Inequality and consumption

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27 March 2019

Outline

1. Income or consumption inequality?

2. The link between income and consumption inequality

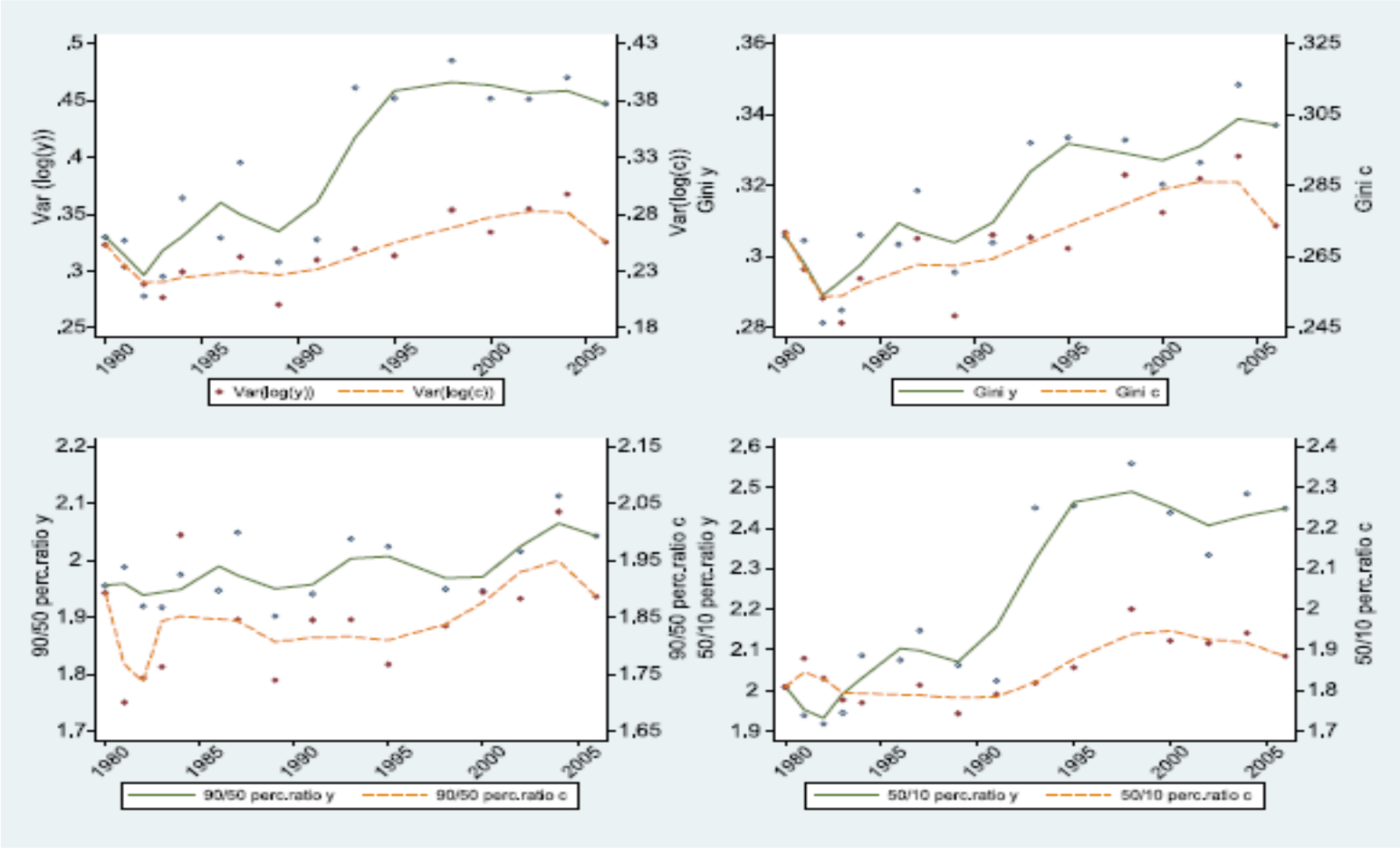
3. Economic shocks and the marginal propensity to consume (MPC)

4. Measurement problems, consumption components

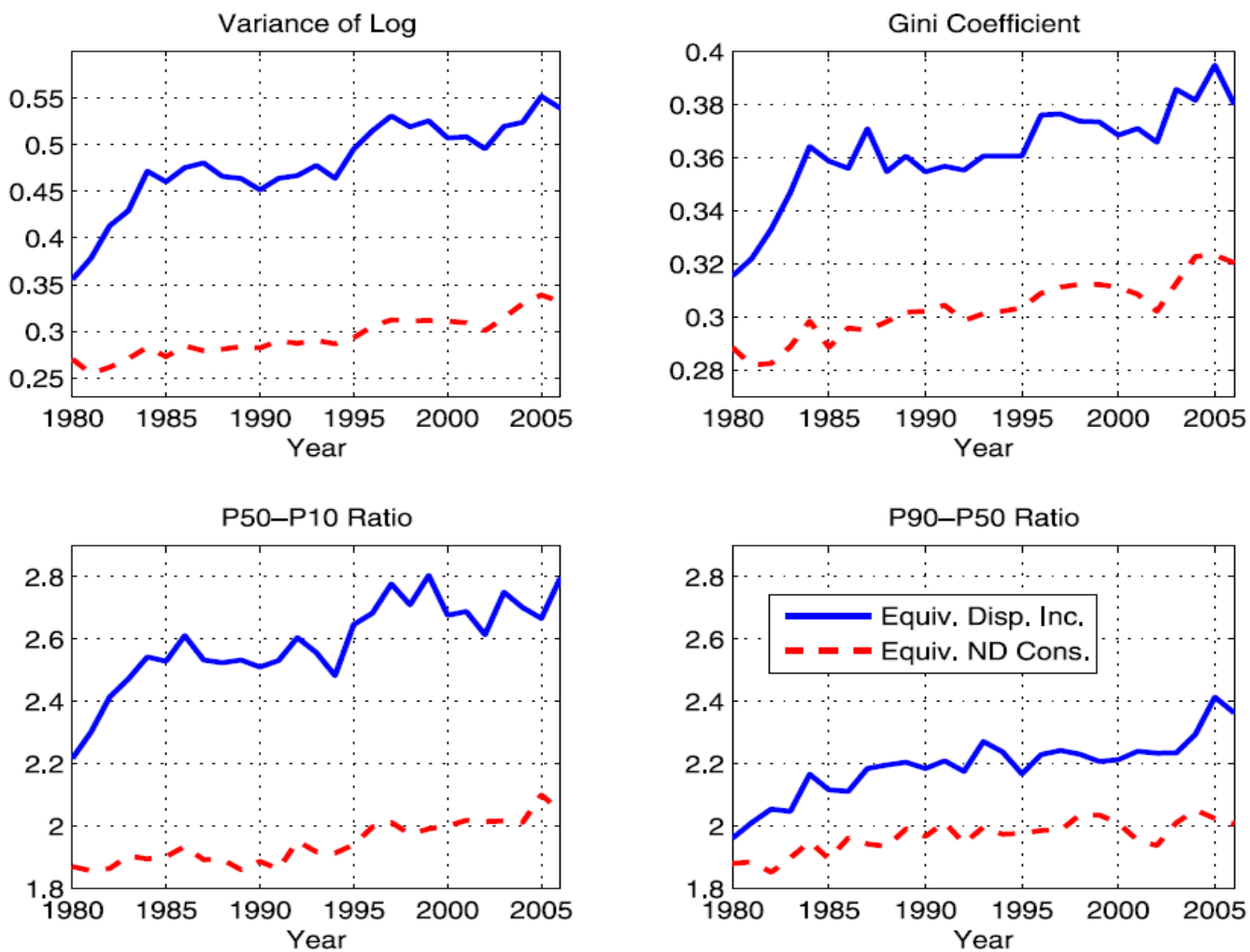
Income or consumption inequality?

- Economic theory is based on u(c, l), so consumption should be a direct measure of material well-being.
- But the debate over inequality relies mostly on income data.
  - Income can be a misleading indicator of well-being because earnings vary for temporary reasons, while consumption more likely reflects long-term prospects.
  - Income fails to capture differences in consumption arising from differences in the accumulation of assets (due to saving, borrowing and returns to wealth).
  - Income often does not reflect in-kind transfers (public or private).
  - Income fails to reflect consumption of durables (housing, cars).

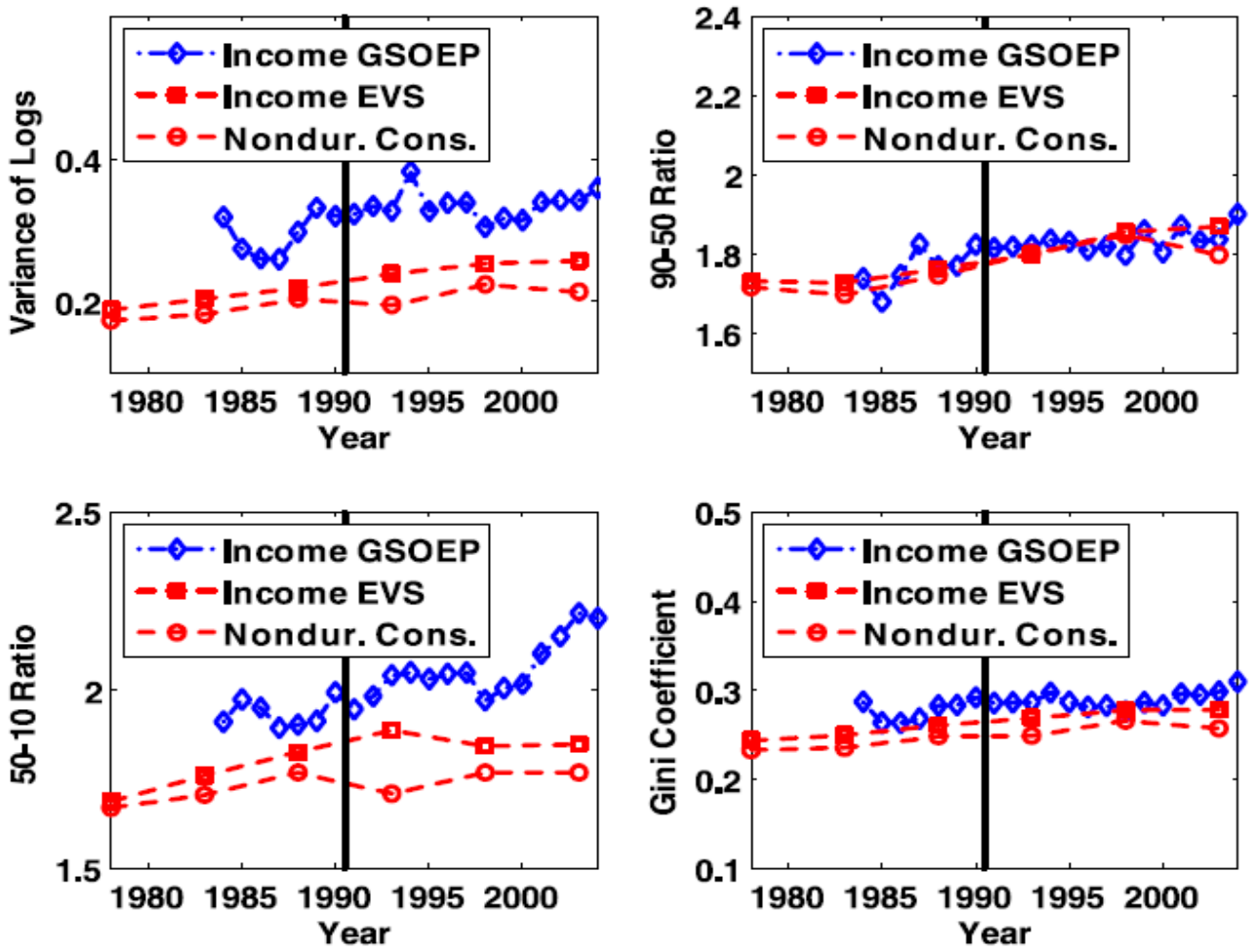
Income and consumption inequality in Italy, SHIW data (Jappelli and Pistaferri)



Consumption and income inequality in the US , CEX data (Heathcote, Perri and Violante)



Income and consumption inequality in Germany, GSOEP data, (Fuchs-Schündeln, Krueger, Sommer)



Evidence on consumption and income inequality

- Income inequality tends to dominate consumption inequality.
- Various measures: variance, Gini, inequality at the top.
- Increase in both income and consumption inequality, but more for income inequality.
- Considerable differences across countries.

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Why do economic resources change?

- Income, wealth and consumption are subject to considerable variation from one year to the next.

- What are the sources of these changes?
  - Labor market risks:
    - Unemployment
    - Productivity (health, demographics, etc.)
    - Skill prices -> Technology, international trade, etc.
    - Firm-related shocks
  - Asset markets risk:
    - Inflation
    - Fluctuations in stock/bond market prices
    - Fluctuations in (local) housing prices
  - Choices:
    - Human capital accumulation
    - Leaves, retirement
    - Portfolio reallocation

Income inequality

If $Y_{it} = P_{it} + \varepsilon_{it}$ inequality can be represented as:

$$var(Y_{it}) = var(P_{it}) + var(\varepsilon_{it})$$

- If one observes an increase over time of $var(Y_{it})$:
- How much comes from changes in the permanent component?
- and how much from the transitory component?

From income to consumption inequality

- Consumption is more stable than income. Through credit markets and insurance (private and public) people can smooth transitory shocks.

- It is more difficult to cope with permanent shocks. Therefore income reflects both transitory and permanent shocks, while consumption should reflect mostly permanent shocks.

$$C_{it} \cong P_{it} \quad \text{so that} \quad var(C_{it}) \cong var(P_{it})$$

$$\boldsymbol{\Delta var(C_{it}) < \Delta var(Y_{it})}$$

Why is consumption inequality lower than income inequality?

$$\Delta \boldsymbol{var}(\boldsymbol{C_{it}}) < \Delta \boldsymbol{var}(\boldsymbol{Y_{it}})$$

- The change in income inequality reflects both transitory and permanent shocks, while the change in consumption inequality should reflect only permanent shocks.
- The issue is: are people able to smooth shocks?
- Or: what is the mechanism of transmission of income inequality into consumption inequality?

How do people react to income shocks?

- Ex-post responses
  - Cut consumption
  - Run down assets or borrow
  - Social and family networks, charities
  - Government insurance
  - Migration

- Ex-ante responses
  - Precautionary savings
  - Precautionary labor supply
  - Defer durable adjustment
  - Portfolio re-allocation
  - Implicit contracts with employer

Why should we care about the response of consumption to income shocks – the MPC?

- Policy Relevance I
  - Most wage/earnings fluctuations are hard to insure formally due to moral hazard and adverse selection.
  - Government interventions –> moral hazard issues to deal with
  - Optimal social insurance design – i.e., short term vs. long term UI

- Policy Relevance II
  - Need knowledge of nature of income changes (and value of MPC) to forecast impact of, say, “stimulus packages” or tax reforms.

Why does the distinction between transitory and permanent shocks matter?

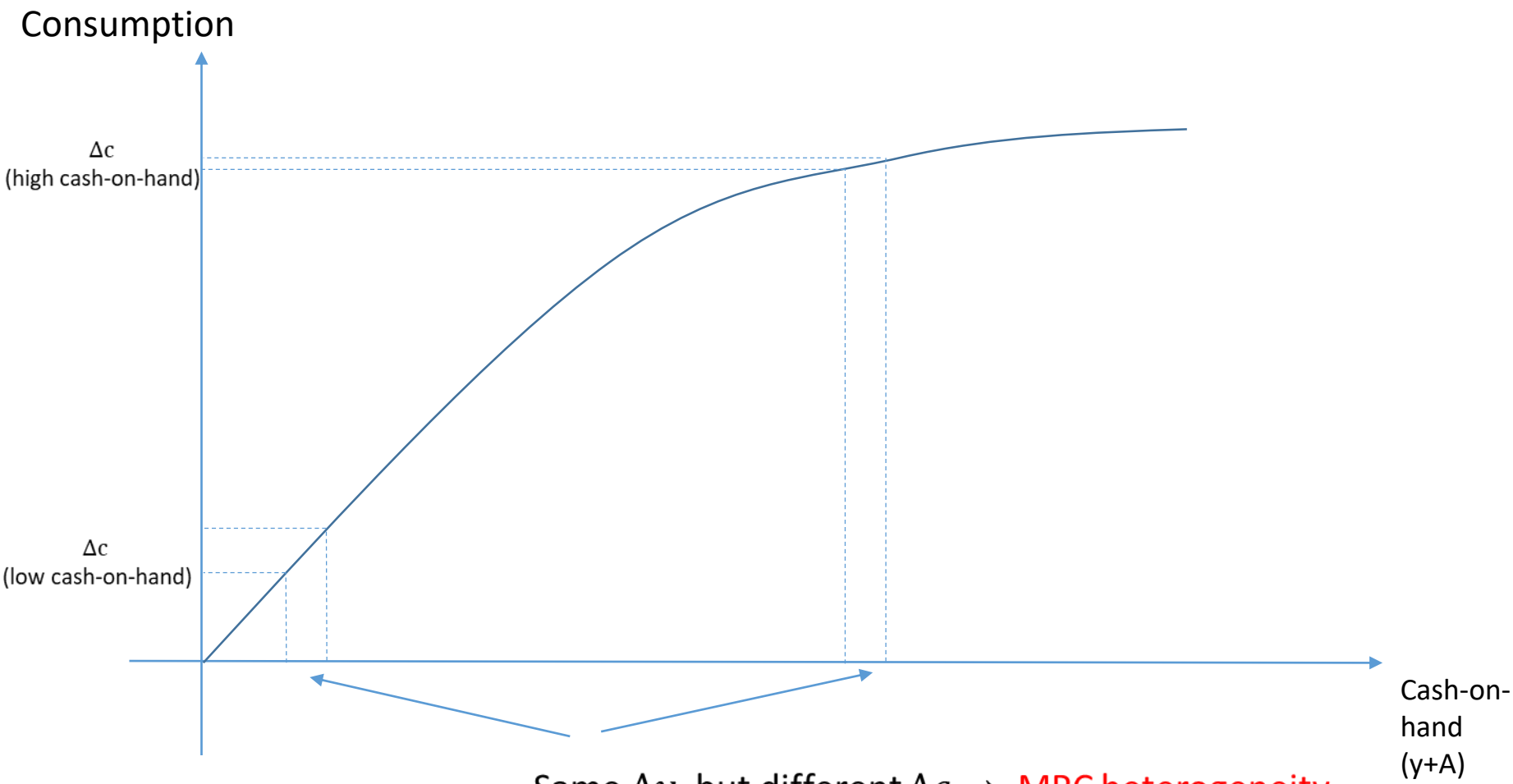
- Tax policy implications
  - Permanent tax reforms have large effects on consumption
  - Tax stimulus packages that transfer today and tax tomorrow should have little effect
    - Unless credit and insurance markets are imperfect
    - Or people have short horizons
- Welfare considerations
  - Should we care about inequality of consumption or inequality of income?

Smoothing, precautionary saving and credit market imperfections

- Consumption response to income shocks is attenuated
  - Credit markets and accumulated savings can be used to smooth shocks, including persistent ones

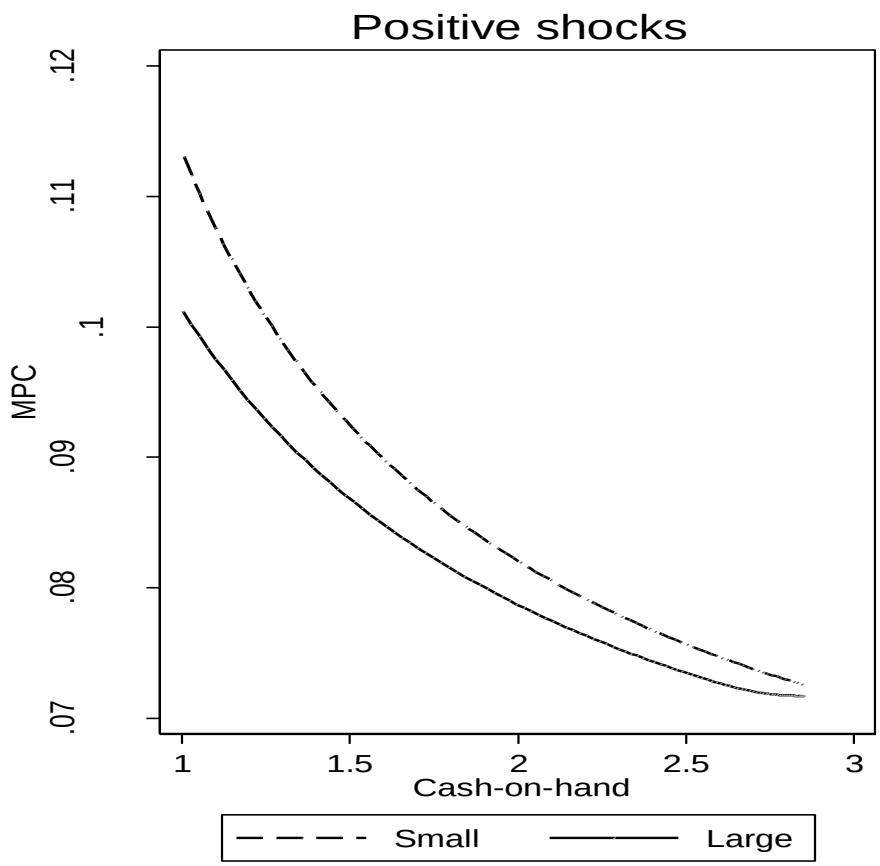
- Consumption response to income shocks is heterogeneous in the population
  - Smaller response for people with high cash-on-hand
  - Why? Same logic: they have accumulated more assets and can smooth shocks more easily

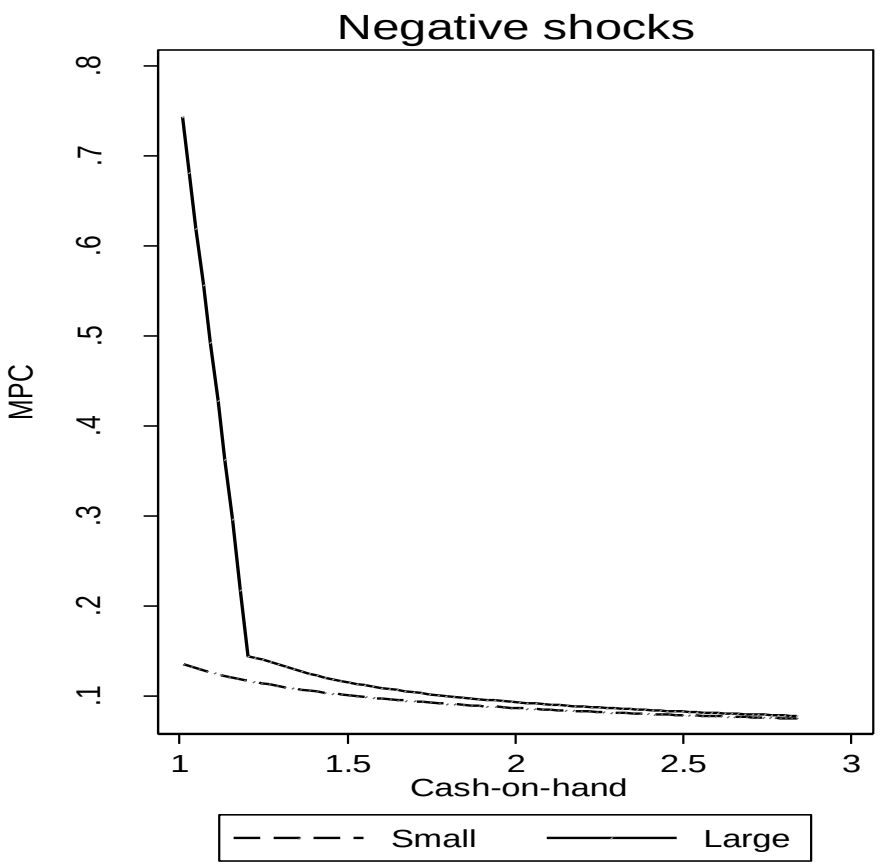
A modern consumption function



Same Δy, but different $\Delta c \rightarrow$ MPC heterogeneity

Asymmetric responses of consumption to income shocks





Christelis, Georgarakos, Jappelli, Pistaferri, Van Roij (2018)

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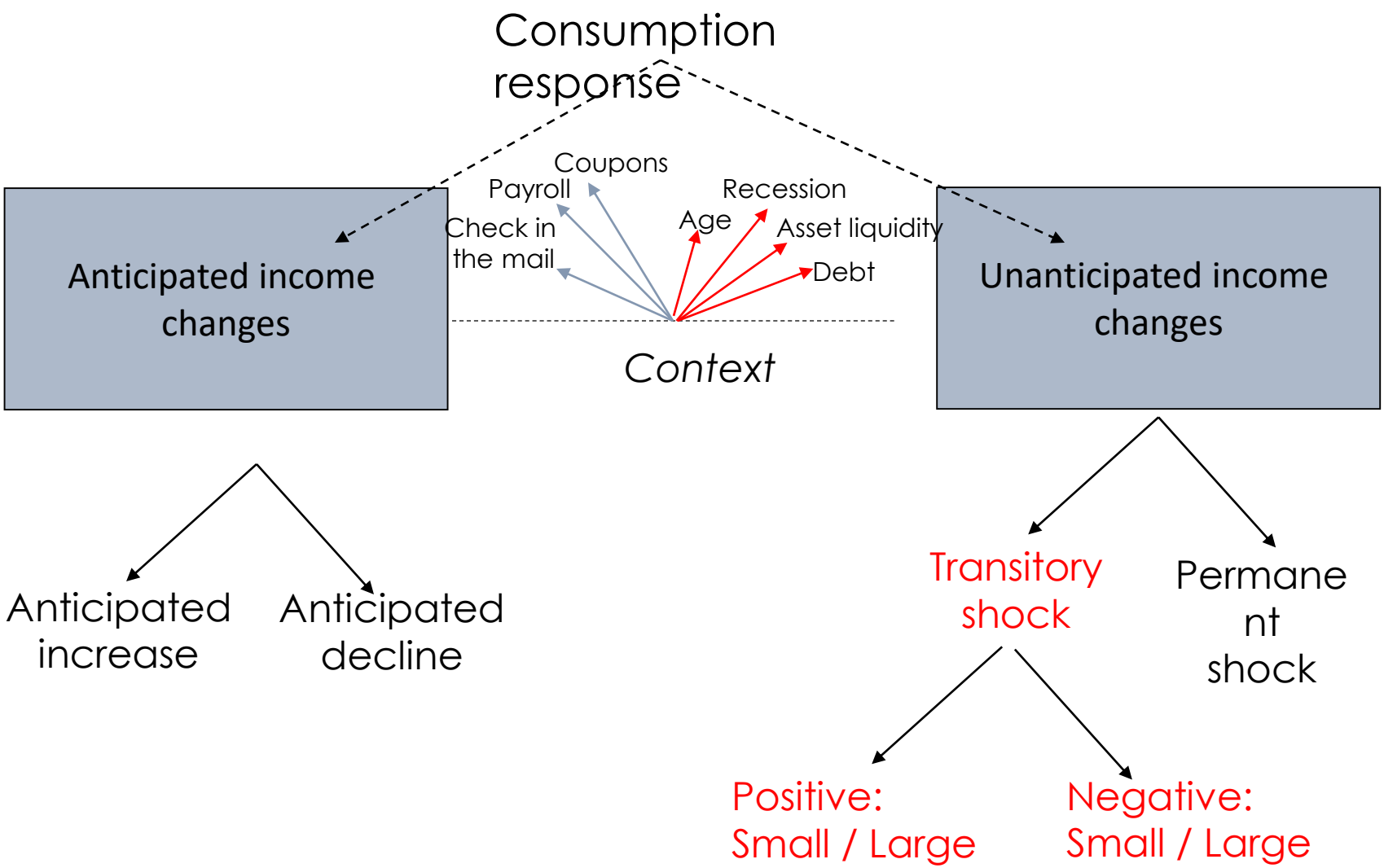
Reasons for MPC heterogeneity

- Borrowing constraints
  - Consumers who are unable to borrow have higher MPC than unconstrained consumers.
- Precautionary savings
  - Consumers who face a lot of uncertainty are holding back their consumption for fear of bad income events.
- «Behavioral» theories
  - Some people are «myopic», others are not; some people consume a higher proportion of their income to keep up with the Joneses, etc.
- Most of these theories point towards higher MPCs at low levels of income/wealth

Many MPC…


Consumption response
Coupons
Payroll
Check in the mail
Recession
Age
Asset liquidity
Debt
Context
Anticipated income changes
Unanticipated income changes
Anticipated increase
Anticipated decline
Transitory shock
Permanent shock
Positive: Small / Large
Negative: Small / Large

How to identify a shock in the data?

1. Model earnings process. Call “shock” whatever you can’t predict with observables, assuming you know what people know. Hall and Mishkin (1982), Blundell, Pistaferri & Preston (2008), Kaplan and Violante (2014):

2. Identify “episodes” in which income changes unexpectedly -> quasi-experimental variation. Agarwal and Qian (2015), Surico and Trezzi (2015), Di Maggio et al (2014), Jappelli and Scognamiglio(2017).

3. Subjective expectation data -> pinning down people’s information set.

Subjective expectations

How will you spend hypothetical income increase / decrease? Saving, Consumption, Debt.

- Don’t need data on consumption or worry about income process.

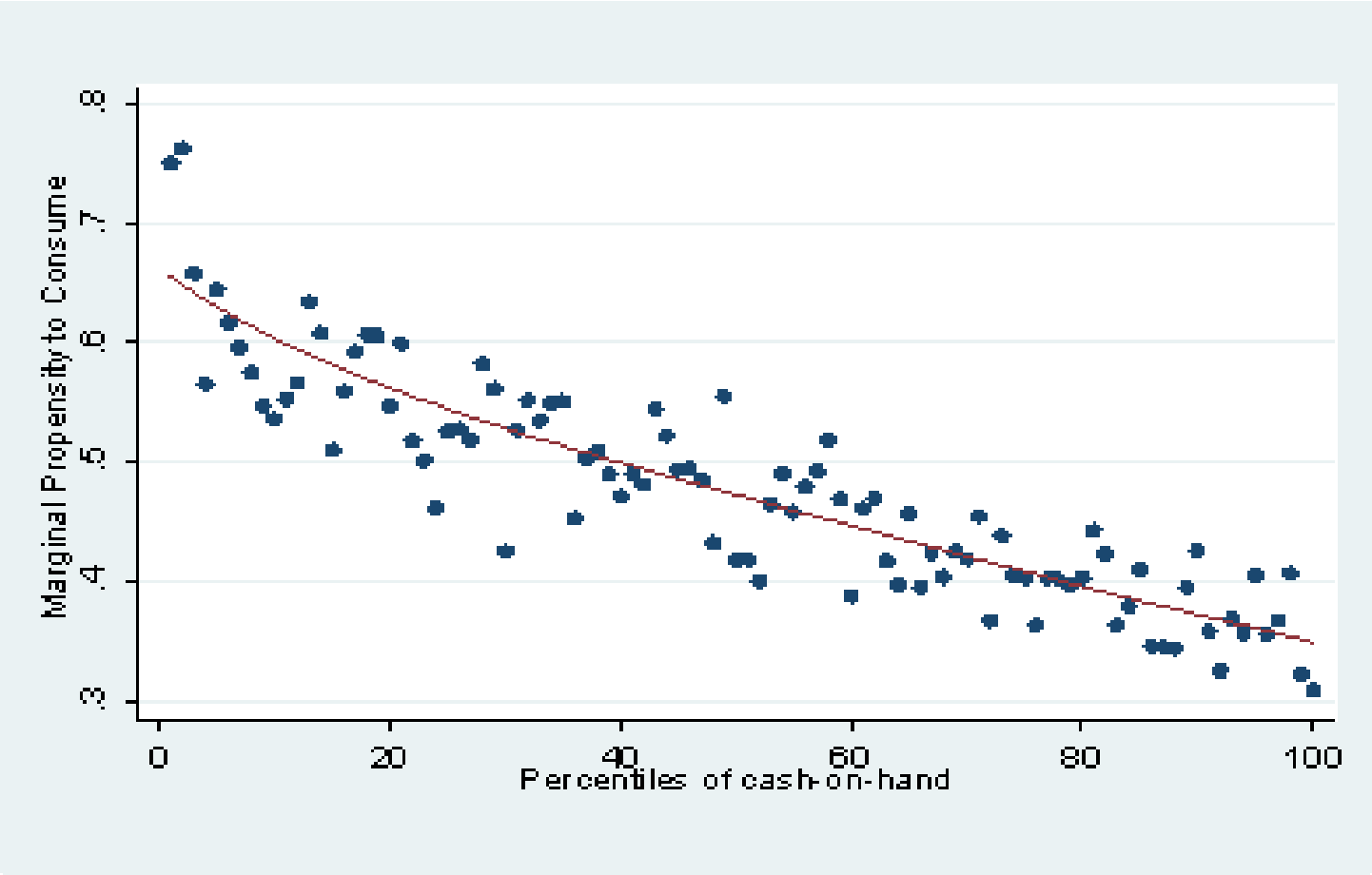
- Can easily look at MPC heterogeneity

Shapiro & Slemrod (various years): US data

Jappelli & Pistaferri (2014, 2018): Italian data

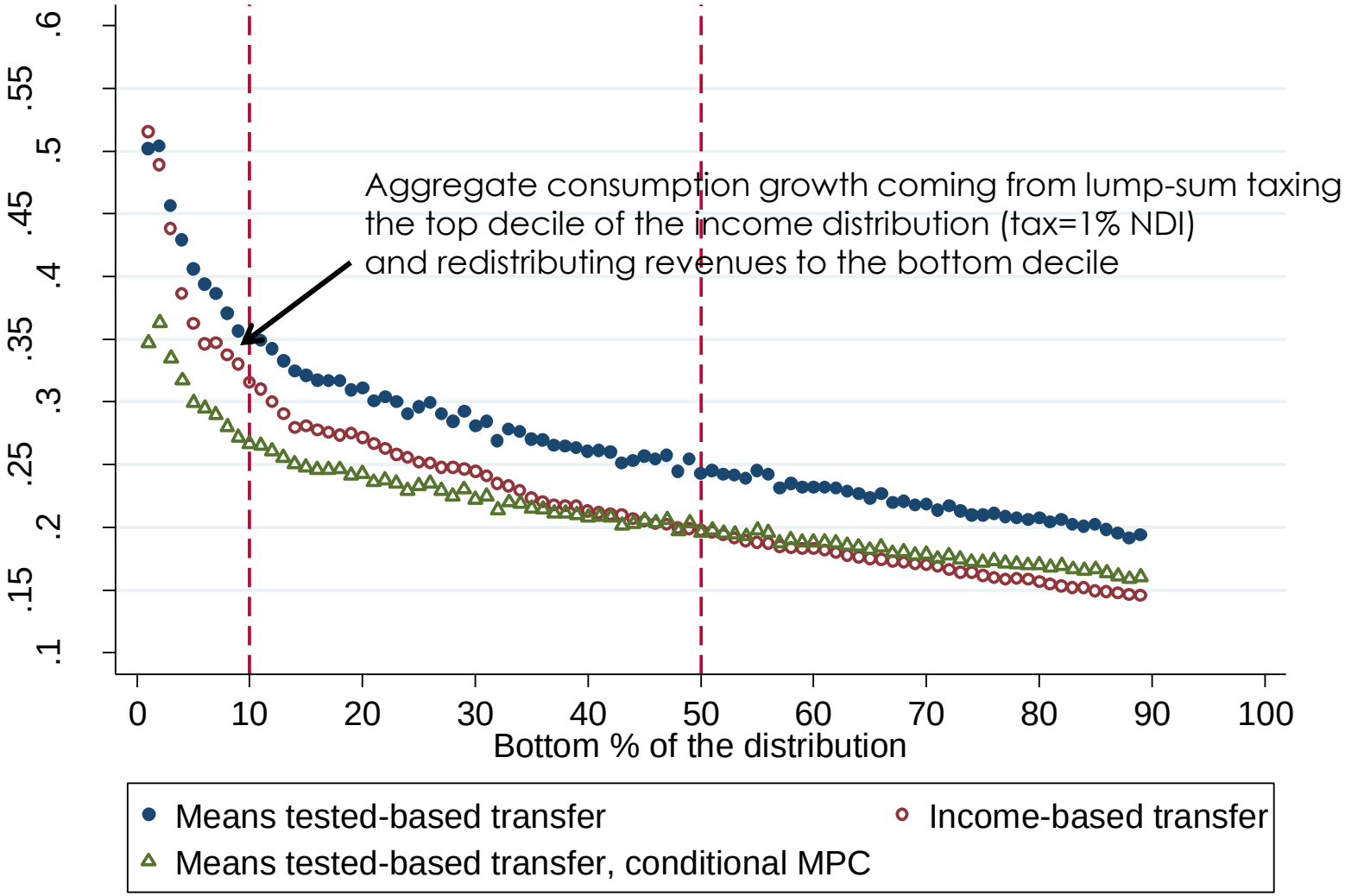
Christelis, Jappelli et al (2018): Dutch data

Italian data: MPC by cash on hand percentiles (Jappelli and Pistaferri, 2014, 2018)



Imagine you unexpectedly receive a reimbursement equal to the amount your household earns in a month." How much of it would you spend?

Effect of redistributive fiscal policy with heterogeneous MPC



Source: Jappelli and Pistaferri (2014)

Dutch survey: positive and negative income shocks, small and large shocks

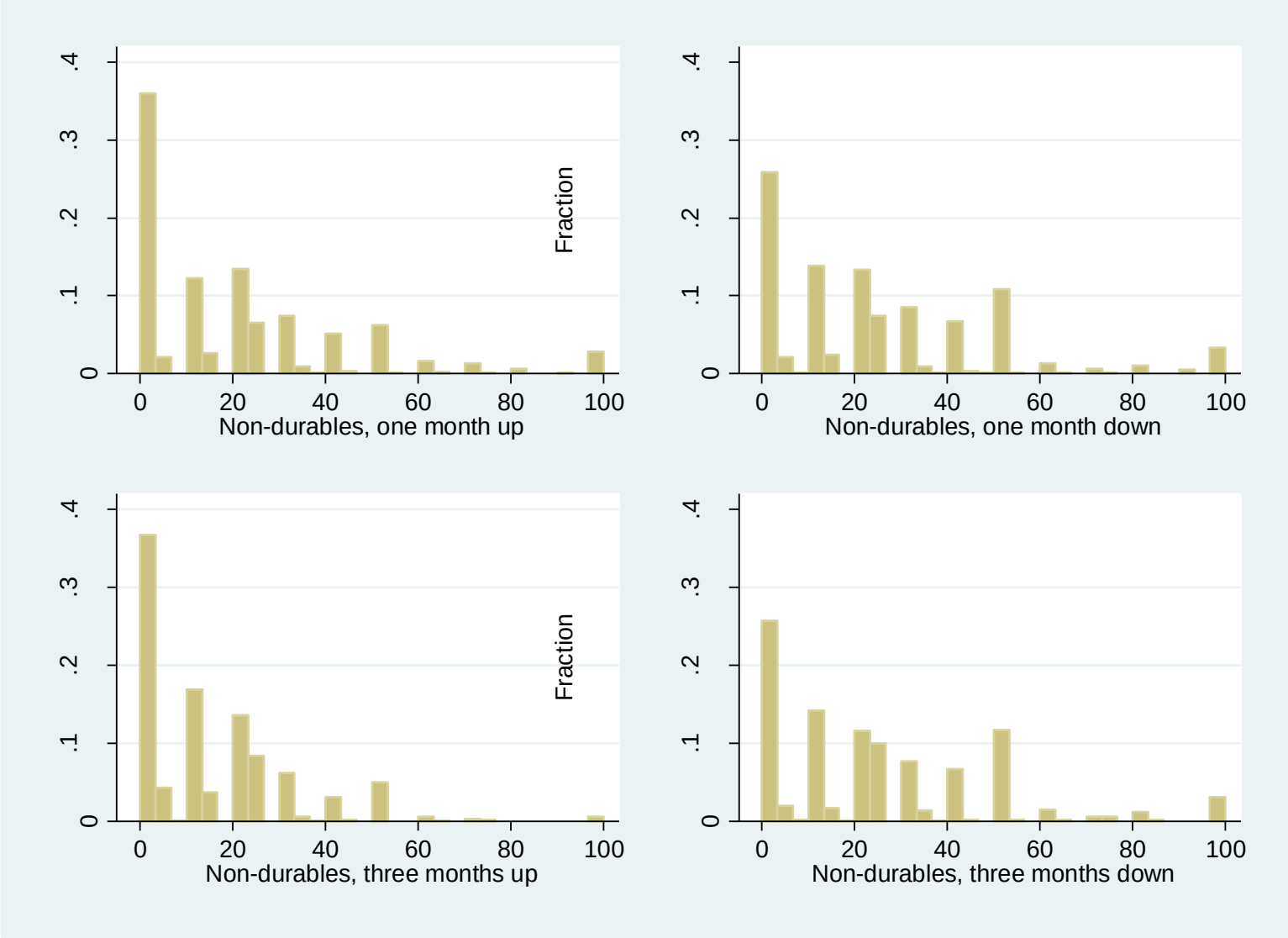
- Compare responses of the *same household* to different hypothetical scenarios.

- How much of an unexpected, transitory and positive income change would people consume?
- How about a negative income change?
- Does size matter? (one-month income vs. three-months income).

Predictions with liquidity constraints and precautionary saving

- MPC is higher at low levels of cash-on-hand.
- MPC from negative income shocks is larger than MPC from positive shocks.
- The size of the shock introduces further asymmetries: MPC decreases with size of income shocks for positive shocks.

MPC distributions: non durable consumption



MPC from various income shocks

One month income change	Mean
Income increase	
Increase non durable consumption	19.59
Income decline	
Reduce non durable consumption	23.75
Three months income change	**Mean**
Income increase	
Reduce non durable consumption	14.34
Income decline	
Reduce non durable consumption	23.97

Summary of empirical literature

- Structural models, quasi-experiments, subjective expectations provide evidence that consumption response to transitory income shocks is much less than unity.
- There is also evidence that MPC is higher for the poor, and that the response to negative shocks is larger than for positive shocks.
- Instead, MPC from permanent shocks is much larger, and often found to be close to one.
- All this evidence explains why consumption inequality is less than income inequality.
- MPC heterogeneity has important implications for the effectiveness of fiscal policy.

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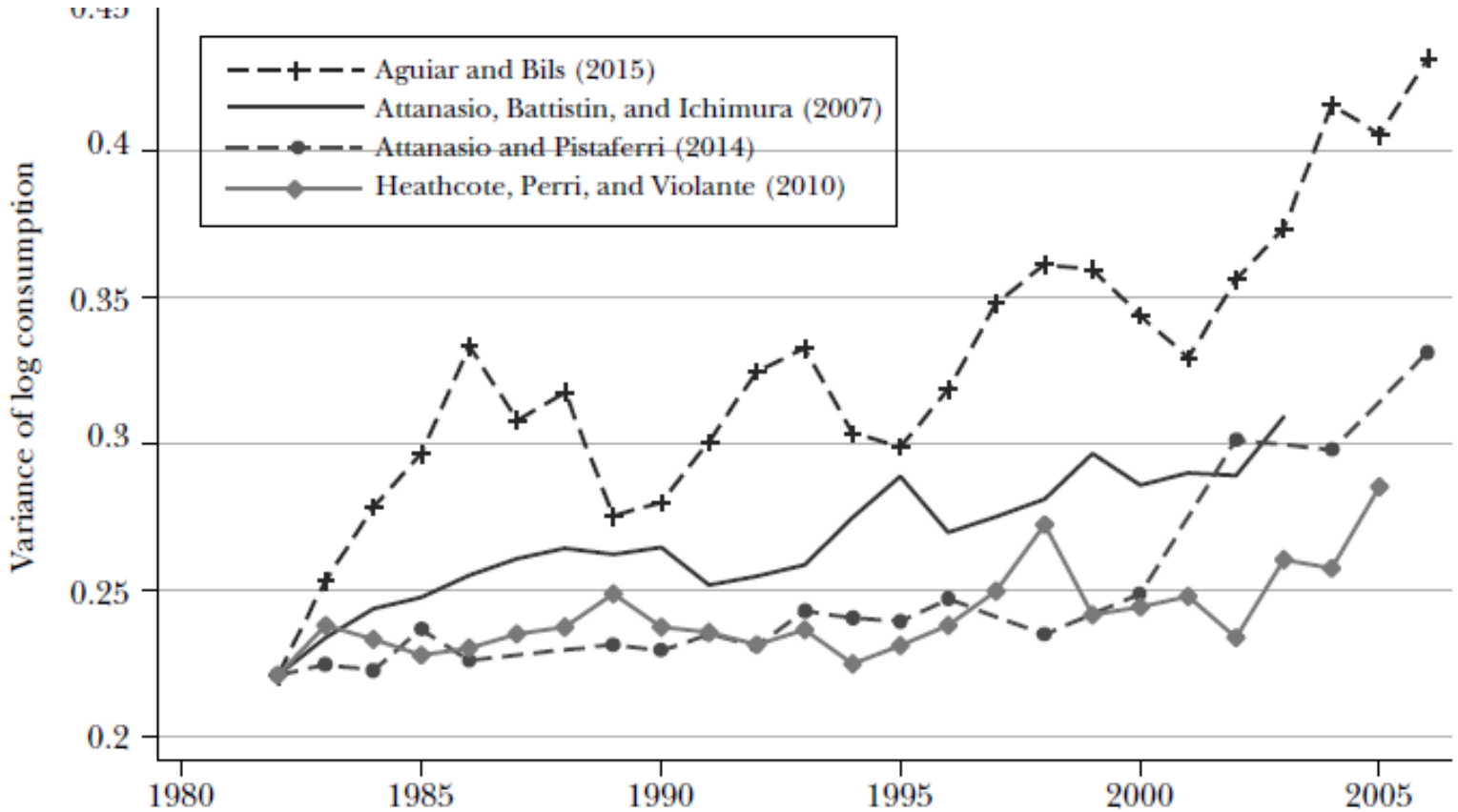
New data on consumption inequality

- Some recent papers find that in the US consumption inequality has risen in parallel with income inequality once measurement error issues are taken into account.

- Attanasio, Hurst and Pistaferri (2012) find that consumption inequality in the U.S. between 1980 and 2010 has increased by nearly the same amount as income inequality.

The evidence on consumption and income inequality in the US (Attanasio and Pistaferri, 2016)



Consumption data collection strategies

- Big data revolution
  - Scanner data (AC Nielsen Homescan) (Broda and Weinstein; Einav et al.)
  - Tax records for countries where both income and assets are taxed ($C=Y-\Delta A$) (Browning and Leth Petersen; De Giorgi, Frederikssen, and Pistaferri)
  - Credit card proprietary data (Gross and Souleles)
  - Proprietary data from financial aggregator websites (Baker, Shapiro et al.)
- No issues with recalling expenditures
- But: representativeness may be tricky in some cases

Should new surveys use new data collection methods?

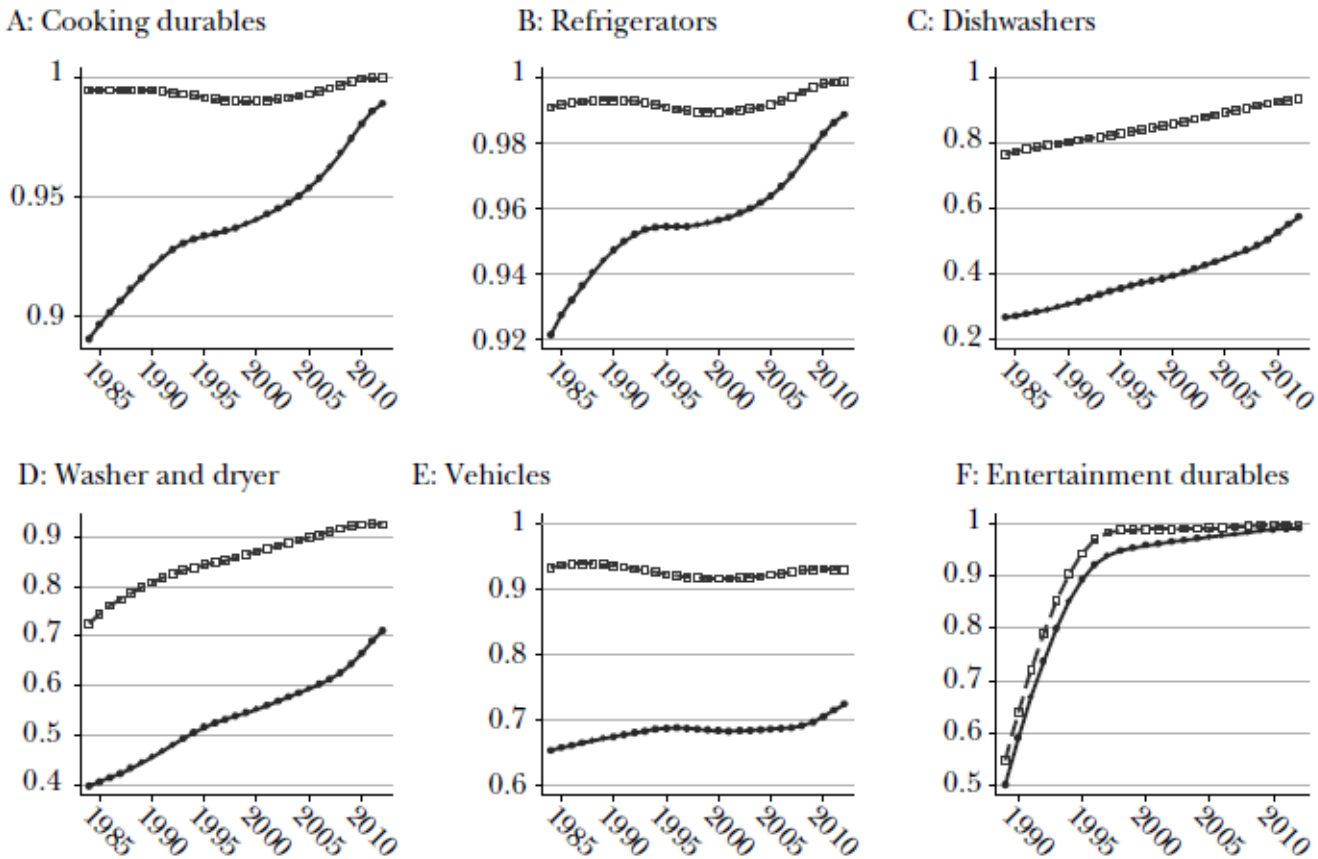
- Combining traditional survey methods with novel ways to collect information
  - Have households a financial aggregator?
  - Check only for discrepancies.
  - Free up time not used in asking about spending on chewing-gums (say) to ask subjective expectation questions, social networks, time use, intra-household spending allocation, behavioral questions, etc.

- But it may be pretty hard to get there…
  - Internet penetration still not 100%
  - Willing to record info?
  - Willing to share info?

Consumption components

- Ideally, we would like to measure consumption c
- But in survey data we typically observe x=spending
- Why does $c \neq x$? And why does it matter for the measurement of consumption?
- Some consumption is received in kind, particularly for the poor. And it might have increased over time, due to government programs.

Durables ownership has increased over time, particularly for the poor



Source: Attanasio and Pistaferri, 2016

International trade, prices and inequality

Increase in international trade reduces prices of certain goods that (presumably) the poor consume more than the rich.

Poor people can now afford goods they could not afford in the past, or consume more of what they were already consuming.

What are the effects of increasing openness to China imports for consumers?

Two main effects:

- Wages and employment in sectors exposed to competition decline ("concentrated losses").
- Typically, this affects low skill workers in manufacturing. Prices of goods exposed to competition decline ("diffused gains").
- Poor households likely to loose from the first effect and gain from the second.

Inequality of food spending

- There is an increase in inequality in food spending.
- But this may not indicate a decline in caloric intakes: Households may spend less on food without modifying the caloric intake of the food they consume (Aguiar and Hurst)
- The different qualities of food raise important questions.
  - Should an assessment of inequality in food consumption be based on monetary cost, energy content, healthfulness, or some other measure of quality?

Other types of risks that affect consumption inequality

- "Demographic" risks
  - Divorce / Arrival of children
  - Poor health of spouse / other family members
  - Long-term co-residence of children due to poor labor market opportunities

- Asset returns risk
  - Wealth destruction (housing bust, stock market collapse)

Summary

- MPC is important to predict households' responses to:

  - tax refunds;
  - redistributive policies;
  - monetary policy (interest rates, "helicopter money")

- No single MPC.

- Important to identify nature of income shock:
  - structural models
  - quasi-natural experiments
  - direct survey questions.

Summary

- Transitory shocks tend to have a large impact on consumption, 15-25%.

- But considerably less than one for one. This is the main reason why consumption inequality is less than income inequality. Response is larger for negative income shocks, and for relatively small positive shocks.

- MPC larger for low-income people. Implications: Fiscal and monetary policies have heterogenous consumption effects.

- Research with new consumption data finds that consumption inequality tracks more closely income inequality. This opens avenues for future research:

- Most income shocks are permanent, or
- Households are unable to buffer income shocks, or
- We need better income and consumption data.

Conclusions

- For those of you who did not have enough…