Lecture 8 - Recommended Problems

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☆☆ Problem 3, Chapter 9

The two paths to the medium-run equilibrium explored in this chapter make two different assumptions about the formation of the level of expected inflation. One path assumes the level of expected inflation equals lagged inflation. The level of expected inflation changes over time. The other path assumes the level of expected inflation is anchored to a specific value and never changes. Begin in medium-run equilibrium where actual and expected inflation equals 2% in period t.

a. Suppose there is an increase in consumer confidence in period $t+1$. How does the IS curve shift? Assume that the central bank does not change the real policy rate. How will the short-run equilibrium in period $t+1$ compare to the equilibrium in period t?

b. Consider the period $t+2$ equilibrium under the assumption that $\pi^e_{t+2} = \pi_{t+1}$. If the central bank leaves the policy rate unchanged, how does actual inflation in period $t+2$ compare to inflation in period $t+1$? How must the central bank change the nominal policy rate to keep the real policy rate unchanged? Continue to period $t+3$. Making the same assumption about the level of expected inflation and the real policy rate, how does actual inflation in period $t+3$ compare to inflation in period $t+2$.

c. Consider the period $t+2$ equilibrium making the assumption that $\pi^e_{t+2} = \pi_{t+1}$. If the central bank leaves the real policy rate unchanged, how does actual inflation in period $t+2$ compare to inflation in period $t+1$? How must the central bank change the nominal policy rate to keep the real policy rate unchanged? Continue to period $t+3$. Making the same assumption about the level of expected inflation and the real policy rate, how does actual inflation in period $t+3$ compare to inflation in period $t+2$?

d. Compare the inflation and output outcomes in part b to that in part c.

e. Which scenario part b or part c, do you think is more realistic. Discuss.

f. Suppose in period $t+4$, the central bank decides to raise the real policy rate high enough to return the economy immediately to potential output and to the period t rate of inflation. Explain the difference between central bank policies using the two assumptions about expected inflation in part b and part c.

☆☆ Problem 4, Chapter 9

A shock to aggregate supply will also have different outcomes when there are different assumptions about the formation of the level of expected inflation. As in Question 3, one path assumes that the level of expected inflation equals lagged inflation. The level of expected inflation changes over time. The second path assumes the level of expected inflation is anchored to a specific value and never changes. Begin in medium-run equilibrium where actual and expected inflation equal 2% in period t.

a. Suppose there is a permanent increase in the price of oil in period $t+1$. How does the PC curve shift? Assume that the central bank does not change the real policy rate. How will the short-run equilibrium in period $t+1$ compare to the equilibrium in period t? What happens to output? What happens to inflation?

b. Consider the period $t+2$ equilibrium under the assumption that $\pi^e_{t+2} = \pi_{t+1}$. If the central bank leaves the policy rate unchanged, how does actual inflation in period $t+2$ compare to inflation in period $t+1$? How must the central bank change the nominal policy rate to keep the real policy rate unchanged? Continue to period $t+3$. Making the same assumption about the level of expected inflation and the real policy rate, how does actual inflation in period $t+3$ compare to inflation in period $t+2$.

c. Consider the period $t+2$ equilibrium under the assumption that $\pi^e_{t+2} = \bar{\pi}$. If the central bank leaves the policy rate unchanged, how does actual inflation in period $t+2$ compare to inflation in period $t+1$? How must the central bank change the nominal policy rate to keep the real policy rate unchanged? Continue to period $t+3$. Making the same assumption about the level of expected inflation and the real policy rate, how does actual inflation in period $t+3$ compare to inflation in period $t+2$.

d. Compare the inflation and output outcomes in part b to that in part c.

e. In period $t+4$, the central bank decides to change the real policy rate to return the economy as quickly as possible to potential output and to the inflation rate of period t. Under which path for the formation of expected inflation is the nominal policy rate of interest higher in period $t+4$, the path from b or the path from c. Explain why, when inflation expectations are anchored as in part c, the central bank can change the policy rate to immediately reach the new level of potential out- put and the period t level of inflation in period $t+4$. Make the argument that is not possible for the central bank to immediately hit both the new level of potential output and the period t level of inflation in period $t+4$ when expected inflation is equal to its lagged value.

☆ Problem 7, Chapter 9

Consider the data in the Focus Box, "Deflation in the Great Depression."

a. Do you believe that output had returned to its potential level in 1933?

b. Which years suggest a deflation spiral as described in Figure 9-3?

c. Make the argument that if the expected level of inflation had remained anchored at the actual value of inflation in 1929, the Great Depression would have been less severe.

d. Make the argument that a substantial fiscal stimulus in 1930 would have made the Great Depression less severe.

☆ Problem 9, Chapter 9

This problem considers the case of the Great Depression in the United Kingdom. Answer the following questions based on information found in the table below.

a. Is there evidence of the deflation spiral from 1929 to 1933 in the United Kingdom?

b. Is there evidence of the effect of high real interest rates on output?

c. Is there evidence of a poor choice of the real policy interest rate by the central bank?

Year	Unemp. Rate (%)	Growth Rate (%)	1Y Nom.(%), i	Inflation (%), π	1Y Real (%), r
1929	10.4	3.0	5.0	-0.9	5.9
1930	21.3	-1.0	3.0	-2.8	5.8
1931	22.1	-5.0	6.0	-4.3	10.3
1932	19.9	0.4	2.0	-2.6	4.6
1933	16.7	3.3	2.0	-2.1	4.1