Behavioral Macroeconomics

Emi Nakamura
Columbia University

Basic Macroeconomic Model

"Textbook" Model

Three equations:

- Consumption Euler eq.
- Phillips curve
- Taylor rule

Big Divide in Macroeconomics

	Neoclassical	New Keynesian	"Ultra" Keynesian
Frictions	None (simple version)	Sticky prices, wages	Behavioral and liquidity constraints
Forward looking behavior	Yes	Yes	Less So
Monetary policy…	Does nothing	Big effects	Even Bigger
Fiscal stimulus…	Does nothing	Big effects	Even Bigger
Recessions caused by…	Supply shocks	Supply shocks +Demand shocks	Supply shocks +Demand shocks
Location	Freshwater	Saltwater	In the closet
Government	Bad	Good	Extra Good?

Consumption Euler Equation

Big Picture: How does consumption respond to income and interest rates?

$$U'(C_t) = \beta E_t(1 + R_{i,t+1})U'(C_{t+1})$$

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Lots of research on this one

- But views still diverge on whether behavioral features are needed versus "sophisticated" rational models
- Two examples
  - Post-retirement consumption drop
    - Hurst, 2008: "The Retirement of a Consumption Puzzle" argues consumption complementarities explain drop
    - But e.g. Chetty et al, 2013 find little "rational response" to differences in firms' retirement contributions
  - High MPC's
    - Kaplan-Violante (2014) argue that illiquid assets generate high MPC's even for rich people
    - But maybe even households with high liquidity have high MPC's (Pagel-Varnadottir, 2016)

Phillips Curve

Big Picture: How does inflation respond to future inflation expectations and output gap

$$\pi_t = \beta E_t(\pi_{t+1}) + \kappa(Y_t - Y^*)$$

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Phillips Curve

Big Picture: How does inflation respond to future inflation expectations and output gap

$$\pi_t = \beta E_t(\pi_{t+1}) + \kappa(Y_t - Y^*)$$

But should it look like this?

$$\pi_t = \beta \pi_{t-1} + \kappa(Y_t - Y^*)$$

Or this?

$$\pi_t = \beta \pi_{t-1} + \gamma E_t(\pi_{t+1}) + \kappa(Y_t - Y^*)$$

Phillips Curve: Short history

- "Old" Keynesian models used to have people use purely adaptive expectations to update views
- Sargent (1981) pointed out that end of hyperinflations don't fit this view (at all)
- New Keynesian model hyper-forward looking
- Views seem to be trending back in the adaptive expectations direction
  - But where in between should we stop?

Consumption Function: Short history

- "Old" Keynesian view: Consumption a function of current income
- Friedman etc. argued that this didn't make any sense. People should be forward looking
- New Keynesian model hyper-forward looking
- Views seem to be trending back towards less forward-looking models (e.g, recent research on forward guidance "puzzle")
  - But where in between should we stop?

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Microfoundations for Phillips curve

- Calvo "model": Fixed probability of change
- Menu cost model: Fixed cost of adjustment
  - Acceptable to freshwater macroeconomists

Much maligned: Not much empirical evidence that this is "really" what is going on

- E.g., Survey evidence suggests customers are important
- Behavioral factors probably important

But will they yield a different Phillips curve?

Many alternatives to rational expectations on the table…

- Rational inattention (Woodford, 2002; Sims,2003)
- Sticky information (Mankiw-Reis, 2002)
- Sparsity (Gabaix, 2014)
- K-level thinking (Woodford-Garcia-Schmidt, 2015; Farhi-Werning, 2016)
- Lack of common knowledge (Lucas, 1972; Angeletos-Lian, 2017)
- Present bias (Laibson 1997; O'Donoghue-Rabin, 1999)
- Personal expectations (Malmendier-Nagel 2011,2016)

Guiding principles

- Macroeconomists have a lot going on in their models
  - You will always get the questions: "Is this Big" and "Does this matter for macro" in a macro seminar
- Macro is only one letter away from Macho
  - Frictions are for girlymen in macroland
  - Macroeconomists unlikely to include "new frictions" unless they have clear payoffs

Is It First Order for Macro?

- Can we tell the difference?
- Will it make a difference?
- Maybe we should just empirically estimate degree of forward-lookingness?
- Is it worth adding another parameter to already super-complicated models?

Perhaps it make the model simpler?

PE vs. GE thinking

- Big challenge in solving macro models is GE consequences of policies
  - Often a fixed point problem
  - But if we can't solve the model, can the people in our models?
- Recent work considers possibility that individuals see PE but not GE consequences of e.g. monetary policy (e.g., Gabaix, Farhi & Werning, Woodford-Garcia-Schmidt)
  - Interest rates may fall, but I have no idea what this will do to my income
  - May make models easier to solve

Price-Level Determinacy

- What really pins down the level of prices and inflation?
  - Could there be self-fulfilling bubbles (multiple equilibria) if people start expecting these little green pieces of paper to lose value
  - Old debate and recent confusion (Cochrane, 2012)
- Traditional arguments for uniqueness require "super-rational" beliefs about the distant future
- My conjecture: If we all woke up tomorrow and "remembered" high inflation for the last 10 years, the inflation rate would jump (Malmendier-Nagel, 2014)
- Maybe "behavioral" model provides more compelling, and simpler reason for uniqueness

Welfare Costs of Business Cycles

- Famous argument by Lucas that standard models imply small welfare costs of business cycles (Lucas, 1987)
  - Why Lucas stopped working on business cycles
  - Large follow-up literature on what is missing from model
- But is there a more radical view?
  - Macro (and micro) typically assume that people dislike working (e.g. people like days off)
  - But is this reasonable for unemployment?
- Man's search for meaning (Ariely et al., 2008) may be important
  - Unemployment may affect people's happiness and sense of self-worth (beyond the impact on their bank accounts)