Course Description: The course aims to provide some of the background necessary to understand and conduct research at the frontier of monetary, fiscal and financial policy interactions. Although much research studies monetary policy in isolation from fiscal and macroprudential policy, and vice versa, doing so implicitly imposes strong maintained assumptions on policy behavior that may not hold in practice. When those assumptions do not hold, the resulting equilibria can look very different. This course uses a variety of dynamic stochastic general equilibrium models to develop the economic reasoning behind this logic. Models will range from simple “toy” models whose solutions can be derived analytically to more complex models that must be solved numerically.

So-called “unconventional” monetary policy operations that many central banks undertook are, in fact, fiscal policy in the sense that the assets the central banks acquired are ultimately backed by the government’s taxing authority. In addition, many governments implemented substantial fiscal stimulus plans in response to the worldwide recession. Those plans, coupled with aging populations in many advanced economies, portend substantial fiscal stress in the future.

Fiscal stress can undermine the ability of central banks—even inflation targeting central banks who are firmly committed to achieving their targets—to control inflation and to anchor inflation expectations. One well-understood mechanism is Sargent and Wallace’s “Unpleasant Arithmetic:” if net-of-interest surpluses do not adjust to back the value of debt, then money creation must do the adjusting. But Unpleasant Arithmetic is only one mechanism by which fiscal stress can produce inflation. Whereas Sargent and Wallace’s mechanism leads to high and growing inflation, a second mechanism—sometimes called the “fiscal theory”—need not generate high or even especially volatile inflation. The fiscal theory mechanism does, however, imply that inflation is no longer under the control of the central bank.

The mini-course will address several questions. Under what conditions might the fiscal theory mechanism become operative? What kind of fiscal behavior is necessary for the central bank to successfully target inflation? How should we model “unconventional” monetary policy? How do macroprudential policy goals interfere with the implementation of monetary policy? Are there observable implications that identify how fiscal policy can be inflationary? How do policy interactions change when fiscal instruments distort behavior? If monetary and fiscal policies undergo periodic shifts in the rules they obey, how do equilibria change? How do monetary and fiscal policies interact in open economies or in a monetary union? How can we model and analyze the uncertainty intrinsic to future monetary and fiscal behavior?

Meeting Times: There will be 10 lectures and 10 workshop sessions, each lasting 90 minutes. The first meeting will be Monday, August 19.
Course Outline:

- **Monday August 19**
  - Lecture 1: 9 – 10:30 Recent History and Monetary Doctrines
  - Lecture 2: 11 – 12:30 Fiscal Theory of the Price Level
  - Workshop 1: 2 – 3:30 Solving Linear DSGE Models with Gensys
  - Workshop 2: 4 – 5:30 Analyzing Linear DSGE Models with Gensys

  **Code:** WalkerGensys.zip

  **Brief Description:** Lectures 1 and 2 will establish several well known monetary doctrines [Ljungqvist and Sargent (2004, chapter 23)] and provide an introduction to monetary and fiscal policy interactions in a simple endowment economy [Leeper (1991)]. The afternoon workshop will show how to solve and analyze linearized DSGE models following Sims (2002).

- **Tuesday August 20**
  - Lecture 3: 9 – 10:30 Monetary-Fiscal Interactions in Simple Environments
  - Lecture 4: 11 – 12:30 Government Spending and Monetary-Fiscal Interactions
  - Workshop 3: 2 – 3:30 Bayesian Methods to Analyze Linear DSGE Models
  - Workshop 4: 4 – 5:30 Estimating Linear DSGE Models with Gensys

  **Code:** Bayesian.zip

  **Brief Description:** Lecture 3 will extend the simple endowment economy of Lecture 2 to monetary unions, open economies, and longer-maturity structures. The emphasis will be on developing intuition for how fiscal inflations operate in various settings [Leeper and Walker (2011)]. The importance of monetary-fiscal interactions in assessing the size of the fiscal multiplier will be the focus of Lecture 4. These interactions are crucial for understanding how government spending impacts the economy in a standard DSGE setting [Leeper, Traum, and Walker (2011), Christiano, Eichenbaum, and Rebelo (2011)]. Workshops 3 and 4 will introduce Bayesian methods for estimating DSGE models with a particular focus on the efficient use of gensys output, and evaluating model fit. As an example, the use of prior predictive analysis will be demonstrated in a standard asset pricing model [Geweke (2003)].

- **Wednesday August 21**
  - Lecture 5: 9 – 10:30 Monetary and Macroprudential Policy
  - Lecture 6: 11 – 12:30 Evaluating Macroprudential Policy Models
  - Workshop 5: 2 – 3:30 Estimating Linear DSGE Models with Gensys
  - Workshop 6: 4 – 5:30 Office Hours

  **Readings:** Suh (2013b), Suh (2013a), Suh and Walker (2013)

  **Brief Description:** Macroprudential policy refers to a set of regulatory policies imposed mainly on financial institutions for macroeconomic purposes. Using a DSGE model which features dual (business and household) credit markets and bank capital functioning as a buffer stock, Lecture 5 will evaluate the effects of market-universal (capital requirement ratio regulation) and market-specific (LTV regulation) countercyclical macroprudential policy. Lecture 5 will also examine the interaction between monetary policy and macroprudential policy. Lecture 6 will take the most popular macroprudential model(s) to data and ask to what extent can it explain the Great Recession.
Thursday August 22
Lecture 7: 9 – 10:30 Fiscal Limits in DSGE Models
Lecture 8: 11 – 12:30 Fiscal Limits and Inflation
Workshop 7: 2–3:30 Solving Nonlinear DSGE Models
Workshop 8: 4 – 5:30 Solving Nonlinear DSGE Models
Code: DLW.zip
Brief Description: Lectures 7 and 8 introduce Fiscal Limits into the models introduced in previous lectures. Fiscal limits–or the point at which taxes and government expenditures can no longer adjust to stabilize debt–qualitatively change the nature of the equilibrium in models with policy interactions. Davig, Leeper, and Walker (2010) show that even inflation targeting central banks may lose control of inflationary expectations if the economy reaches its fiscal limit. Fiscal limits introduce important nonlinearities into the policy analysis. Workshops 7 and 8 will provide a set of numerical tools to solve and evaluate nonlinear dynamic rational expectations models so that these effects can be taken into account. The emphasis will be on solving and evaluating macroeconomic models with monetary and fiscal interactions but the techniques extend to many other settings. Several numerical examples written in Matlab and Fortran will be provided. I will assume participating students have working knowledge of Matlab and limited or no experience with Fortran.

Friday August 23
Lecture 9: 9 – 10:30 Fiscal Limits and Sovereign Default
Lecture 10: 11 – 12:30 Fiscal Limits in Small Open Economies
Workshop 9: 2–3:30 Analyzing Nonlinear DSGE Models
Workshop 10: 4 – 5:30 Office Hours
Code: Bi.zip
Brief Description: Lectures 9 and 10 and Workshop 9 demonstrate the importance of fiscal limits in modeling sovereign debt default. As a country approaches its fiscal limit, the probability of default and therefore the interest rate spread on sovereign debt can non-monotonically increase. It is shown that the fiscal limit is a crucial state variable in understanding debt dynamics of small open economies.

References


