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U.S. Department of the Treasury

September 22, 2017
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- **Larry Summers**
  - FT interview in 2011
    - In the crisis, standard macro models were useless

- **Recent Brookings Panel Discussion**
  - Little progress since 2008 in modeling events like the crisis
    - Contagion from Lehmann Bros to Israel???
    - "Network analysis": No connections Lehmann ⇄ Israel

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  - Would failed debt ceiling brinksmanship trigger another panic?
    - My best guess: probably not
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- At center of macroeconomics since Keynes...
- “Identical Model-Consistent Expectations” (‘IMC_E’)
  - (Better description than “Rational”)
  - For some model of the economy \( m \):
    - (... (Everybody believes (Everybody believes \( m \)))
  - Usually: Identical circumstances (wealth, income, uncertainty)
    - Representative Agent (RA)
- IMC_E has the great virtue that it can be rejected
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- $E$ can be measured(!)
- People behave in ways consistent with measured $E$
- Idea: Test models of $E$ by comparison to data!

Discussion

- No need for more papers that just reject IMCE; a dead horse
- But: Every new paper has its own unique new model of $E$
- Need to whittle down to small set of canonical models . . .
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- A&S: Huge oil price spike invoked bad memories of 1970s

- Investment
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‘The End of Alchemy’

Mervyn King (2016); 2017 Feldstein Lecture at NBER

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- Views similar to A&S on centrality of “narratives”
  - Among bankers and central bankers:
  - Many more financial markets are “bank-like” than we thought
- Useful refinement:
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Why don’t all those papers rejecting IMCE test whether “Narrative Approach” does better?

- Unclear how to translate NA into practice. Needed:
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Quantitative Representation of A ‘Narrative’?

One Idea

- Generate narratives from alternative IMCE models:
  - Experts have sharply different forecasts of pty growth $\gamma$
  - Generate forecasts that would arise for $\gamma \in [0.0, 2.5]$
- Given a person's measured expectations, impute to them the narrative that most closely fits those expectations
- So, in 1990-91, A&S story would be that $C$ dropped because dominant 'narrative' changed to low pty scenario
- begs the question: Why do narratives change?
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Assume “Narratives” spread like diseases (“contagion”)

- Infection from “common sources”: News media
- Communicable via “direct contact”: Facebook
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  - Layoffs announced; employer profits declined ...
  - Friends also might read news sources

Call this proposal ‘Epidemiological Expectations’ (EE)
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Call this proposal ‘Epidemiological Expectations’ (EE)
Assume “Narratives” spread like diseases (“contagion”)

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- Many of the pioneers of ABM are at this conference
- Successes
  - Actual contagion (of diseases)
  - Asset prices modeled by direct spread of profitable behaviors
  - Contagion of ideas
- So far, not used much for explicit modeling of:
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Behavioral Macro
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We Need a Canonical Off-the-Shelf Model ...

One reason ABM’s are resisted:

- Results depend sensitively on huge number of assumptions
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We Need a Canonical Off-the-Shelf Epidemiology Model ...

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A Concrete Example: BDKS

Using Facebook data:

- Persons A and B live in Des Moines in 2008-10
- ... and are identical on ‘observables’
- ... but person A has more friends in ‘busting’ markets

Then:

- Person A is more pessimistic about Des Moines house prices
- Is less likely to buy a house ✓
- If they buy a house, it will be cheaper ✓
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Proposal

Use their data to construct:
- A benchmark network structure for friends
- A benchmark person-to-person infection rate

Use other data to construct:
- Infection rate from 'common sources': News media

Make that a plug-and-play module:
- Don't invent new model of expectations for every paper!
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Connection to Heterogeneous Agent (HA) macro models

HA model starting point: Microeconomic models
- Constructed to match measured heterogeneity
  - For example, a consumption model that matches
    - Income dynamics, income inequality, wealth inequality
    - MPC
  - \( \Rightarrow \) decision rules contingent on expectations (‘narrative’)

Macro outcomes:
- Generated by simulating populations of micro agents
- Taking account of feedbacks from macro back to micro
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What do expectations/narratives do? King (2016) is right:

- Determine your decision rule
  - If $E_t[\Delta p_{t+1}] > x$, $p(\text{buy})$ is higher
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- Gives a way to use many kinds of existing evidence
  - Narratives (say, from analysis of news stories)
  - Expectations (say, from surveys)
  - Behaviors (directly observed in micro data)
  - Outcomes (micro: wealth distribution; macro: $C$)

  and integrate them with each other

- Suggests new kinds of data that should be collected
  - Ask people why they think what they do (e.g., about $u$)
    - Personal experience (“I remember the last oil price shock”)
    - Conversations with friends and family
    - News stories
    - ???
    - Measure behaviors and expectations on the same survey

- Builds bridge between macroeconomists and ABM community
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Steps to get there:

- Choose an existing HA macro model of house prices
- For each observed belief about $E[\Delta p_h]$, find a scenario in the HA model that would produce that path (a narrative)
- Construct $E\overline{E}$ model in which you can be ‘infected’ with new narrative by talking to a friend or (say) from reading a narrative in a newspaper
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BDKS Is Not Yet A Macroeconomic Model

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Confession:

- Whole Talk Was a Pitch for Econ-ARK/HARK project
- Already contains the HA Macro part
- Need to add ABM tools to construct EEEE
  - On our near term agenda; part of what we promised Sloan

If there are listeners who want to help – please do!
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Wealth Inequality

Figure: Distribution of Net Worth (Lorenz Curve)

Solid curve: Distribution of $W$ in the 2004 SCF
References


