The Micro of Macro: Lessons from our research to help understand severe economic downturns

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Giving Macroeconomics a Bad Name?

“During the crisis, the dominant class of models, representative agent DSGE models, either had nothing useful to say about the policy questions that needed answers, or provided answers sharply at variance with both common sense and empirical evidence”

-- Christopher Carroll

Ouch!
Many sympathize with above quote, but we should recognize that macro models are hard, important decisions must be made.

Modelers should increasingly rely on evidence from *microeconometric* analysis – It is time to take “micro-foundations” based on *empirical evidence* seriously.

What are most important facts coming out of the micro data?
Fact 1: Consumption Risk Sharing Fails

- Full risk-sharing is a foundation of representative agent macro modeling, and housing mostly ignored
- Consumption risk-sharing fails spectacularly in the data, failure is closely related to housing and household debt
- Suggests: abandon representative agent, introduce housing and household debt
Across States in United States

Per-capita consumption growth 2006 to 2009

Housing net worth shock 2006 to 2009
Across Countries in Great Recession

Source: IMF, 2012
Across Countries in 1989/1992

M. King / European Economic Review 38 (1994) 419–445

Source: OECD (1992) and own calculations.
Fact 2: Heterogeneity Across Households

- Benchmark model implies small marginal propensity to consume out of income or wealth shocks in the aggregate.
- This is rejected in the data because a substantial fraction of agents have very high MPCs.
- Suggests: models with MPC heterogeneity and further research on why some households have such high MPCs.
Propensity to Borrow out of $1 Increase in Home Equity (2002 to 2006)

Credit score

Propensity to borrow

< 700 700 - 799 800 - 899 900 - 999
Propensity to Spend on New Autos out of $1 Increase in Home Equity

Bottom two categories make up 55% of auto sales in 2006
MPC out of Fiscal Rebate Checks by "Cash-on-Hand"

Source: Jappelli and Pistaferri, 2014
For both 2001 and 2008 stimulus checks, lower income and lower liquidity households spend higher fraction

Parker (2014): “the propensity to increase spending is not transitory, due to recent income shocks, or to liquidity management with illiquid assets, suggesting it is instead due to preferences”
Why Such a High MPC?

- Substantial fraction of population eats what they can get, even if it means borrowing to the hilt
- Their borrowing matters for aggregates (see subprime auto loans today)
- Why do they behave in this way?
  - Liquidity constraints? (Carroll & Kimball, Deaton)
  - Behavioral biases? (Harris and Laibson)
Borrowers Not a Small Part of Population

Figure 11: Synthetic saving rates by Wealth Group

Source: Saez and Zucman, 2014
Fact 3: We Know Very Little About General Equilibrium Corrective Forces

- GE corrective forces are a crucial part of macroeconomic modeling, lead many to believe that heterogeneity less important

- Examples:
  - Reduction in borrowing by indebted households during recession lowers interest rates, spurs saver households to consume
  - Higher savings increases investment
  - Implication: Y always equal to F(K,AL)
Must Separate Facts from Assumptions

- In outlining GE corrective forces, a dangerous habit is to assume forces exist without solid empirical evidence.
- “Sure, highly indebted households pull back heavily on spending (in data), but corrective force $x$ (not in data) means it doesn’t affect total output.”
- If your model has a GE corrective force, show it in the data.
Many macroeconomists assume frictions to short-circuit GE corrective forces, but this should be backed up with solid evidence.

Example: if nominal rigidities matter, why? For how long? Even 5 years later?

Regarding zero lower bound, can one show a boost in spending if real interest rates become significantly negative?
Fact 4: The Boom is as Important as Bust

- Many macroeconomic models assume all is fine with economy until some shock sends it into a tailspin – I disagree
- Severe economic downturns typically preceded by debt-driven booms
- Understanding the bust requires an understanding of the boom – models should incorporate both
Boom and Bust Cycle Across States

Per-capita consumption
House price boom states

AZ, CA, FL, and NV
All other states

Indexed to 2002

Accumulation of Durables Predicts Recession Severity

Source: Beaudry, Galizia, and Portier, 2014
“Based on a study of nearly 200 recession episodes in 14 advanced countries between 1870 and 2008, we document a new stylized fact: more credit-intensive booms tend to be followed by deeper recessions and slower recoveries. We find a close relationship between the rate of credit growth relative to GDP in the expansion phase and the severity of the subsequent recession.”

-- Jorda, Schularick, and Taylor, 2012
I don’t have the magical solution; I don’t know the exact model that is most consistent with these facts.

Recent models incorporate many of these facts, and I think we are now closer to understanding severe downturns (list of models at end of presentation).

Theory and empirics are *both* necessary, and they should go hand in hand.
Cites: Mian and Sufi Research

- “House Prices, Home Equity-Based Borrowing, and the U.S. Household Leverage Crisis,” *AER*, 2011
Cites: Models Related to Our Research

- Christopher Carroll, just about everything he has written!
- Eggertsson and Krugman, *QJE*, 2012
- Favilukis, Ludvigson, and Van Nieuwerburgh, *WP*, 2011
- Justiniano, Primiceri, and Tambałotti, *WP*, 2014
- Kehoe, Midrigan, and Pastorino, *WP*, 2014
- Korinek and Simsek, Working paper, 2014
- Many others, sorry if I missed you!
Cites: Evidence on Great Recession

- Acemoglu, Autor, Dorn, Hanson, 2014
- Agarwal, Amromin, Ben-David, Chomsisengphet, Piskorski, Seru, WP, 2012
- Hall, *AER*, 2011
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- Charles, Hurst, and Notowidigdo, 2014a, 2014b
- Chodorow-Reich, *QJE*, 2014
- Cochrane, AFA Presidential address, 2011
- DiMaggio and Kermani, working paper, 2014
- Guerrieri and Iacoviello, Working paper, 2014
- Keys, Piskorski, Seru, and Yao, working paper, 2014
- Jorda, Schularick, and Taylor, several papers
- Leamer, NBER WP, 2007
- Stroebel and Vavra, 2014
- Many others, sorry if I missed you!