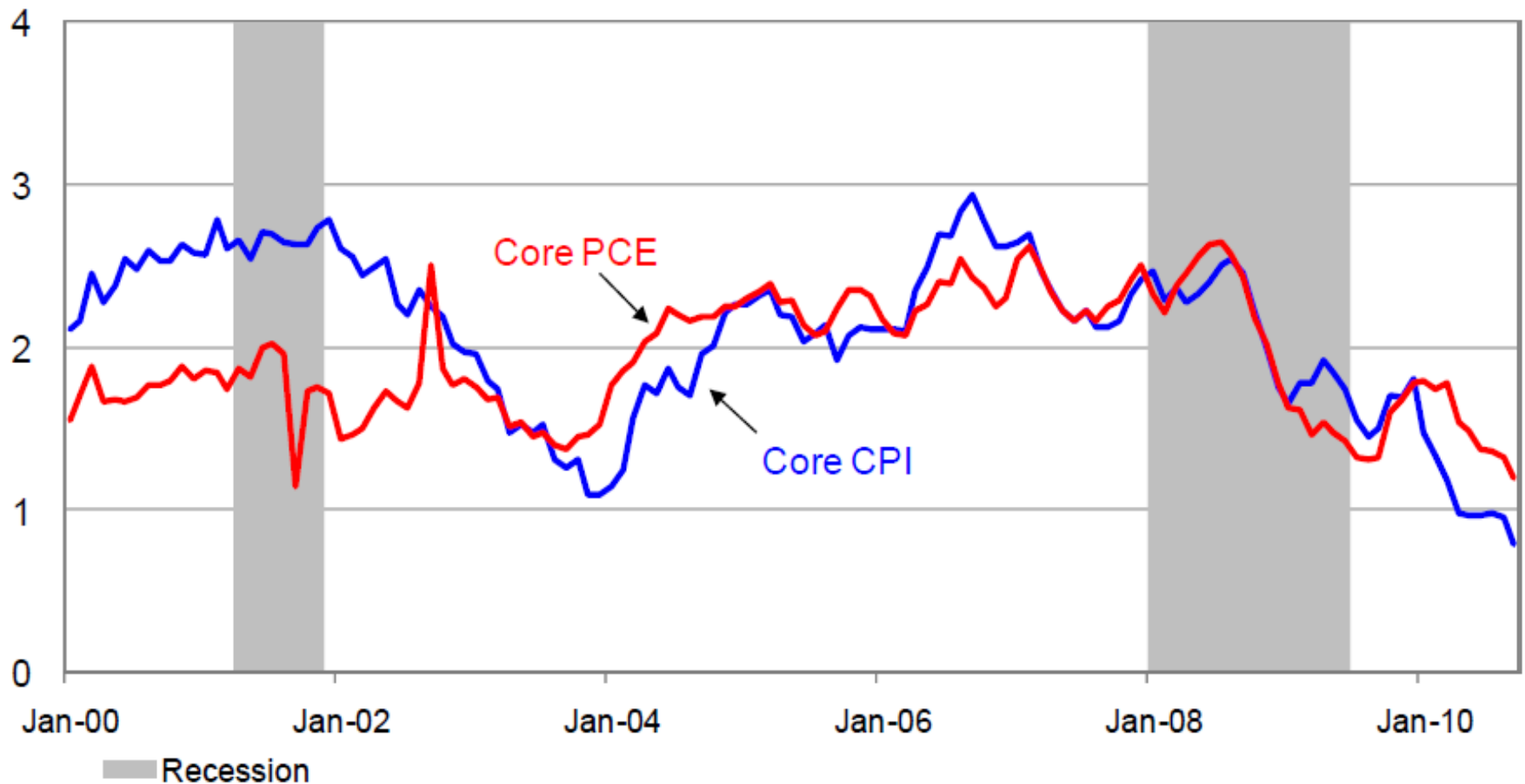
Retail Sales vs Alternatives

12-month Spending Growth, Census vs MasterCard

2. Ratio of CE to Other Aggregates

- Primary concern about CE is deteriorating representativeness/biased weights over time

- Ratio of survey totals to NIPA, and response rates, show similar trends to UK Expenditure and Food Survey (EFS)
  - Problem is not BLS execution

- But EFS survey/national accounts higher than CE—anything we can learn from that?

Ratio to National Accounts and Response Rates in US and UK

CE and EFS Response and Coverage Rates

Legend:
- EFS -NA Ratio
- EFS Response Rate
- CE Response Rate
- CE-PCE ratio
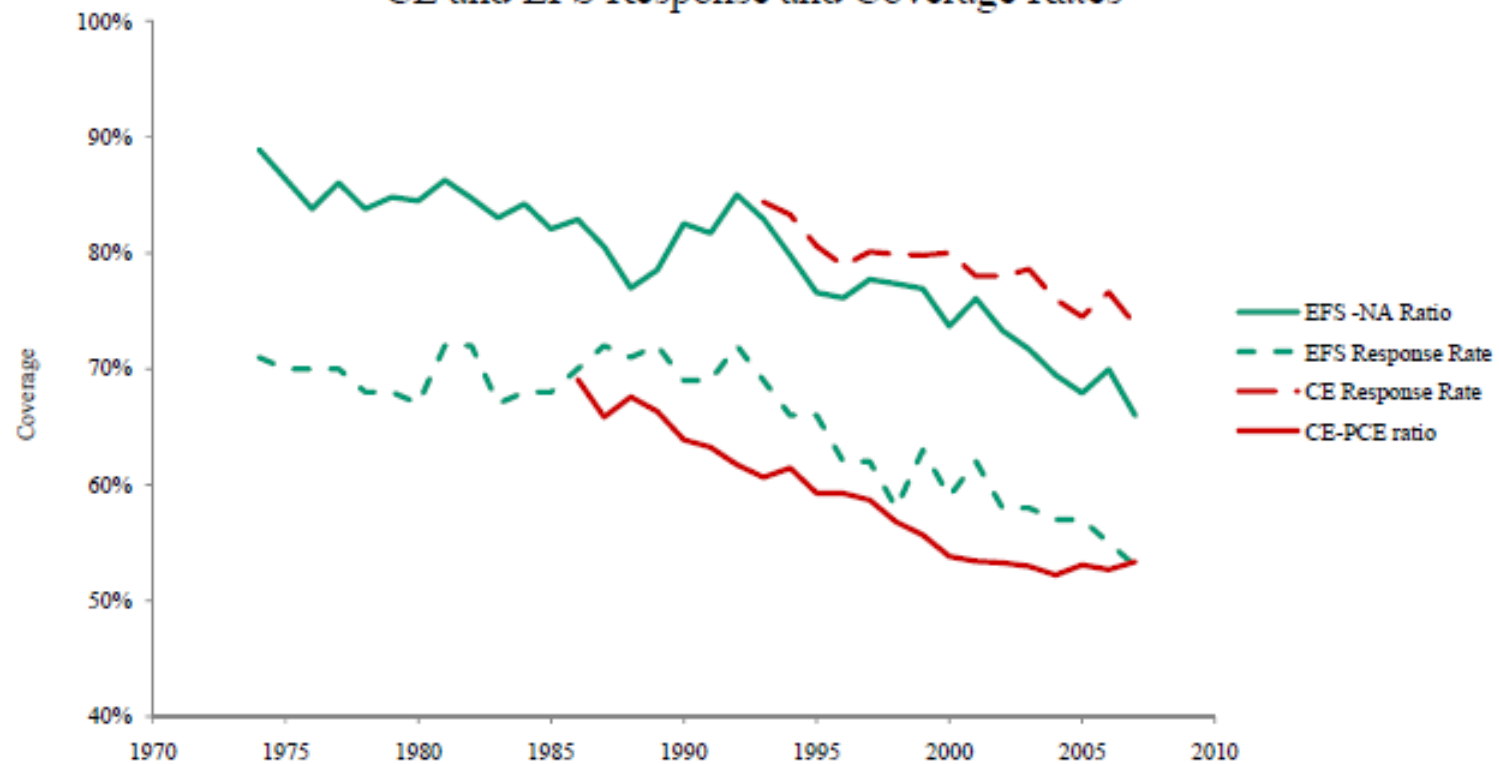
Why is Ratio of CE Totals to National Aggregates Declining?

- Sample representativeness by income has deteriorated over time (or income shifted)

- Composition of spending shifted towards harder to measure goods and (esp) services

- Measuring any given spending category in survey setting has become more difficult; survey needs new data collection strategy

3. Representativeness by Income

- Mixed results on sample representativeness

- Middle of distribution (5th through 95th percentiles) looks like CPS, no trend; but

- CE clearly missing very top end (as most household surveys), likely getting worse
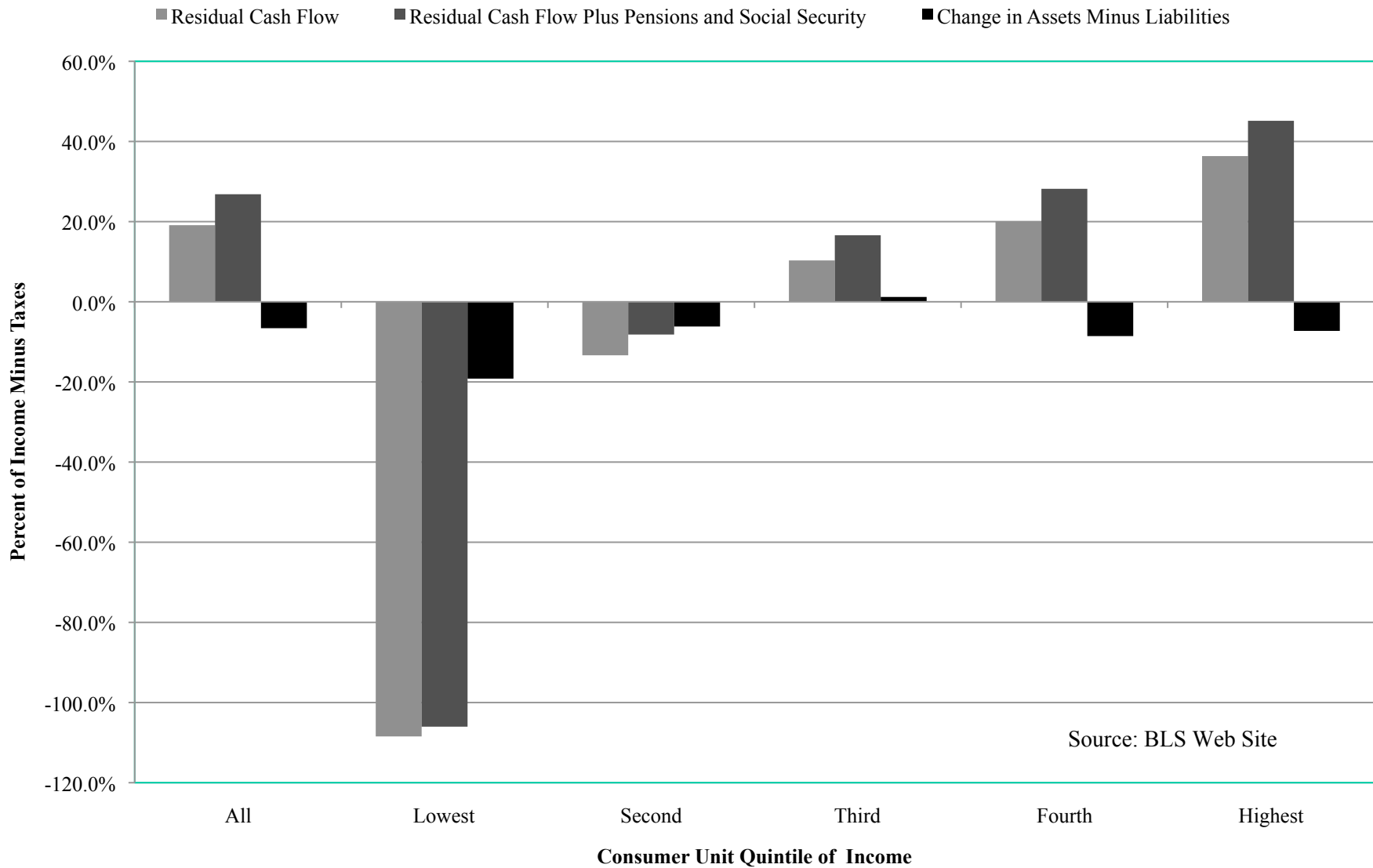
Figure 4. Ratio of Average Expenditure in Consumer Expenditure Survey to Average Income in the Current Population Survey by Income Quintile

Source: BLS Web Site
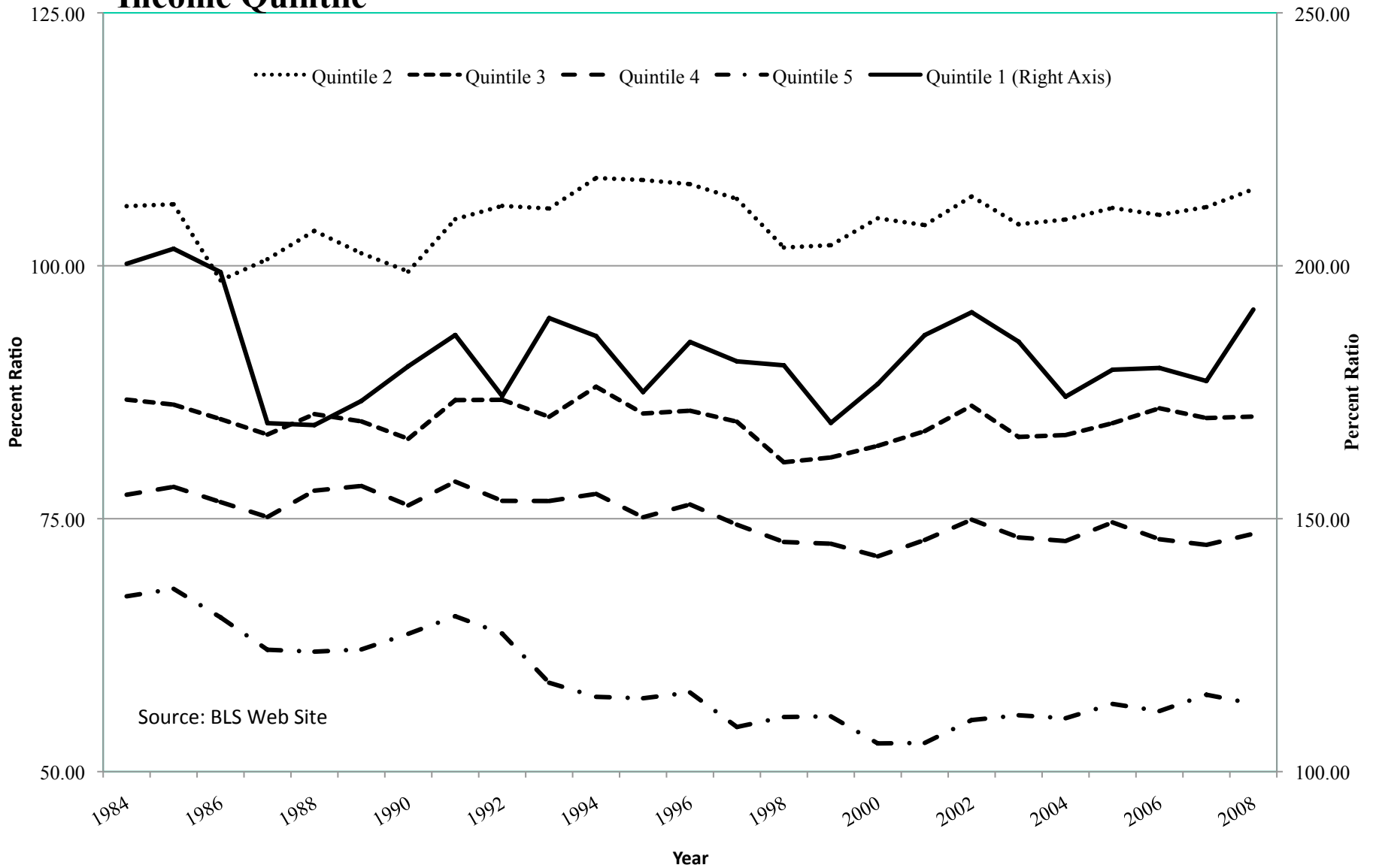
4. Joint Distribution of Total Consumption and Income

- Ratio of C to Y falls with Y, as PIH suggests, but

- Pattern much too extreme to be accounted for by PIH; probably reflects under-reporting of income at bottom and under-reporting of C in the middle and (esp) top of income distribution

- Trends in inequality, in saving by income group, C tax burdens: All are suspect
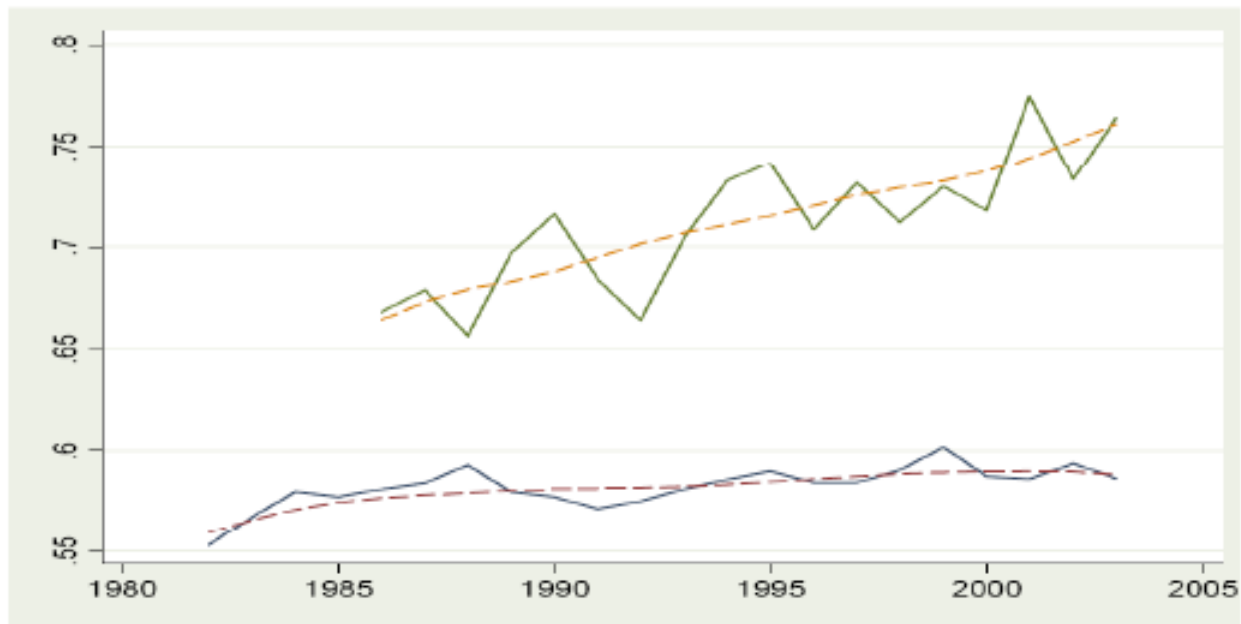
Figure 1. Cross Section Net Cash Flows as a Percent of Disposable Income, 2008 Consumer Expenditure Survey

■ Residual Cash Flow   ■ Residual Cash Flow Plus Pensions and Social Security   ■ Change in Assets Minus Liabilities

Source: BLS Web Site

Trends in Inequality

Figure 1.

### Non-durable consumption inequality from the interview and the diary surve

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

Source: Attanasio, Battistin and Padula, 2010

Can Cash Flow Reconciliation Help?

- Evidence from a Canadian expenditure survey "natural experiment" suggests balance edit may help reconcile cash flow:
    - Survey was changed to CAPI in 2006, left out the balance-edit, restored in 2007
- The year 2006 shows saving by income that looks (more) like CE; balance-edit in other years eliminated very negative saving at bottom
    - Consistent: 1961-62 CE that had balance edit

# Effect of the Balance Edit, Saving Rate
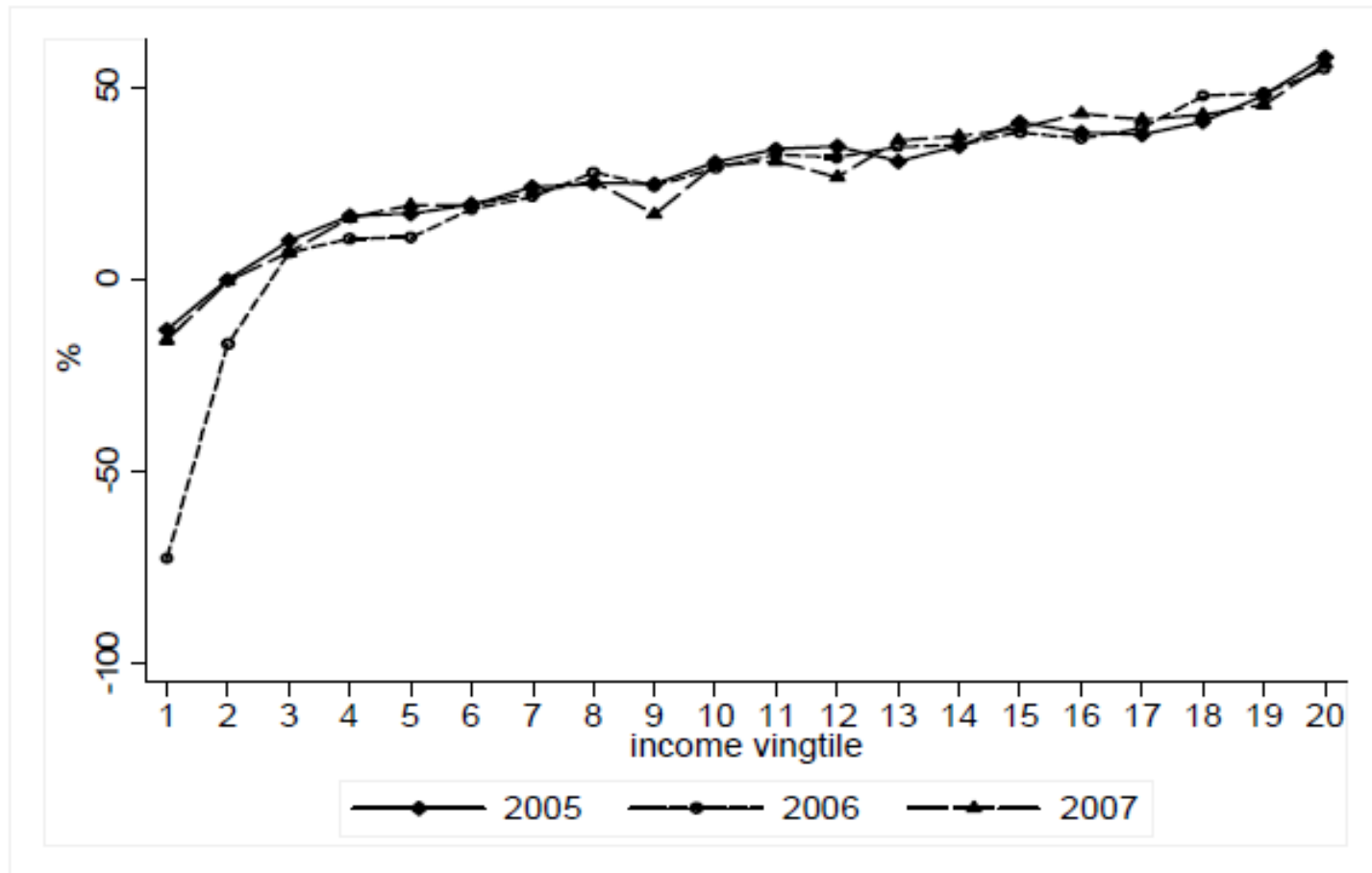
Source: Brzozowski and Crossley, *Can. J. Econ.*, 2010

5. Maintaining a Panel Dimension

- Critical to maintain panel dimension:
  - "response" studies to events like stimulus
  - Allows testing for consistency of CE weights
  - Measuring HH-level substitution bias for CPI
- Reinforces the need for internally consistent total spending measure at household level

Estimated Impact of Economic Stimulus Payment (ESP)

Figure 1: Actual aggregate personal consumption expenditures and alternatives
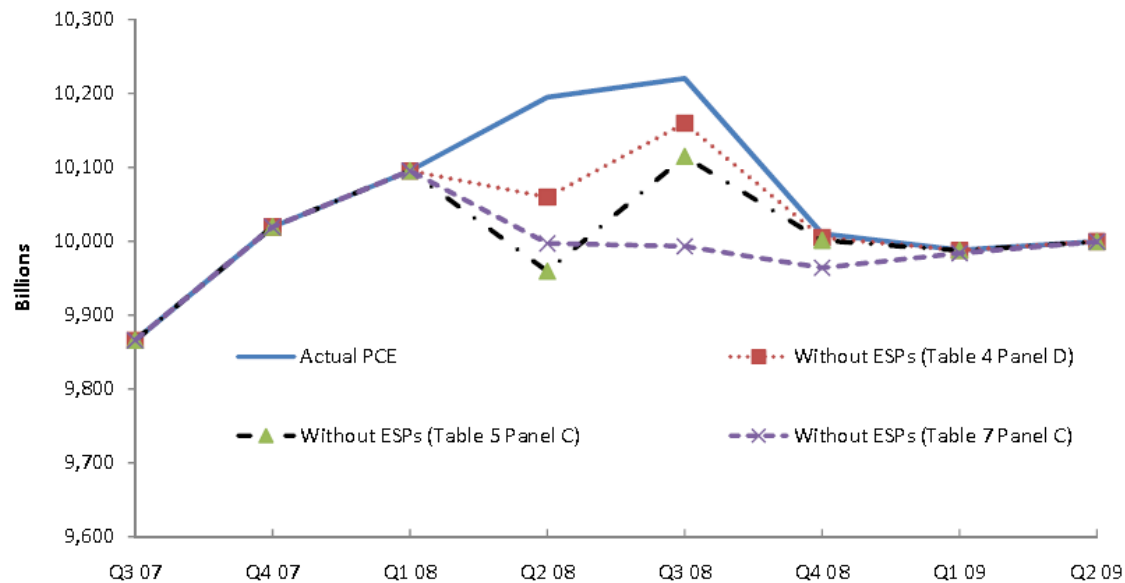
Notes: Alternative scenarios subtract only the direct effect of the stimulus payments on spending. The aggregate effect is calculated by applying the estimated average share of stimulus payments spent to the actual monthly time series of payments. We assume that the measured contemporaneous share spent is spent evenly over the month of receipt and the subsequent month, and that any lagged spending occurs evenly over the following three months.

CRIW Conference Agenda

- Focused on resolving the issues raised above, five proposed sessions:
  - Weighting the CPI
  - Aggregation, and Internal Consistency
  - Alternative Data Collection Strategies
  - Survey Representativeness
  - Uses of the data: measuring consumption dynamics, poverty,….

Session 1. Weighting the CPI

- If current CE approach does not give us good CPI weights, what will work?

- Proposed papers:
  - Description of how CE is used for CPI now
  - Why a survey must be starting point for price indexes; (e.g., need household-level demographics for CPI–U, -W, -R, etc)
  - Alternative approaches to developing CPI weights, combining CE with other data sources

Session 2. Aggregation and Internal Consistency

- What is appropriate level of detail for collecting spending? Can spending and income (cash flow) be reconciled during survey?

- Proposed papers include:
  - Analysis of CAMS, ALP data collection, comparison to CE totals
  - Field study of balance-edit cash flow reconciliation, BLS methodologists

Session 3. Alternative Data Collection

- What Other Approaches Might Work?
  - Electronic records
    - Quicken, Mint.com, etc
    - Nielsen scanner data
    - Linkages to administrative records

- Proposed papers include:
  - Survey of electronic options
  - What do "personal finance" experts know?
    - Upper end: CPAs, paid consultants, websites
    - Lower end: Financial counseling services, etc

Session 4. Income Representativeness

- How well does CE capture high end of the income distribution? Has that been deteriorating, and can it help explain trend in ratio of CE to national aggregates?

- Proposed papers:
  - Comparative distributions of selected spending and wealth; e.g, CE versus SCF house values
  - Look at CE response by postal code, compared to income by postal code (from tax data)

Session 5. Uses of the Data

- Measuring Consumption Dynamics.
- Measuring Poverty
- Proposed papers include:
  - best methods for intertemporal data collection
  - CE strengths/weaknesses for measuring poverty
  - C versus Y versus other measures of poverty