14.02 Principles of Macroeconomics

Problem Set #5, Questions

Posted: Wednesday, November 19, 2003

Due Date: Wednesday, November 26, 2003

Part I: True/False

Decide whether each of the following statement is true or false, and justify your answer with a short argument.

1. Monetary policy is neutral in the medium run, but fiscal policy is not.

2. The aggregate supply relation is consistent with the Phillips curve as observed before the 70's, but not since.

3. As long as we do not mind having high inflation, we can achieve as low a level of unemployment as we want. All we have to do is increase the demand for goods and services by using for example expansionary fiscal policy.

4. There is a reliable negative relation between the rate of inflation and the growth rate of output.

5. In the medium run, the rate of inflation is equal to the rate of nominal money growth.

Part II: The Phillips curve

Suppose the Phillips curve is given by (all units are in percentage points):

$$\pi_t = \pi_t^e + 7.5 - 1.25u_t$$
$$\pi_t^e = \theta\pi_{t-1}$$

Assume that in period t-1, the unemployment rate is equal to the natural rate and the inflation rate is zero.

1. What is the natural rate of unemployment in the economy?

2. Suppose that beginning in period *t*, the authorities bring the unemployment rate down to 5% and keep it there indefinitely. Determine the rate of inflation in period t+1, t+2, t+3 when $\theta=0$. Then do the same for $\theta=1$.

3. For which of the two values of θ does $u_t<u_n$ imply an acceleration of the price level?

4. Suppose the authorities do not know what the natural rate of unemployment is. Can they find out what it is, how?

5. Assume that half of the workers sign indexed labor contracts (as in Blanchard p. 175). Redo point 2 under this assumption.

6. Compare your answer in 2. and 5. What does indexing imply about the impact of maintaining the unemployment rate below the natural rate?

Part III: The AS-AD in an open economy.

Consider the aggregate demand in an open economy with fixed exchange rate.

$$Y = C(Y-T) + I(Y, i^* - \pi^e) + G + NX\left(Y, Y^*, \frac{\bar{E}}{P} P^\star\right)$$

1. Given the domestic price level, explain the effects of an increase in the foreign price level.

2. Given the domestic price level, explain the effects of an increase in the expected inflation.

3. Now the aggregate supply is

$$P_t = P_{t-1} + (1+\mu) F\left(1 - \frac{Y_t}{L}, z\right)$$

   Assume the economy is initially in the medium run equilibrium. Describe the short run and medium run effects on an increase in G on output, the real exchange rate, and the interest rate…

4. … on consumption, investment and net exports.

5. Do budget deficit lead to trade deficit?