Seminar1 - ECON 4325 Monetary Policy

Wednesday 27 January and Friday 29 January, 2016

Seminar presentations

• Marius (on Wednesday) and Vemund and Andreas (on Friday) present the Fed monetary policy decision from 16 December w/ interpretation of the press conference.

Seminar problem 1 - Discretionary Monetary Policy (The Barro Gordon Model)

Assume that output is given by the Lucas supply curve:

$$y_t = y_t^{natural} + \gamma(\pi_t - \pi_t^e) + \varepsilon_t, \tag{1}$$

where $E_{t-1}\varepsilon_t = 0, \pi_t^e = E_{t-1}\pi_t$ and $\gamma > 1$.

Assume that the central bank fully controls inflation and that its preferences over inflation and output are given by the following loss function:

$$L_t = \frac{1}{2}[(\pi_t - \pi^*)^2 + \lambda(y_t - y^*)^2], \tag{2}$$

where $y^* > y_t^{natural}$ and $\lambda, y^* > 0$ and $\pi^* \geqq 0$

In the following, also assume that $\lambda > \frac{1}{\gamma^2}$

(a) Derive optimal monetary policy under discretion when expectations are assumed to be rational. (Remember that the central bank must take private expectations as given when they derive optimal policy). What are the solutions for inflation and output? Interpret the solutions and explain why a discretionary policy yields an inflation bias.

(b) Derive the expected loss from this optimal policy and interpret the result.

(c) Now, assume that the government assigns the following loss function to the central bank:

$$L_t = \frac{1}{2}[(\pi_t - \pi^{gov})^2 + \lambda(y_t - y^*)^2], \tag{3}$$

where π^{gov} is the inflation target, which may differ from the socially optimal rate of inflation π^*. Show how the inflation target can be specified so that the discretionary policy implements the same outcome as with optimal policy under commitment.

Seminar problem 2

In the New Keynesian model presented in this course we assume that logtechnology follows the following AR(1) process:

$$logA_t \equiv a_t = \rho_a a_{t-1} + \varepsilon_t^a$$

Assuming that there has been T periods so far, including period t, show that:

$$a_t = \rho_a^T a_{t-T} + \sum_{j=0}^{T-1} \rho_a^j \varepsilon_{t-j}^a$$

by solving backward. Interpret the solution.