Seminar in macroeconomics – ISLM model, 10th week

1. ☺ What is the definition of recession? When the real GDP declines during a recession, what typically happens to consumption, investment, and the unemployment rate?

2. ☺ Give an example of a price that is sticky in the short run but flexible in the long run. What causes the rigidities?

3. ! Suppose an economy characterized by the following equations:

$$C = 400 + 0.8(Y-T) \quad G = 300 \quad T = 250 \quad I = 200$$

Plot the planned expenditures in this economy and calculate the equilibrium level of output. How do the results change if the consumption function equals $C = 400 + 0.9(Y-T)$?

4. ! Consider the following model of an economy:

$$C = 180 + 0.8(Y-T) \quad G = 250 \quad T = 150 \quad I = 190$$

a) Calculate the initial equilibrium level of income.
b) If government spending increases by 10 to 260, what happens to the following factors? Determine the direction and magnitude of the changes: i) the planned expenditure curve; ii) the equilibrium level of income; iii) consumption; iv) government budget deficit.
c) Assume that $G = 250$, but this time the taxes increase by 10 to 160. How do the results from b) change? Determine the direction and magnitude of the changes.

5. ☺ Describe how the following changes affect the slope of the IS curve (use the Keynesian cross):
a) Investment becomes more sensitive to interest rate changes.
b) The marginal propensity to consume increases.

6. ☺ Describe how the following changes affect the LM curve (use the graph of supply and demand for money):
a) An increase in money supply.
b) An increase in output.
c) A change in money demand as a result of an increased use of ATMs.

7. ! According to the IS-LM model, what happens in the short run to the interest rate, income, consumption, and investment under the following circumstances?
a) The central bank increases the money supply.
b) The government increases government purchases.
c) The government increases taxes.
d) The government increases government purchases and taxes by equal amounts.

8. ! Consider the following policy changes:
a) Government reduced defense spending by 10 billion. Use the ISLM model to show the impact of the change on real GDP and the interest rate. Specify the distance by which the individual curves shift.
b) Now suppose that the defense spending is still down by 10 billion, but these 10 billion were used to increase social benefits. Again analyze the impact of this change using the ISLM model.

9. ! Use the IS-LM model to predict the effects of each of the following shocks on income, the interest rate, consumption, and investment. In each case, explain what the central bank should do to keep income at its initial level.
a) After the invention of a new high-speed computer chip, many firms decide to upgrade their computer systems.
b) A wave of credit-card fraud increases the frequency with which people make transactions in cash.

c) A best-seller called *Retire Rich* convinces the public to increase the percentage of their income devoted to saving.

10. ☺ Suppose two countries differ only in the level of the MPC. Country A has a high MPC and country B has a low MPC.

a) Draw the IS and LM curves for both countries in one graph and explain their position and shape.
b) In which country does an increase in the money supply influence the output more?

11. ! Suppose that the government wants to raise investment but keep output constant. In the IS-LM model, what mix of monetary and fiscal policy will achieve this goal?

12. ! Suppose an economy characterized by the following equations:

$$C = 170 + 0.6(Y-T) \qquad T = 200 \quad I = 100 - 4r \quad G = 350$$
$$(M/P)^d = L = 0.75Y - 6r \qquad (M/P)^S = M/P = 735$$

a) Derive the equation of the IS curve.
b) Derive the equation of the LM curve.
c) Calculate the equilibrium level of the real output, interest rate, planned expenditures, consumption and the value of the government budget surplus.
d) Draw the IS and LM curves in a graph.

13. ! The central bank is considering two alternative monetary policies:

- holding the money supply constant and letting the interest rate adjust, or
- adjusting the money supply to hold the interest rate constant.

In the IS-LM model, which policy will better stabilize output under the following conditions?

a) All shocks to the economy arise from exogenous changes in the demand for goods and services.
b) All shocks to the economy arise from exogenous changes in the demand for money.

14. ☺ Many economists believe that in addition to disposable income household spendings depend also on household wealth. If that were so, how would a sudden drop in stock prices affect consumer spending curve and the curve of the planned expenditures? Draw the impact of such a situation in the ISLM graph.

15. ☺ Suppose that the demand for real money balances depends on disposable income. That is, the money demand function is $M/P = L(r,Y–T)$. Using the IS-LM model discuss whether this change in the money demand function alters the following:

a) The analysis of changes in government purchases.
b) The analysis of changes in taxes.

16. ! Explain why the aggregate demand curve slopes downward.

17. ! What is the impact of a reduction in money supply on the economy in the short run and in the long run (use the IS-LM model and a simple AS-AD model).

19. ☺ Interest rates reached levels close to zero in Japan during the 1990s. Economists refer to this situation as a liquidity trap. Because nominal interest rates cannot fall below zero, an expansion in the money supply would not be able to lower nominal interest rates and therefore might not be able to affect spending. The economy could become "trapped" at a low level of aggregate demand, output, and income. But since spending directly depends on real interest rates rather than nominal rates, a higher rate of inflation could push real interest rates below zero and stimulate spending. This is the reason why some economists argue for targeting a rate of inflation that is a little above zero—
say, around 3 percent per year. Use the IS-LM model with a nominal interest rate on the vertical axis to analyze how a successful implementation of this policy affects the equilibrium value of the nominal interest rate i, real output Y, and the real interest rate r.