

A Behavioral New Keynesian Model: Dynare Implementation

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Overview

- 1 Model Recap
- 2 The Forward Guidance Puzzle
- 3 The Zero Lower-Bound

Gabaix' Behavioral Approach

- Attempts to tackle some of the **puzzling “aggregate outcomes”** of the traditional New Keynesian model
- Addition of a new **parameter “M”** representing myopia of economic agents. Large consequences for monetary and fiscal policy!
 - ▶ Myopia = “Short-sightedness” - agents can't see very far into the future
- NEW VERSION

Five Major Implications

- 1 **Forward Guidance Puzzle**: In traditional model, agents “unflinchingly respect” their Euler equations, so FG is unrealistically powerful.
- 2 **Fiscal Policy**: Traditionally Ricardian Equivalence holds in the NK Model, so tax cuts have **no effect** on consumption.
- 3 **Zero Lower Bound**: Depressions can be “**unboundedly large**” in the traditional model
- 4 **Equilibrium Selection**: The NK Model offers a continuum of possible equilibria, to be selected from.
- 5 **Neo-Fisherian Paradox**: In the traditional NK model a rise in interest rates leads to a smooth rise in **short and long-run** inflation.

Behavioral NK Model Synthesis

- The Behavioral IS-Curve:

$$x_t = M E_t[x_{t+1}] - \sigma(i_t - E_t\pi_{t+1} - r_t^n)$$

- The Behavioral Phillips Curve:

$$\pi_t = \beta M^f E_t[\pi_{t+1}] + \kappa x_t$$

- write new parameters and definitions/values

- Focus on the Forward Guidance Puzzle and the Costliness of the ZLB
- For each analysis, we looked at the effects of shocks across three cases:
 - 1 Traditional Model ($M = 1$)
 - 2 Household Myopia ($M < 1$ for individual households)
 - 3 Household & Firm Myopia ($M < 1$ for household and firms)

Forward Guidance in Dynare

- Gabaix uses a more general approach to Forward Guidance that is independent of the ZLB
- He follows the approach used by McKay, Nakamura, and Steinsson in their 2016 research on the Euler Equation and Forward Guidance Puzzle:
 - ▶ The central bank follows a “naive” interest rate rule WRITE MCKAY EQ
 - ▶ A one-time, 1% rate cut is announced to take place several years in the future

Forward Guidance in Dynare

- figures

- We implemented the ZLB using a large, negative technology shock in conjunction with the `max` operator in MATLAB
- The same central bank policy rule from McKay, Nakamura, and Steinsson (2016) applies here as well

- figures

Final Thoughts

References

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McKay, Alisdair, Emi Nakamura, and Jon Steinsson (2016b), "The Discounted Euler Equation: A Note," *National Bureau of Economic Research*, Working Paper No. 22129.