

Analysis and Solution of the New Keynesian Model

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Dynamic, Stochastic, General Equilibrium (DSGE) Models

- Policy analysis involves investigating *counterfactuals*:
 - What happens if we contemplate a change in monetary policy to:
 - hit an exchange rate target?
 - respond to interest rate spreads, the stock market, credit growth, etc?
- How to answer questions like these?
 - Experiment with an actual economy (too costly!)
 - Do experiments in artificial economy (that's what we do here).
- Requires economic concepts, model solution, estimation and analysis techniques
 - We will explore some of these issues here.

DSGE Model

- Artificial model economy which:
 - Has property that economic outcomes are clearly related to private agent objectives and constraints (not always followed in practice!)
 - To be useful, must generate artificial data that resembles macro economic data of actual economies.
 - Contributes input into discussions about key policy questions.

History of DSGE Models

- Pre-2000's: foundations laid by Hansen-Sargent, Prescott, Lucas, many others....
- 2000-2007: transition from academic 'toys' to serious candidates for actual policy evaluation.
 - Evidence that models are available that can quantitatively address the age-old puzzle about monetary economics: **“why do prices take so long to react to a monetary disturbance, while real variables react right away?”**
 - SW demonstration that DSGE models rival a-theoretical methods in out-of-sample forecasting.
 - Played an important role in placing structure on policy discussions
 - Taylor principle, inflation targeting, interaction between monetary policy and asset volatility
- 2008-?: renewed urgency for additional models development
 - Introduction of financial frictions.
 - Serious treatment of labor markets.

Objective of Course

- Review foundations of the quantitative economic analysis of New Keynesian models
 - Methods for solving models.
 - Perturbation methods.
 - Projection methods.
 - Introduction to the basic New Keynesian model.
 - Foundations and concepts.
 - Policy implications of the New Keynesian model
 - Case for and against ‘inflation targeting’.
 - Risks to the economy if the interest rate is at its zero lower bound.
 - Monetary policy and asset market fluctuations.
- Computer exercises to learn Dynare.