

Ljubljana Summer school, July 2012

Macroeconomics

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Exercise List 2

Lecture 4: 16/07/2012

1. The Fisher effect
 - (a) represents the relation between unemployment and GDP growth.
 - (b) consists of an equation that relates demand and supply of money.
 - (c) relates nominal and real interest rates.
2. According to the quantity theory of money and the determination of the long-run aggregate supply, if you increase the quantity of money in the economy in the long run
 - (a) you increase output.
 - (b) you increase prices.
 - (c) you increase the real interest rate.
3. What are the exogenous variables of the Keynesian cross model?
4. According to the Keynesian cross model, does an additional unit of government spending increase income by more or less than 1? Justify your answer.
5. In a closed economy, explain graphically the effect of a decrease in investment on the equilibrium level of income, consumption, and savings.
6. Suppose that in a closed economy $S > I$. Can we say that we are in equilibrium? What does this imply for the investment in inventory?
7. Suppose an economy with a public sector. Suppose that $S + T < I + G$. The adjustment towards equilibrium will be characterized by one of the following processes. Choose the one you think is correct and explain why.
 - (a) An unplanned drop in inventory, income, consumption, and savings.

- (b) An unplanned drop in inventory, but an increase in income, savings, and investment.
 - (c) An unplanned drop in inventory, but an increase in income, consumption, and savings.
 - (d) An unplanned drop in inventory, income, consumption, and investment.
8. Suppose an economy where the marginal propensity to consume (MPC) is $c = 0.8$. Determine what is the multiplier of government spending.
9. In a closed economy with public sector, a reduction in public spending causes
- (a) a decrease in the equilibrium level of income, consumption, and savings.
 - (b) no effect on the equilibrium level of income but a decrease in consumption, savings, and investment.
 - (c) a decrease in the equilibrium level of income, consumption, savings, and investment. Moreover, savings and investment decrease by the same magnitude.
10. A drop in public spending determines
- (a) a decrease in income, consumption, and public deficit. Nevertheless, savings do not change.
 - (b) a decrease in income and consumption and an increase in savings
 - (c) a decrease in income, consumption, savings, and public deficit.
11. If the government decides to increase public spending and increase taxes by the same amount,
- (a) the income increases and the public deficit does not change.
 - (b) the income increases and the public deficit decreases.
 - (c) the income decreases and the public deficit increases.
12. Suppose that the government decides to increase taxes and at the same time to increase government purchases by the same magnitude, that is, $\Delta G = \Delta T$.
- (a) Would you expect the equilibrium level of income to increase? Why?
 - (b) Represent graphically in the Keynesian cross model first the effect of the increase in taxes and then the effect of the increase in government spending.
 - (c) What is the change in the public budget?

Lecture 5: 17/07/2012

1. Give an intuition of the points in the graph real interest rate - income that DO NOT lie on the IS curve.
2. Represent graphically how the IS curve changes when the taxes increase.
3. Give the graphical representation of an increase in the marginal propensity to consume (MPC). How does the IS curve change?
4. Consider a closed economy in the short run. What is the condition that describes the equilibrium of the market for goods and services?
 - (a) $Y = \bar{Y}$.
 - (b) $Y = C(Y - \bar{T}) + I(r) + \bar{G}$.
 - (c) $MV = PY$.
5. If we increase government spending by 100, how much does the IS curve shift to the right?
6. Analyze graphically the effect of the purchase of treasury bonds by the central bank on the market for real money balances. What is the effect on the equilibrium real interest rate?
7. Make an example of specific functional form for the liquidity function.
8. Consider the market for real money balances. Analyze graphically what is the effect on the equilibrium interest rate of an increase in the income.
9. Give an intuition of the points in the graph real interest rate - income that DO NOT lie on the LM curve.
10. The bigger the drop in the money supply,
 - (a) the bigger the shift of the LM to the right;
 - (b) the more horizontal the LM;
 - (c) the more vertical the LM;
 - (d) the bigger the shift of the LM to the left.
11. Suppose that the demand for real money balances is represented by the liquidity function $L(r)$. If there is an increase in the real interest rate (other things being equal), then

- (a) the $L(r)$ shifts to the right;
 - (b) the $L(r)$ shifts to the left;
 - (c) the $L(r)$ does not move;
 - (d) none of the above.
12. The equation of the LM curve represents the relation between
- (a) the money supply and the equilibrium level of the real interest rate in the market for real money balances;
 - (b) the money supply and the equilibrium level of income in the market for real money balances;
 - (c) the income and the real interest rate at equilibrium in the market for real money balances;
 - (d) goods and real money balances at equilibrium in the asset market.
13. Which of these factors causes the LM curve to move?
- (a) A change in the income level.
 - (b) A change in the money supply.
 - (c) A change in private savings.
 - (d) A change in public spending.
14. Can you imagine any circumstances where the LM curve become horizontal?
15. The condition that describes the LM curve is
- (a) $S = I$.
 - (b) $Y = C(Y - \bar{T}) + I(r) + \bar{G}$.
 - (c) $\bar{M}/\bar{P} = L(r, Y)$.
 - (d) $r = i - \pi$.

Lecture 6: 18/07/2012

1. Answer to the following questions about the IS-LM model.
 - (a) What does the IS curve represent?
 - (b) What does the LM curve represent?

- (c) In what situation is an economy whose income and interest rate identify a point on the left of the IS curve and below the LM curve?
 - (d) What if the point lies on the right of the IS curve and below the LM curve?
 - (e) What if the point lies on the IS curve but above the LM curve?
2. For each of the following changes, represent graphically its effect on the equilibrium of the IS-LM model and explain the mechanism behind such effect:
- (a) an increase in the government spending;
 - (b) an increase in the taxes;
 - (c) a financial innovation that reduces the money demand.
3. Let us analyze the effectiveness of fiscal policy.
- (a) Describe graphically the effects of fiscal policy using the IS-LM model.
 - (b) Suppose that the IS curve is perfectly vertical, that is, that the investment does not depend on the interest rate. What are the effects of the fiscal policy on the equilibrium levels of interest rate and income?
 - (c) Suppose that the LM curve is perfectly vertical, that is, that the money demand does not depend on the interest rate. What are the effects of the fiscal policy in this case?
4. Let us analyze the effectiveness of monetary policy.
- (a) Describe graphically the effects of monetary policy using the IS-LM model.
 - (b) Suppose that the IS curve is perfectly vertical, that is, that the investment does not depend on the interest rate. What are the effects of the monetary policy on the equilibrium levels of interest rate and income?
 - (c) Suppose that the LM curve is perfectly vertical, that is, that the money demand does not depend on the interest rate. What are the effects of the monetary policy in this case?
 - (d) Suppose that the LM curve is perfectly horizontal, that is, that the money demand is extremely sensible to the interest rate. This situation is the so-called *liquidity trap*. Is the monetary policy effective in this case?
5. According to the IS-LM model, what happens to interest rate, income, consumption, and investment in each of the following circumstances:

- (a) the central bank decides to increase the supply of money;
 - (b) the government increases government spending;
 - (c) the government raises the tax level;
 - (d) the government increases spending and taxes by the same amount, so as to maintain public finances balanced.
6. Use the IS-LM model to predict the effect of each of the following shocks on income, interest rate, consumption, and investment. Explain in each case what should the central bank do in order to maintain the income to its initial level.
- (a) After the introduction of a new high-performance electronic chip, many companies decide to update their hardware technologies.
 - (b) A sudden increase in credit card frauds increases the frequency with which people realize cash transactions.
 - (c) A book with the title “Millionaire retirement” induces people to increase the fraction of income devoted to savings.
7. Explain why each and every statement reported below is true. Analyze the effects of monetary and fiscal policy in each case.
- (a) If investment does not depend on the interest rate, the IS curve is vertical.
 - (b) If the money demand does not depend on the interest rate, the LM curve is vertical.
 - (c) If the money demand does not depend on the income, the LM curve is horizontal.
 - (d) If the money demand is very responsive to changes in the interest rate, the LM curve is close to horizontal.
8. Use the IS-LM model to describe the influence of a decrease in prices on the equilibrium level of income.
9. Explain why the Aggregate Demand (AD) curve has a negative slope.
10. Use the IS-LM model to describe how the following policies affect the income, the interest rate, the price level, the consumption, the investment, and the real money balances. Distinguish the short run effects from the long run effects.
- (a) An increase in the money supply.
 - (b) An increase in government purchases.

- (c) An increase in taxes.
- (d) An increase in government purchases accompanied by an increase in taxes of the same magnitude.

Lecture 7: 19/07/2012

1. Use the model of the small open economy to predict what would happen to the trade balance, the real exchange rate, and the nominal exchange rate in response to each of the following events.
 - (a) A fall in consumer confidence about the future induces consumers to spend less and save more
 - (b) The introduction of a stylish line of Toyotas makes some consumers prefer foreign cars over domestic cars.
 - (c) The introduction of automatic teller machines reduces the demand for money.

2. The country of Leverett is a small open economy. Suddenly, a change in world fashions makes the exports of Leverett unpopular.
 - (a) What happens in Leverett to saving, investment, net exports, the interest rate, and the exchange rate?
 - (b) The citizens of Leverett like to travel abroad. How will this change in the exchange rate affect them?
 - (c) The fiscal policymakers of Leverett want to adjust taxes to maintain the exchange rate at its previous level. What should they do? If they do this, what are the overall effects on saving, investment, net exports, and the interest rate?

3. In 2005 Federal Reserve Governor Ben Bernanke said in a speech: “Over the past decade a combination of diverse forces has created a significant increase in the global supply of saving -a global saving glut- which helps to explain both the increase in the U.S. current account deficit [a broad measure of the trade deficit] and the relatively low level of long-term real interest rate in the world today.” Is this statement consistent with the models we have seen? Explain.

4. What will happen to the trade balance and the real exchange rate of a small open economy when the government purchases increase, such as during a war? Does your answer depend on whether this is a local war or a world war?

5. Suppose that some foreign countries begin to subsidize investment by instituting an investment tax credit.
- (a) What happens to world investment demand as a function of the world interest rate?
 - (b) What happens to the world interest rate?
 - (c) What happens to investment in our small open economy?
 - (d) What happens to our trade balance?
 - (e) What happens to our real exchange rate?

Note: several of these exercises are based on the exercise lists in Chapter 1, 2, 3, and 4 of “Macroeconomics” by N. Gregory Mankiw (7th ed.).