Advanced Monetary Macroeconomics

PhD Program Economics and Master Areas Finance, Banking and Insurance/ Empirical Economics and Econometrics/ Economic Policy and Theory

Topic

During the class, we study in depth modern macroeconomic business cycle models within the class of dynamic stochastic general equilibrium (DSGE) models that are frequently used for forecasting and policy analysis in monetary macroeconomics. We will first derive and evaluate the real business cycle model, where there are no market frictions and business cycle fluctuations are due to technology shocks. We then discuss the New Keynesian model, which assumes frictions regarding the price setting of firms that lead to real effects of monetary policy. We use the New Keynesian model to study questions related to optimal monetary policy and the effect of financial market frictions.

Students will study the detailed derivation of the models, including methods such as log-linear Taylor approximations and the method of undetermined coefficients. Additionally, students will learn how to program and simulate the models in Dynare, a pre-processor for MATLAB.

Syllabus

1. **Introduction to Dynamic Stochastic General Equilibrium (DSGE) Models**
   a. Real Business Cycle vs. New Keynesian Economics – theory
   b. Real Business Cycle vs. New Keynesian Economics – empirical evidence
   c. How to log-linearize

References:
- Galí (2015), ch. 1
- McCandless (2008), ch. 6
- Eric Sims (2011), Lecture notes on log-linearization

2. **A Classical Monetary Model**
   a. Households
   b. Firms
   c. Log-linear approximation and equilibrium
   d. Monetary policy and price-level determination
   e. Optimal Monetary Policy References:
- Galí (2015), ch. 2
- McCandless (2008), ch. 6

3. **The Basic New Keynesian Model**
   a. Households
   b. Firms
      i. Aggregate price dynamics
      ii. Optimal price setting
   c. Equilibrium
      i. Log-linearization and market clearing
      ii. Derivation of the New Keynesian Phillips and IS curves
      iii. Equilibrium under an interest rate rule

References:
- Galí (2015), ch. 3
- McCandless (2008), ch. 6, Appendix 2 & ch. 10

4. **Model Simulation using DYNARE**
   a. Introduction to DYNARE
   b. Structure of a .mod file
   c. File execution and results

5. **Monetary Policy Design in the New Keynesian Model**
   a. Efficiency and sources of sub-optimality
   b. Optimal monetary policy

References:
- Galí (2015), ch. 4

6. **Financial Frictions in the New Keynesian Model**
   a. The financial accelerator in the Bernanke-Gertler-Gilchrist (BGG) model:
      i. Monitoring costs and the role of net worth
      ii. The optimal financial contract
   b. The New Keynesian model with financial frictions

References:
- Bernanke, B.; Gertler, M. and Gilchrist, S. (1999), The Financial Accelerator in a Quantitative Business Cycle Framework in: Taylor, J.B. and Woodford, M. (1999), Handbook of Macroeconomics, Vol. 1, ch. 21.
- Walsh (2017), ch. 10

Textbooks

- Galí, Jordi (2015, 2nd ed.): *Monetary Policy, Inflation, and the Business Cycle*. Princeton University Press
- McCandless, George (2008): *The ABCs of RBCs – An Introduction to Dynamic Macroeconomic Models*. Harvard University Press
- Walsh, Carl E. (2017, 4th ed.): *Monetary Theory and Policy,* Cambridge, MA: MIT Press