Macroeconomics (Research, WS10/11)
Problem Set 6

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1. Sticky price models: The policy implication

Consider the models with sticky prices, such that some firms don't make immediate responses to the changes in the price level (Surely Calvo-Yun model is one of them).

a) Explain the difference between *ex ante* and *ex post* mark-up.

b) Explain how monetary policy affects the real economy.

☞ Galí (2008), Chapter 3.2 – 3.3.

2. Calvo-Yun model: The driving forces

Consider the Calvo-Yun model with staggered price setting.

a) Show that increases in output have a positive impact on inflation.

b) Explain, why the resulting aggregate supply curve is forward looking.

c) Explain how the economy is distorted by monopolistic competition and staggered price setting. Provide some intuitions on how economic policies may restore the efficiency of equilibrium allocations.

d) Show that stabilization of output and inflation are no conflicting goals.

☞ Galí (2008), Chapter 3.2 – 3.3, 4.1 – 4.2.

3. Optimal monetary policy: The new Keynesian perspective

Consider the "new Keynesian perspective" featured by an IS curve

$$x_t = -\phi(i_t - E_t\pi_{t+1}) + E_t x_{t+1} + g_t,$$

where x_t is the output gap, and a Phillips curve

$$\pi_t = \lambda x_t + \beta E_t \pi_{t+1} + u_t,$$

g_t and u_t are shocks that obey $g_t = \mu g_{t-1} + \hat{g}_t$ and $u_t = \rho u_{t-1} + \hat{u}_t$, where $\mu \geq 0, \rho \leq 1$ and $\hat{g}_t$ and $\hat{u}_t$ are i.i.d. random variables with zero mean and constant variances.

The policy objective is given by

$$\min E_t \left[\sum_{i=0}^{+\infty} \beta^i \left(\alpha x_{t+i}^2 + \pi_{t+i}^2 \right) \right].$$

a) Explain the "new"IS curve and the forward looking Phillips curve.

b) Explain the policy objective. What are the differences from a Barro-Gordon type policy objective?

c) Derive the optimal discretionary policy for rational expectations and show that there is a short-run trade-off between inflation and output variability.

d) Using discretionary policy: How must the interest rate respond to a rise in expected inflation?

☞Clarida, Galí and Gertler (1999).

References

Calvo, G. A. (1983): "Staggered Prices in a Utility-Maximizing Framework."*Journal of Monetary Economics*, 12, September, 383–398.

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Galí, J. (2008): *Monetary Policy, Inflation, and the Business Cycle: An Introduction to the New Keynesian Framework*. Princeton: Princeton University Press.

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