Implications of Wealth Heterogeneity For Macroeconomics

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Conclusion
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FOMC vs DSGE

Biggest Discrepancy: Uncertainty

- Consumers

- Corporate Investment

- Banks, Financial Markets

- Europe

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"Stochastic" in DSGE Deserves Scare Quotes

- The stochastic "shocks" are silly:
  - Random "impulses" each have no economic meaning
  - Random "responses" are mechanical, not chosen
  - Idiosyncratic shocks don't matter
- The shocks are much too small
  - In macro models, household income is close to 100 percent steady
  - Households who lose their jobs are out of luck, financial, etc.

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"Stochastic" in DSGE Deserves Scare Quotes

- The stochastic "shocks" are silly:
  - Envision a universal state (with its meaning e.g. advancing)
  - Envision steps over the stages of a stochastic processes
  - Informative priority structure given state

- The shocks are much too small
  - In macro are thousandfold bigger for a given focus UHS factors target
  - Stochastic value has been used over an daily horizon often

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- The stochastic "shocks" are silly:
  - Sudden, universal declines in technological efficiency
  - Sudden, arbitrary changes in household patience
  - Monetary-policy-makers gone wild

- The shocks are much too small
  - Variance of household-specific shocks is 100 times larger
  - Anybody who has ever used micro data knows this

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Heterogeneity: *ex ante* and *ex post*

- *ex ante*:
  - Different risk aversion, patience, income risk, etc
- *ex post*:
  - Different outcomes for *ex ante* similar people
- Both kinds of heterogeneity are large and matter (differently)

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Heterogeneity: *ex ante* and *ex post*

- *ex ante*:
    - Different risk aversion, patience, income risk, etc
- *ex post*:
    - Different outcomes for *ex ante* similar people
    - Example: dynamics of their income or wealth
- Both kinds of heterogeneity are large and matter (differently)

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Heterogeneity Is The Solution

Models with serious treatment of heterogeneity:

- Are Feasible
- Are Testable
- Provide sensible answers to questions like those on first slide
- Should Replace "Representative Agent" Models

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Evidence
Representative Agent DSGE Models
Heterogeneous Agents Model
Results

If typical household receives a surprise extra \$1 in income, how much will be spent over the next year?

- Friedman (1963): 0.33
- Friedman (1963): 0.5
- Intervening literature: 0.2~0.7

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Imply MPC of 0.03∼0.05

"Fix:"

- Assume $C = Y$ for households earning half of Y
- Problems:
  - Why?
  - Fails to match micro data
  - Uncertainty, liquidity constraints irrelevant *for both groups*

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Updated Friedman Permanent Income Hypothesis

- Procedure:
    - Calibrate income uncertainty using household-level data
    - Solve for optimal consumption behavior given preferences
    - Simulate to generate wealth distribution
    - Calibrate *ex ante* heterogeneity to match wealth distribution
- Result:
    - MPC should be between 0.2 and 0.7

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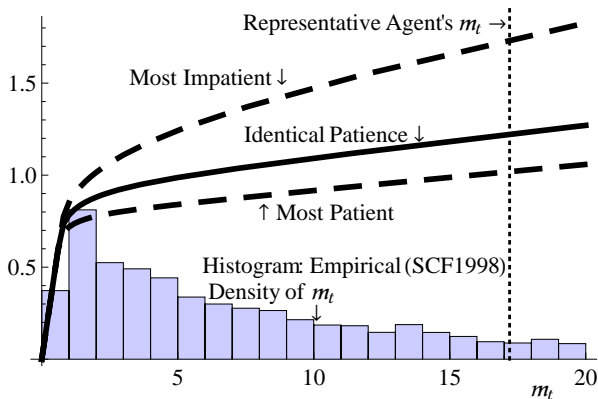 - MPC should be between 0.2 and 0.7

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Figure: Consumption and the m Distribution (ratios to quarterly income)

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Table: MPC's When Model Matches Net Worth Versus Liquid Assets

	Measure of Wealth Matched	
	Net Worth	Liquid Assets
Overall average	0.19	0.68
Wealth Percentile		
Top 1%	0.05	0.23
Top 20%	0.06	0.28
Top 40%	0.07	0.39
Top 60%	0.09	0.50
Bottom 1/2	0.28	0.83

Uncertainty and Heterogeneity Matter

- The FOMC Discussions of Uncertainty Likely Made Sense . . .
- . . . But Would Be Nice To Know!

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