14.02 Fall 2001
Problem Set 8
Posted November 14, 2001
Due November 28, 2001

I. True/False/Uncertain (explain) (30 points, 5 each)

1. Assume that the economy is initially operating at the natural level of output and that the expected price in period t is based on the following: $P_t^e = P_{t-1}$.Based on the AS-AD model, we know that a *reduction* in the price of oil will cause a reduction in the interest rate in the *medium run*.

2. Assume that the economy is initially operating at the natural level of output and that the expected price in period t is based on the following: $P_t^e = P_{t-1}$.Based on the AS-AD model, we know that a *simultaneous reduction* in government spending and increase in the money supply will cause a reduction in the interest rate in the *medium run*.

3. As product markets become *more competitive* we would expect a reduction in the interest rate in the *medium run*.

4. Suppose policy makers underestimate the natural rate of unemployment. In a situation like this, policy makers might implement a policy that results in steadily rising inflation.

5. From 1993 until 2000 the unemployment rate in US has fallen from 7% to 4%. The natural rate of unemployment is estimated between 5% and 6 %. You should expect that the change in the inflation rate has increased over the same period.

6. Unions usually succeed in obtaining wage indexation to inflation. In continental Europe unions are larger and stronger. Based on the previous points, you conclude that unemployment has a stronger impact on inflation in the US.

II. AS-AD

Assume that the US and the EU have a fixed exchange rate regime. The only change in your model will be that the Aggregate demand will depend on the real exchange rate:

$$Y = Y(\frac{M}{P}, E\frac{P^*}{P}, G, T).$$

Assume that both economies are initially operating at the natural level of output and that the expected price in period t is based on the following: $P_t^e = P_{t-1}$.

1. Assume that foreign affairs require that the US government increases its public expenditure. What are the consequences in the short run and in the medium run.

2. Now there is a sudden increase in the oil price. Oil is only sold against dollars. What is the impact of the oil shock in the EU. Would it have been different without part 1.

3. The two blocs agree that it is not anymore sustainable to have a fixed exchange rate, and they switch to a flexible exchange rate regime. Show and explain the effects in the two blocs of a deregulation of the goods market in the US that leads to an increase in competition.

4. Show and explain the effects of a discrete depreciation of the dollar.

5. Show and explain the effects in the two blocs of an increase in unemployment benefits in the EU.

III. The Phillips Curve.

Consider the relation between the price level, the expected price level, and the unemployment rate:

$$P_t = P_t^e(1+\mu)F(u_t, z)$$

$$F(u_t, z) = 1 - \alpha u_t + z$$

1. Staring from the previous equations,derive the relation between the inflation rate, the expected inflation rate, and the unemployment rate:

$$\pi_t = \pi_t^e + (\mu + z) - \alpha u_t$$

2. Draw in $\pi - u$ space the previous relation. $(0 < \alpha)$. Keeping constant α, show in the graph an increase in the natural rate of unemployment.

3. Keeping constant α, show in the graph an increase in the expected inflation rate.

4. What are the differences, in terms of policy, that part 2 and part 3 imply?

5. Assume that $\pi_t^e = consensus\ of\ \ experts$. Explain what happens to the unemployment rate if they always overpredict the rate of inflation. Then, explain what would happen if they were always right in their prediction.