

## SEMINAR 1. GDP and its Measurement.

### Problems for Discussion:

1. Are the following statements true or false?
  - a) Household's spending on new house building is included in consumption.
  - b) The value added includes wages, but doesn't include profits.
  - c) Both nominal and real GDP may be measured only in money.
  - d) Calculating value added, one must subtract the expenses on materials from sales revenue, but should not subtract labor expenses;
  - e) The recipient of transfers must give something in return to the government;
  - f) The capital stock increases by the total amount of investment spending.
  - g) If Ford sells more automobiles, GDP will increase whether they are purchased by Americans or foreigners.
  - h) If a firm replaces an old typewriter with a new one, it doesn't add to GNP because the total number of typewriters remains unchanged.
  - i) If General Motors produces more cars than it sells, this causes a smaller increase in GDP than if it sold all the cars it produced.
  
2. Emphasizing on large scale of giant corporations, very often people compare their sales revenue with GDP of small countries. So, it looks like, that in a way the Exxon corporation, for instance, is larger than Sweden, because its revenue exceeds the Swedish GDP. Why is such a comparison incorrect?
  
3. Which of the following are actually included in deriving this year's GDP? Explain your answer in each case:
  - a) interest on an AT&T bond;
  - b) social security payments received by a retired factory worker;
  - c) the services of a painter in painting the family home;
  - d) the income of a dentist;
  - e) the monthly allowance which a college student receives from home;
  - f) the money received by Smith when he sells a 1983 Chevrolet to Jones;
  - g) rent received on a two-bedroom apartment;
  - h) the money received by Mac when he resells this year's model Plymouth to Ed;
  - i) the purchase of an AT&T bond;
  - j) a \$2 billion increase in business inventories;
  - k) wages paid to a domestic servant.
  
4. State several reasons, why the relationship between GDP per capita dynamics and social welfare dynamics can be of indirect character.

### Exercises:

1. Consider an economy that produces and consumes bread and automobiles. In the table are data for two different years.

	Year 2000	Year 2010

Price of an automobile	\$50,000	\$60,000
Price of a loaf of bread	\$10	\$20
Number of automobiles produced	100	120
Number of loaves of bread produced	500,000	400,000

- a) Using the year 2000 as the base year, compute for each year nominal GDP, real GDP, the implicit price deflator, and a fixed-weight price index such as the CPI.
  - b) How much have prices risen between year 2000 and year 2010? Compare the answers given by the Laspeyres and Paasche price indices. Explain the difference.
2. A farmer grows wheat and sells it to a miller for \$1.00; the miller turns the wheat into flour and then sells the flour to a baker for \$3.00; the baker uses the flour to make bread and sells bread to an engineer for \$6.00; the engineer eats the bread. What is the value added by each person? What is GDP?
3. The following is a list of national income figures for a given year. All figures are in billions. You are to determine the major national income measures by both the expenditure and income methods. The answers derived by each approach should be the same.

Personal Consumption Expenditures	245
Transfer Payments	12
Rents	14
Capital Consumption Allowance (Depreciation)	27
Social Security Contributions	20
Interest	13
Proprietors' Income	31
Net Exports	3
Dividends	16
Compensation of Employees	221
Indirect Business Taxes	18
Undistributed Corporate Profits	21
Personal Taxes	26
Corporate Income Taxes	19
Corporate Profits	56
Government Purchases of Goods and Services	72
Net Private Domestic Investment	33
Personal Saving	16

- a) Using the above data, determine GDP and NDP by both the expenditure and income methods.
  - b) Make those adjustments of NI required in deriving PI.
  - c) Make the required adjustments from PI (as determined in 3b) to obtain DI.
4. If consumption for a household is \$5000, savings are \$3000 and \$2000 are paid out in taxes, then:
- a) what is the personal income?
  - b) what is the disposable income?

Self-Test:

1. Let nominal GDP in the base year was 500. In six years GDP deflator doubled, and real GDP increased by 40 percent. Consequently nominal GDP is equal to:

- a) 2000;
- b) 1400;
- c) 1000;
- d) 750.

2. Net domestic product (NDP) is:

- a) GDP adjusted for depreciation charges;
- b) national income (NI) plus corporate income taxes;
- c) NI minus indirect business taxes;
- d) NI plus personal income and disposable income;
- e) NI minus transfer payments.

3. When nominal GDP is 110 and real GDP is 1000, the GDP deflator is:

- a) 9.09;
- b) 90.91;
- c) 1.11;
- d) 110.

4. If personal income equals 570 while personal income taxes equal 90, consumption is 430, interest payments total 10 and personal saving is 40, disposable income equals

- a) 500;
- b) 480;
- c) 470;
- d) 400.

## SEMINAR 2. **Economic Growth.**

### Problems for Discussion:

1. What is economic growth? How to measure it?
2. Explain why the three measures of economic growth can yield different results. What measure of economic development must be the highest in a country where people are better off economically?
3. Explain why GNP or GNP per capita can be an imperfect measure of the level of economic development in a country. Name also as many undesirable consequences of growth as you can think of. In which country LDC or IC they are more likely to be considered serious? Why?
4. Indicate and explain the figures of growth rates in different countries.
5. Call the main factors of economic growth. What indicators can describe these factors and how to estimate their contribution into the general rates of economic growth?
6. Explain why intensive growth is less costly than extensive growth.
7. What is the influence of the savings rate on the growth rates in Solow model?
8. Describe the characteristics of stationary state in Solow model. Is this state stable?
9. Discuss and evaluate:
  - a) "The path to economic development has been clearly blazed by American capitalism. It is only for the LDCs to follow this trail."
  - b) "The IACs fear the complications which step from oversaving; the LDCs bear the yoke of undersaving."
  - c) "The core of the development process involves changing human beings more than it does alerting a nation's physical environment."
  - d) "The biggest obstacle facing poor nations in their quest for development is the lack of capital goods."
  - e) "A high per capita GNP does not necessary identify an industrially advanced nation."
  - f) "The LDS's should not have any problem with technology. All they have to do is adopt the technology that have been developed in the industrialized world".
10. "The nature of the problems faced by the LDCs creates a bias in favor of a governmentally directed as opposed to a decentralized development process." Do you agree? Substantiate your position.
11. What determines the steady-state rate of growth of income per worker in the Solow model?
12. Why the private sector does not invest as much money as possible to R&D if the return to them is so high? What are the reasons for the support of R&D by the government? What types of R&D activities need government support in the first turn?
13. How can economic policy influence the saving rate?
14. What are the determinants and policy instruments for promoting I) High Saving Rate ii) High Investment Rate, iii) Efficiency of Resources Allocation?
15. What would you add to the package of economic and political measures for accelerating growth rate of an economy?

Exercises:

1. Suppose that the production function is:  $Y = AK^{0.3}L^{0.7}$ .
  - a) If total factor productivity grows at 2% per year and both the capital stock and the number of workers grow at 1% per year each, calculate the growth rate of output.
  - b) If the rate of capital accumulation doubles to 2% per year, calculate the new growth rate of output.
  
2. Suppose that the production function in Solow model is:
 
$$y = \sqrt{k}.$$
  - a) Solve for the steady-state value of  $y$  as a function of  $s, n, g,$  and  $d$ .
  - b) A developed country has a saving rate of 28% and a population growth rate of 1% per year. A less-developed country has a saving rate of 10% and a population growth rate of 4% per year. In both countries,  $g = 0.02$  and  $d = 0.04$ . Find the steady-state value of  $y$  for each country.
  - c) What policies might the less-developed country pursue to rise its level of income?
  
3. Country A and country B both have the production function  $Y = K^{0.5}L^{0.5}$ . Assume that neither country has population growth or technological progress and that 5 percent of capital depreciates each year. Assume further that country A saves 10 percent of output each year and country B saves 20 percent of output each year. Find the steady-state level of capital per worker for each country. Then find the steady-state levels of income per worker and consumption per worker. What must the saving rate, value of  $y, k,$  and  $c$  be at the Golden Rule steady state (for each country)?
  
4. In the table below are data on an economy for four years.

Table. ( $d = 0.1$ )

Years	s	k*	Y*	C*	MPK
1	0.2	4.0	2.0	1.6	0.250
2	0.4	16.0	4.0	2.4	0.125
3	0.5	25.0	5.0	2.5	0.100
4	0.6	36.0	6.0	2.4	0.083

When did the economy reach the Golden Rule steady state?

5. The amount of education the typical person receives varies substantially among countries. Suppose you were to compare a country with a highly educated labor force and a country with a less educated labor force. Assume that the countries have the same saving rate, the same population growth rate, and the same rate of technological progress. Using the Solow model, what would you predict for the following variables?
  - a) The rate of growth of total income.
  - b) The level of income per worker.

Self-Test:

1. Suppose that the production function is  $Y = AK^{0.4}L^{0.6}$ . If the total factor productivity grows with the rate 2%, the output growth rate is 3.4%, the labor force's growth rate is 1%, then the capital's growth rate is:
  - a) 0.4%;
  - b) 1.4%;
  - c) 2%;
  - d) 0.8%.
  
2. Suppose that the production function is  $Y = AF(K,L)$ . The (unchanging) share of capital in output is 0.5. Suppose that output increases by 4%, the labor force increases by 3%, and the capital stock increases by 2%. What is the Solow residual in this case?
  - a) 0.5%;
  - b) 1.0%;
  - c) 1.5%;
  - d) 2.0%.
  
3. In the Solow growth model with population growth ( $n$ ) and technological progress ( $g$ ), the steady-state growth rate of output per worker is
  - a) 0;
  - b)  $n$ ;
  - c)  $g$ ;
  - d)  $n + g$ .
  
4. In the Solow growth model with population growth ( $n$ ) and technological progress ( $g$ ), the steady-state growth rate of total output is
  - a) 0;
  - b)  $n$ ;
  - c)  $g$ ;
  - d)  $n + g$ .
  
5. Which of the following factors influences negatively the rates of economic growth due to empirical estimates?
  - a) The investment's share in GDP.
  - b) The level of military spending under its level 1-5% of GDP.
  - c) The average population growth rate.
  - d) The life expectancy.
  - e) The secondary education enrollment.
  
6. Which of the following factors influences positively the rates of economic growth due to empirical estimates?
  - a) The initial per capita GDP level.
  - b) The average population growth rate.
  - c) The investment's share in GDP.
  - d) The level of military spending under its level 12-15% of GDP.
  - e) The inequality in incomes' distribution.

### SEMINAR 3. **Business Cycles, Unemployment, and Inflation.**

#### Problems for Discussion:

1. Are the following statements true or false?
  - a) Natural rate of unemployment is always constant.
  - b) Unemployment is impossible in an equilibrium labor market.
  - c) Inflation rate can accelerate or decelerate in recession.
  - d) If the rate of inflation falls, prices always decrease.
  - e) People sixteen years of age and older are classified as either employed or unemployed.
  - f) There is no unemployment when real GDP equals potential GDP.
  - g) Real wages decline when oil prices rise.
  
2. Suppose that a country experiences a reduction in productivity - that is, an adverse shock to the production function.
  - a) What happens to the labor demand curve?
  - b) How would this change affect the labor market - that is, employment, unemployment, and real wages - if the labor market is always in equilibrium (labor supply curve is vertical)?
  - c) How would this change affect the labor market if unions constrained real wages to remain unaltered?
  
3. Evaluate as accurately as you can the manner in which each of the following individuals would be affected by unanticipated inflation:
  - a) a pensioned worker;
  - b) a department-store clerk;
  - c) a Union of Automobile Workers (UAW) assembly-line worker;
  - d) a heavily indebted farmer;
  - e) the owner of an independent small-town department store.
  
4. Suppose you agree to lend money to your friend on the day you both enter college, at what you both expect to be a zero real rate of interest. Payment is to be made at graduation, with interest at a fixed nominal rate. If inflation proves to be lower during your four years in college than what you both expected, who will gain and who will lose?

#### Exercises:

1. Use the following data to calculate:
  - a) the size of the labor force and
  - b) the unemployment rate.Total population, 500; population under 16 years of age and institutionalized, 120; not in labor force, 150; unemployed, 23; part-time workers looking for full-time jobs, 10.
  
2. Suppose, that rate of unemployment is 8%. What rate of growth is necessary to reduce the unemployment rate to 6%
  - a) in one year? b) in two years?
  
3. Natural rate of unemployment in the given year is 5%, and actual one is 9%. Sensitivity of GNP to cyclical unemployment dynamics is 2.5. Find the GNP gap. What is the value of underproduction because of unemployment if real GNP was \$500 bln. in the same year?

4. The economic situation can be described by the following data: natural rate of unemployment is 5%, expected rate of inflation is 2%, relative deviation of real GNP from potential one is less 0. There are no external price shocks. Then actual rate of inflation is:
- more than 2%;
  - less than 2%;
  - equals 2%;
  - equals 5%.

5. We can see the following data on prices from the early 1990s:

<u>Year</u>	<u>CPI</u>
1991	400
1992	440
1993	462
1994	462

- Calculate the rate of inflation for 1992, 1993, and 1994.
  - Suppose that the increase in wage rate for a group of workers that sign an employment contract for the 2-year period starting in 1993 is  $\Delta W/W = 0.1$ . What happens to the real wage measured in terms of the CPI?
  - Suppose instead that the wage rate is partially indexed to the CPI according to the formula
 
$$\Delta W/W = 0,05 + 0,5\Delta CPI/CPI$$
 What now happens to the real wage?
  - Finally, suppose that the wage rate is completely indexed to the CPI according to
 
$$\Delta W/W = \Delta CPI/CPI$$
 What happens to the real wage?
6. A teenager is not able to find a job because the legal minimum wage is higher than the wage that firms are willing to offer. This situation is an example of
- frictional unemployment;
  - wait unemployment;
  - cyclical unemployment;
  - efficient unemployment.

### Self-Test:

- "Stagflation" refers to:
  - a simultaneous increase in output and the price level;
  - a simultaneous reduction in output and the price level;
  - an increase in the price level accompanied by decreases in real output and employment;
  - a decline in the price level accompanied by increases in real output and employment.
- If the consumer price index was 301 in 1983 and 311 in 1984 based on an index of 100 for 1967, then it could be concluded that
  - in 1983 and 1984 inflation and prices were both high relative to 1967 comfortable inflation of about 4% and 1967 prices, respectively;
  - in 1984 inflation was low, relative to a comfortable rate of 4%, but prices were actually 311% higher than just 16 years before;
  - in 1984 inflation was low, relative to a comfortable rate of 4%, but prices were actually

211% higher than they were in 1967;

d) none of the above.

3. When the real wage is above the level that equilibrates supply and demand, then the quantity of labor supplied

a) depends on the nominal wage;

b) is smaller than the quantity of labor demanded;

c) is equal to the quantity of labor demanded;

d) is greater than the quantity of labor demanded.

4. Wait unemployment results when

a) the minimum wage is set to increase in the near future;

b) there is generous unemployment insurance;

c) workers are temporarily laid off due to weather conditions;

d) the real wage is above its market-clearing level.

5. One effect of an unexpected rise in inflation is that wealth is redistributed from

a) borrowers to lenders;

b) lenders to borrowers;

c) young people to old people;

d) government to firms.

## SEMINAR 4.      **The Basic Model: Aggregate Demand and Aggregate Supply.**

### Problems for Discussion:

1.     Are the following statements true or false?
  - a)     Large consumer debt encourages consumer expenditures.
  - b)     An equilibrium economy always supposes full employment.
  - c)     According to the classic theory, *AS* curve is always a vertical line, which under no circumstances can move either to the left, or to the right.
  - d)     Inflation expectations always make *AD* curve move to the right.
  - e)     Inflation stops accelerating, if *AD* curve moves to the right.
  - f)     *AD* curve shift to the right necessarily causes inflation.
  
2.     What effects might each of the following have upon aggregate demand or aggregate supply? In each case use a diagram to show the expected effects upon the equilibrium price level and level of real national output. Assume that all other things remain constant.
  - a)     A widespread fear of depression among consumers.
  - b)     A cut in Federal spending for higher education.
  - c)     The expectation of a rapid rise in the price level.
  - d)     A rapid fall in oil prices by one-half.
  - e)     A reduction in personal income tax rates.
  - f)     An increase in nominal wages.
  - g)     A decline in the percentage of the labor force which is unionized.

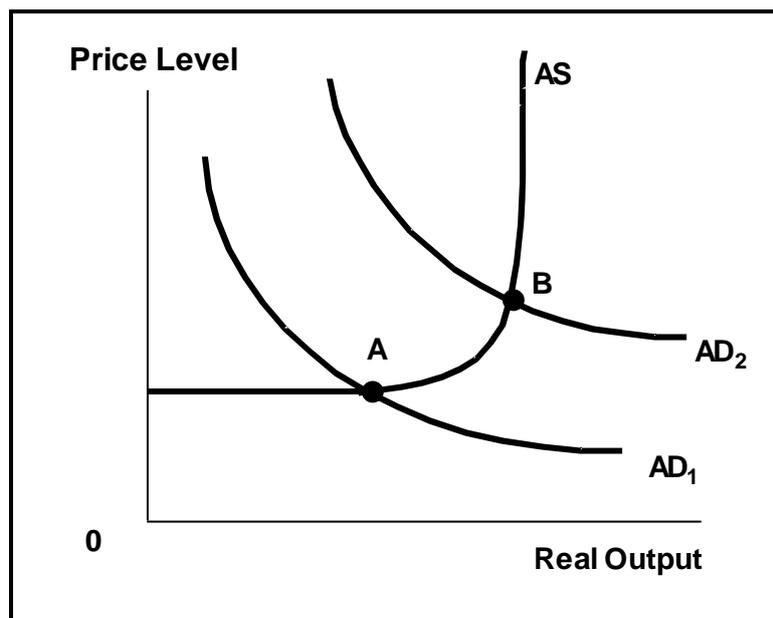
### Exercises:

1.     Which of the following statements about the aggregate demand curve is FALSE?
  - a)     For a fixed money supply, the quantity equation yields a negative relationship between the price level *P* and output *Y*.
  - b)     The aggregate demand curve has a negative slope.
  - c)     When the Federal Reserve increases the money supply, the economy moves along a stationary aggregate demand curve, real output increases, and the price level decreases.
  - d)     The money supply is held constant as the economy moves along a stationary aggregate demand curve.
  
2.     An economy is in a state of full employment of the resources. Then an increase in nominal money supply:
  - a)     causes an increase in real money supply and changes of the level of output;
  - b)     does not influence neither real money supply, nor level of output;
  - c)     causes a proportional growth of real output;
  - d)     causes reduction of interest rate and changes of the level of output;
  
3.     Suppose that the aggregate demand and supply schedules for a hypothetical economy are:

Amount of real national	Price level	Amount of real national
-------------------------	-------------	-------------------------

output demanded, billions	(price index)	output supplied, billions
100	300	400
200	250	400
300	200	300
400	150	200
400	150	100

- a) Use these sets of data to graph the aggregate demand and supply curves. What will be the equilibrium price level of a real national output in this hypothetical economy? Is the equilibrium level of real national output also the full-employment level of real national output? Explain.
  - b) Suppose that buyers desire to purchase \$200 billion of extra real national output at each price level. What factors might cause this change in aggregate demand? What is the new equilibrium price level and level of real national output? Over what range of the aggregate supply curve has equilibrium changed?
4. The Central Bank reduces the money supply by 5 percent.
- a) What happens to the aggregate demand curve?
  - b) What happens to the level of output and the price level in the short run and in the long run.
  - c) According to the Okun's law, what happens to unemployment in the short run and in the long run?
  - d) What happens to the real interest rate in the short run and in the long run?
5. In the accompanying diagram assume that the aggregate demand curve shifts from  $AD_1$  in year 1 to  $AD_2$  in year 2, only to fall back to  $AD_1$  in year 3. Locate the new year 3 equilibrium position on the assumption that prices and wages are completely rigid downward.

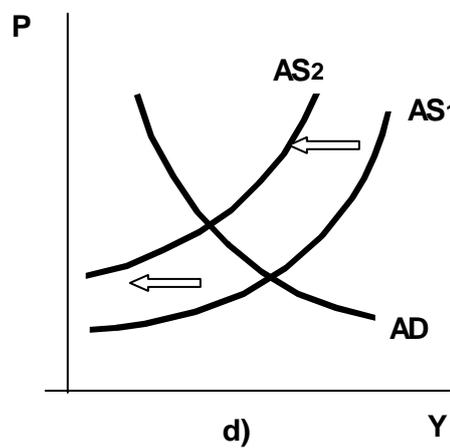
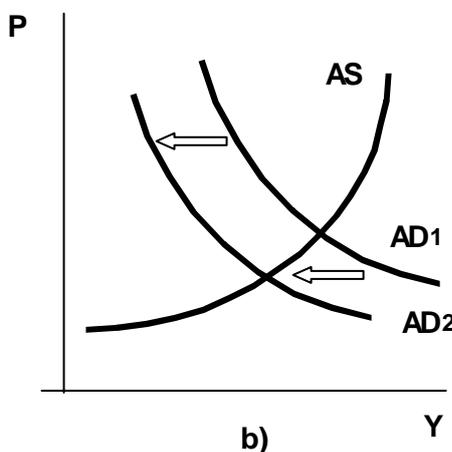
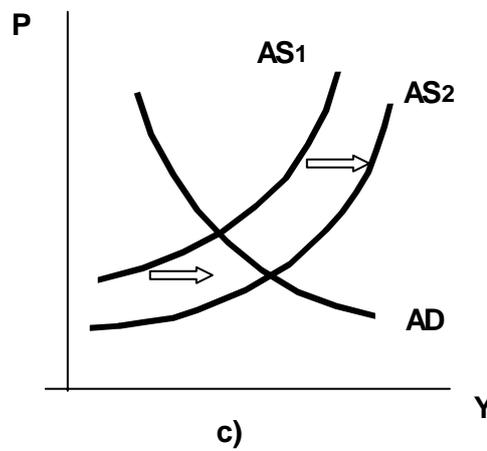
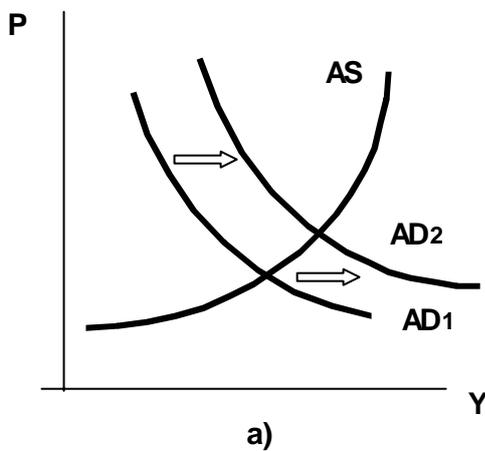


6. Suppose that OPEC suddenly collapsed and oil prices plummeted. Indicate what would happen to the short-run aggregate supply and aggregate demand curves, output, and the aggregate price level?

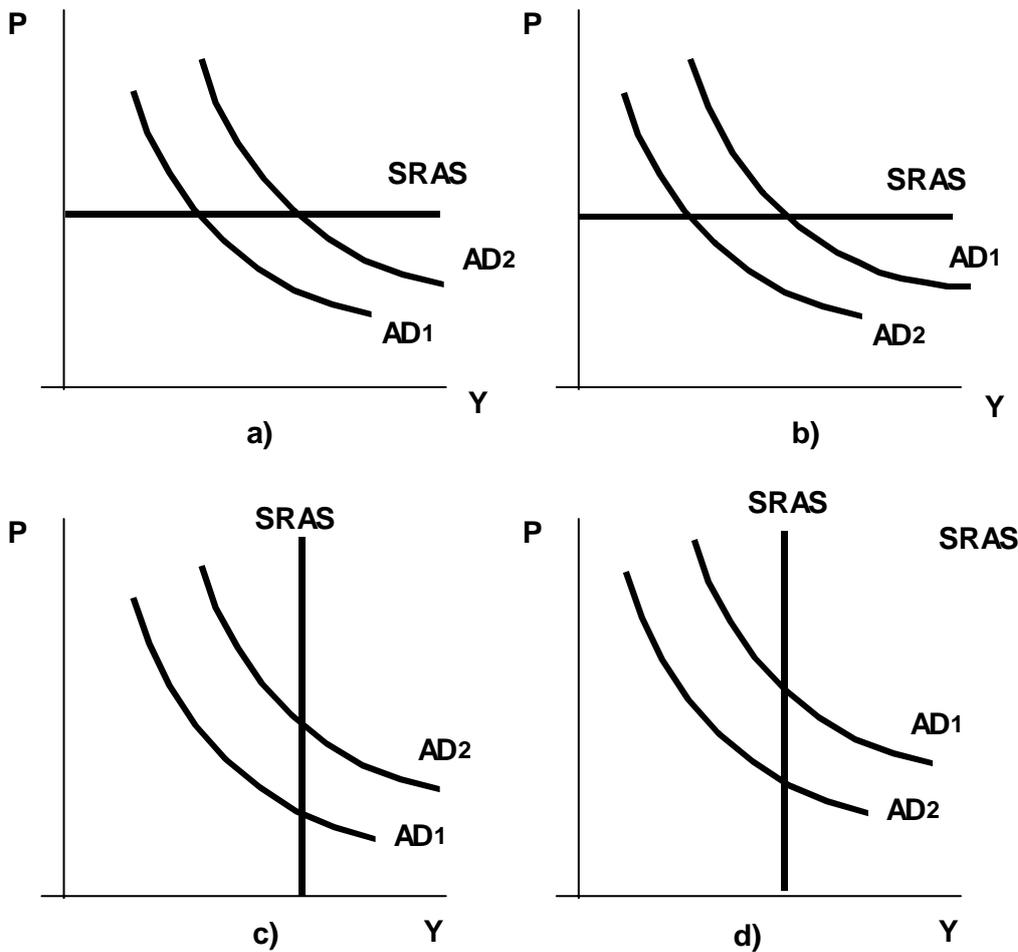
7. Suppose that the long-run aggregate supply curve is vertical at  $Y = 3,000$ , while the short-run aggregate supply curve is horizontal at  $P = 1.0$ . The aggregate demand curve is  $Y = 3.0(M/P)$  and  $M = 1,000$ .  
 Suppose that there is a supply shock that moves *SRAS* to  $P = 1.5$ , and *LRAS* to  $Y = 2,500$ .  
 If the aggregate demand curve is unchanged, what are the new short-run and long-run equilibrium values of  $P$  and  $Y$ ?  
 If the Central Bank wanted to increase money supply enough to keep  $Y$  at 3,000 in the short run, how much would  $M$  have to be?  
 If the Central Bank kept  $M$  at this level in the long run, what would long-run equilibrium  $Y$  and  $P$  be?

Self-Test:

1. If prices and wages are fixed in the short run but perfectly flexible in the long run, then:
  - a) the long-run aggregate supply curve will be vertical;
  - b) the short-run aggregate supply curve will be horizontal;
  - c) changes in the money supply will affect output in the short run but not in the long run;
  - d) all of the above are true.
  
2. Which of the following graphs shows the effects of a decrease in the money supply?



3. In the short run, suppose that all prices are stuck at some predetermined level. Which of the following graphs illustrates the effect of an increase in the money supply in the short run?



4. Aggregate demand curve shifts to the
- right when government spending decreases, *ceteris paribus*;
  - left when the price level increases, *ceteris paribus*;
  - left when there is a decrease in taxes, *ceteris paribus*;
  - right when the nominal money supply increases, *ceteris paribus*.
5. Starting from long-run equilibrium, if the velocity of money increases (due to for example, the invention of automatic teller machines) and no action is taken by the government:
- prices will rise both in the short run and the long-run;
  - output will rise both in the short run and the long run;
  - prices will rise in the short run, and output will rise in the long run;
  - output will rise in the short run, and prices will rise in the long run.

## SEMINAR 5. **Aggregate Demand and Equilibrium Output in the Short Run.**

### Problems for Discussion:

1. Are the following statements true or false?
  - a) The marginal propensity to consume can't be equal to the marginal propensity to save.
  - b) The dynamics and the amount both of savings and investment are determined by the same factors.
  - c) It is always possible to graph the savings function, if the consumption function is available.
  - d) Both the marginal propensity to consume and the marginal propensity to save in the long run depend mainly on the price level.
2. Interest rates in recovery are usually higher than they are in recession. The same with investment expenditures. That means, that high interest rates encourage investment, and low ones discourage them. Disprove this statement.
3. An economy operating at full employment enters a period of high anticipated inflation. Which of the following statements accurately describes the likely result?
  - a) Most people increase saving to be better prepared for the higher prices, thereby increasing capital investment, stimulating the rate of economic growth, and supporting lower interest rates.
  - b) Most people decrease saving to increase current consumption and capital investment, thereby stimulating economic growth and supporting lower interest rates.
  - c) Most people increase saving to be better prepared for the higher prices, thereby reducing capital investment, slowing the rate of economic growth, and supporting lower interest rates.
  - d) Most people decrease saving to increase current consumption, thereby slowing capital investment, slowing the rate of economic growth, and supporting higher interest rates.
4. Why does the *IS* curve slope downward? Explain how and why the sensitivity of investment spending to the interest rate affects the steepness of the *IS* curve.
5. What means if the economy is at points to the right or to the left of the *IS* curve?

### Exercises:

1. Which of the following shows an increase of autonomous expenditure?
  - a) A movement up along the consumption schedule;
  - b) A movement up along the investment schedule as GNP increases;
  - c) An upward shift of the consumption schedule;
  - d) All of the above.

2. Suppose that the investment function is given by  $I = 1000 - 30r$ , where  $r$  is the real interest rate. Suppose that the nominal interest rate is 10 percent and the inflation rate is 2 percent. According to the investment function, investment will be:
- a) 240; b) 700; c) 760; d) 970.
3. Assume the following model of the economy:
- $$C = 180 + 0.8(Y - T)$$
- $$I = 190$$
- $$G = 250$$
- $$T = 150$$
- a) What is the value of the MPC in this model?
- b) Draw the planned expenditure curve, and indicate its slope and  $Y$  intercept.
- c) Compute the equilibrium level of income.
- d) Calculate the level of unplanned inventory accumulation when  $Y = 3,000$ .
4. Draw a set of axes. Let autonomous consumption is \$1,400 bln., the marginal propensity to consume is 0.8, and net taxes are 0. Draw a consumption schedule and label it  $C_1$ . Now assume that autonomous net taxes are equal to \$500 bln. How will the consumption schedule change? Label the new consumption schedule  $C_2$ . Finally add an income tax with a marginal tax rate of 25 percent. Draw another consumption schedule and label it  $C_3$ .
5. Assume the consumption schedule for the economy is such that
- $$C = 50 + 0.8Y.$$
- Assume further that investment and net exports are autonomous (indicated by  $I_n$  и  $X_n$ ); that is, planned investment and net exports are independent of the level of income and the amount  $I_n = 30$  и  $X_n = 10$ .
- a) Calculate the equilibrium level of income for this economy.
- b) What will happen to equilibrium  $Y$  if  $I_n=10$ ? What does this tell you about the size of the multiplier?

Self-test:

1. If the saving function is given by  $S = -140 + 1/4Y$ , then the marginal propensity to consume is:
- a) 1/6;
- b) 3/4;
- c) 2/3;
- d) 1/4.
2. If the consumption function is given by  $C = 150 + 0.85(Y - T)$  and  $T$  increases by 1 unit, then saving:
- a) decreases by .85 units;
- b) decreases by .15 units;
- c) increases by .85 units;
- d) increases by .15 units.
3. At the equilibrium level of income:

- a) unintended inventory accumulation is equal to zero;
- b) planned expenditure is equal to actual expenditure;
- c) there is no tendency for GNP to change;
- d) all of the above.

4. When planned consumption equals  $40 + 0,9Y_d$  and planned investment is 50, the equilibrium level of income is

- a) 90;
- b) 400;
- c) 600;
- d) 900.

5. When planned savings equals  $-40 + 0,2Y_d$  and planned investment is 60, the equilibrium level of income is

- |         |                       |         |
|---------|-----------------------|---------|
| a) 100; | and the multiplier is | a) 4.0; |
| b) 400; |                       | b) 5.5; |
| c) 500; |                       | c) 3.5; |
| d) 1000 |                       | d) 5.0. |

## SEMINAR 6. Demand for Money.

### Problems for Discussion:

1. Are the following statements true or false?
  - a) M1 is comprised of currency, checking deposits and demand deposits.
  - b) currency is comprised of coins and paper money;
  - c) M2 is M1 plus large time deposits;
  - d) M2 is M3 minus small time deposits;
  - e) growth of money supply makes aggregate supply curve shift to the right;
  - f) if prices of goods and services decrease by 50%, then money doubles in its value;
  - g) the opportunity cost of holding currency is the market interest rate.
  - h) the opportunity cost of holding checking deposits is the market interest rate.
  
2. What is the basic determinant of:
  - a) the transactions demand for money?
  - b) the asset demand for money?

Explain how these two demands might be combined graphically to determine total money demand.

How is the equilibrium interest rate determined in the money market?

How might a) a shortening of worker pay periods, and b) an increase in nominal GNP affect the transactions demand for money and the equilibrium interest rate?

3. Why, according to Keynes's speculative motive, does the demand for money decrease with the increase in interest rate?
  
4. "Whenever currency is deposited in a commercial bank, cash goes out of circulation and, as a result, the supply of money is reduced." Do you agree? Explain.
  
5. Assume the money market is initially in equilibrium and that the money supply is now increased. Explain the adjustments toward a new equilibrium interest rate. Will bond prices be higher or will they be lower at the new equilibrium rate of interest? What effects would you expect this interest-rate change to have upon the levels of output, employment, and prices?
  
6. How would the money demand curve change if people's demand for money become more sensitive to changes in the interest rate?  
Would a money supply increase now have a larger or smaller effect on the equilibrium level of the interest rate?

### Exercises:

1. Suppose that money demand is represented by the equation  $(M/P)^d = 0.25Y$ . Use the quantity equation to calculate the income velocity of money.
  
2. Suppose that a bond has a face value of \$10,000 and annually pays a fixed amount of interest of \$800. Compute and enter in the space provided either the interest rate which a bond buyer could secure at each of the bond prices listed or the bond price at each of the interest rates shown.

Bond price \$	Interest rate %
---------------	-----------------

8	-
-	8,9
10	-
11	-
-	6,2

3. The velocity of money,  $V$ , is defined by the expression:  $V = PY/M$ . A policy rule frequently used by the Central bank can be described as follows. First, it is assumed that the velocity of money remains roughly constant from year to year. Next, the Central Bank forecasts this year's rate of inflation. Finally, the Central Bank chooses its target rate of growth for real output. This results in a target rate of growth for the money stock.
- Suppose that inflation for the current year is forecast to be 5 percent and that the Central Bank's target rate of growth for output is 2 percent. By how much should it increase the money stock this year?
  - Suppose now that money demand is given by the expression
 
$$M/P = kY - hR.$$
 Derive an expression for the velocity of money,  $V$ . On what does  $V$  depend?
4. Suppose the money supply and price level are constant, and the demand for money is a function of income and the rate of interest. When the income level increases, there is
- an increase in the quantity of money demanded and an increase in the interest rate;
  - an increase in the quantity of money demanded and a decrease in the interest rate;
  - a decrease in the quantity of money demanded and a decrease in the interest rate;
  - a decrease in the quantity of money demanded and an increase in the interest rate.
5. Explain what a \$40 billion increase in the money supply will do to real GDP under the following assumptions:
- each \$20 billion increase in the money supply reduces the rate of interest by 1 percentage point;
  - each 1 percentage point decline in interest rates stimulates \$30 billion of new investment spending;
  - the expenditure multiplier is 2.5;
  - there is so much unemployment that prices do not rise noticeably when demand increases.
6. Suppose the demand for money is specified as  $L^D = kY - hR$ , with  $k = 0.2$  and  $h = 5$ . When there is a \$100,000 increase in the income level, the money demand schedule shifts
- rightward by \$100,000;
  - rightward by \$20,000;
  - leftward by \$500,000;
  - leftward by \$20,000.

### Self-Test:

- If the Central Bank wishes to increase the money supply it may:
  - perform an open-market purchase;
  - decrease the discount rate;
  - decrease the reserve requirement;
  - all of the above.

2. If real GNP doubles, money supply increases by 80 percent and velocity of money is stable, then:
  - a) the price level increases by 10 percent;
  - b) the price level remains constant;
  - c) the price level decreases by 10 percent;
  - d) hyperinflation will start.
  
3. According to the quantity theory of money
  - a) an increase in the nominal money supply causes a proportional increase in the price level, *ceteris paribus*;
  - b) an increase in the nominal money supply causes a proportional increase in real GNP, *ceteris paribus*;
  - c) an increase in the real money supply causes a proportional increase in the price level, *ceteris paribus*;
  - d) an increase in the real money supply causes a proportional increase in a real GNP, *ceteris paribus*.
  
4. If the nominal money supply rises by 6 percent, the price level rises by 4 percent, and output rises by 3 percent, then, according to the quantity equation, income velocity:
  - a) rises by 13 percent;
  - b) rises by 7 percent;
  - c) rises by 3 percent;
  - d) rises by 1 percent.
  
5. If inflation falls from 6 percent to 4 percent in the long run and nothing else changes, then, according to the Fisher effect:
  - a) both the nominal and the real interest rates fall by 2 percent;
  - b) neither the nominal interest rate nor the real interest rate changes;
  - c) the nominal interest rate falls by 2 percent, and the real interest rate remains constant;
  - d) the nominal interest rate does not change, but the real interest rate falls by 2 percent.
  
6. The demand for currency depends
  - a) negatively on the price level;
  - b) negatively on the real GDP;
  - c) positively on the market interest rate;
  - d) none of the above.
  
7. The money supply increases when:
  - a) there is an increase in government purchases;
  - b) the Federal Reserve buys Treasury bonds from the public;
  - c) a private citizen buys a bond issued by General Motors;
  - d) IBM sells stock to the public and uses the proceeds to finance the construction of a new factory.

## SEMINAR 7. **Fiscal and Monetary Policy in the *IS-LM* Model.**

### Problems for Discussion:

- Are the following statements true or false?
  - Monetary policy shifts both the *IS* and *LM* curves.
  - Increases in money supply and in government spending have the same effects on income.
  - Increase in the money supply and tax cut have the same effects on interest rates.
  - Decrease in the money supply and tax cut have the same effects on the aggregate demand curve.
  - If the price level decreases, the aggregate demand curve shifts to the right, and *LM* curve shifts to the left.
- According to the *IS-LM* model, what happens to the interest rate, income, consumption, and investment when
  - The central bank increases the money supply?
  - The government increases government purchases?
  - The government increases taxes?
  - The government increases government purchases and taxes by equal amounts?
- Explain, why the outcome of any changes in fiscal policy depends on the way the central bank respond each of them.
- What causes the *IS* curve to shift? Explain how and why the spending multiplier affects the steepness of the *IS* curve. How does the increase in the tax rate affect the *IS* curve?
- What causes the *LM* curve slope to change? What causes the *LM* curve to shift?

### Exercises:

- Describe possible shifts of *IS* and *LM* curves in recession when interest rate is fixed.
- According to the *IS-LM* model, if Congress raises taxes but the Fed wants to hold the interest rate constant, the Fed must:
  - increase the money supply;
  - decrease the money supply;
  - first increase and then decrease the money supply;
  - first decrease and then decrease the money supply.
- Crowding-out effect will occur when
  - a decrease in the money supply raises interest rates which crowd out interest-sensitive private sector spending;
  - an increase in taxes for the private sector reduces private sector disposable income and spending;
  - a reduction in income taxes causes higher interest rates, which crowd out interest-sensitive private sector spending;
  - a reduction in government spending causes induced consumption spending to fall.
- Consider the economy of Hicksonia.

- a) The consumption function is given by  $C = 200 + 0.75(Y - T)$ .  
The investment function is  $I = 200 - 25r$ .  
Government purchases and taxes are both 100. For this economy, graph the  $IS$  curve for  $r$  ranging from 0 to 8.
- b) The money demand function in Hicksonia is  
 $(M/P)^d = Y - 100r$ .  
The money supply  $M$  is 1,000 and the price level  $P$  is 2. For this economy, graph the  $LM$  curve for  $r$  ranging from 0 to 8.
- c) Find the equilibrium interest rate  $r$  and level of income  $Y$ .
- d) Suppose that government purchases are raised from 100 to 150. How much does the  $IS$  curve shift? What is the new equilibrium interest rate and level of income?
- e) Suppose instead that the money supply is raised from 1,000 to 1,200. How much does the  $LM$  curve shift? What is the new equilibrium interest rate and level of income?
- f) With the initial values for monetary and fiscal policy, suppose that the price level rises from 2 to 4. What happens? What is the new equilibrium interest rate and level of income?
5. Suppose that money demand depended only on income and not on interest rates.
- a) What does the  $LM$  curve look like in this case?
- b) Show graphically that  $G$  has no effect on the level of output,  $Y$ . What does  $G$  affect?
- c) Show the same thing algebraically. Explain why the  $LM$  equation becomes the aggregate demand equation.
6. It is possible that the interest rate might affect consumption spending. An increase in the interest rate could, in principle, lead to increase in saving and therefore a reduction in consumption, given the level of income. Suppose that consumption were in fact reduced by an increase in the interest rate. How would the  $IS$  curve be affected?

Self-Test:

1. Which of the following statements about the *LM* curve is true?
  - a) The *LM* curve slopes upward, and it is drawn for a given level of income.
  - b) The *LM* curve slopes downward, and an increase in price shifts it upward.
  - c) The *LM* curve slopes upward, and it is drawn for a given supply of real money balances.
  - d) Along the *LM* curve, actual expenditure is equal to planned expenditure.
  
2. At the intersection of the *IS* and *LM* curves:
  - a) actual expenditure is equal to planned expenditure;
  - b) real money supply is equal to real money demand;
  - c) the levels of *Y* and *r* satisfy both the goods market equilibrium condition and the money market equilibrium condition;
  - d) all of the above.
  
3. If the Fed decreases the money supply at the same time as taxes increase:
  - a) the interest rate will definitely rise;
  - b) the interest rate will definitely fall;
  - c) the equilibrium level of income will definitely rise;
  - d) the equilibrium level of income will definitely fall.
  
4. The *IS* curve will shift to the right if:
  - a) consumer confidence in the economy improves;
  - b) firms become more optimistic about the economy and decide to invest more at each interest rate;
  - c) the government increases transfer payments;
  - d) all of the above.
  
5. The *IS* curve will be relatively flat if
  - a) the MPC is large;
  - b) the multiplier is small;
  - c) investment is not very sensitive to changes in the interest rate;
  - d) all of the above.
  
6. An economy is described by the following equations:
$$C = 300 + 0.8Y_d$$
$$I = 200 - 1500R$$
$$X_n = 100 - 0.4Y - 500R$$
$$M_d = (0.5Y - 2,000R)P$$
With: government spending  $G = 200$ ,  
the tax rate  $t = 0.2$ ,  
the nominal money supply  $M = 550$ ,  
and the predetermined price level  $P = 1$ .  
In this case the equilibrium level of income and the equilibrium level of the interest rate are:
  - a) 1200 and 8%;
  - b) 1500 and 10%;
  - c) 100 and 5%;
  - d) 1350 and 7%.

## SEMINAR 8. **Fiscal Policy.**

### Problems for Discussion:

1. Are the following statements true or false?
  - a) The same amounts increase both in taxes and government expenditures provokes growth of GNP, other things being equal.
  - b) Imposing a progressive tax on personal income does not change the multiplier.
  - c) Government budget deficit is not connected with net export value.
  - d) The only aim of fiscal policy is to reduce unemployment and inflation rates.
  - e) Cyclical government budget deficit appears as a result of anticyclical government policy, aimed to encourage economic growth.
  - f) Reduction of marginal tax rates decreases automatic stability in the economy.
  - g) Automatic stabilizers of the economy increase government expenditures.
  - h) If in the state of full employment of the resources government expenditures exceed tax revenue, then structural government budget deficit arises.
2. "Growth or reduction of government expenditures usually cause compensating reduction or growth of private spending". Under what conditions is this statement true? Why? Under what conditions is it false? Why?
3. Should the government, intending to fight recession by means of fiscal policy, cut taxes when the economy shows first signs of recession; when the majority is sure that the recession has begun or when it is officially announced?
4. Suppose that in order to adjust revenues and expenditures in the budget, the government changes tax rates and the amount of government expenditures very often. Will such a policy stabilize or destabilize the economy?
5. Suppose that in attempt to recover the economy in recession the government intends to cut taxes by 5 bln.doll. Does it make any difference, what kind of taxes are cut: either levied on population or levied on corporations? Is the tax cut to affect only low-income persons or not only them? For whom and to what extent is it important?
6. The federal government budget combines expenditures and transfer payments into a total government outlay. Why do we separate government purchases and transfer payments in our analysis of the fiscal policy?

### Exercises:

1. Assume the following model of the economy:
$$C = 180 + 0.8(Y - T)$$
$$I = 190$$
$$G = 250$$
$$T = 150$$
  - a) Compute the initial equilibrium level of income.
  - b) If government purchases were to increase by 10 to 260, what would happen to each of the following?
    - the planned expenditure curve;
    - the equilibrium level of income;
    - the level of consumption;
    - the government budget deficit.
  - c) Starting over again at  $G = 250$ , suppose that taxes increased by 10 to 160. What would

happen to each of the following?

- the planned expenditure curve;
- the equilibrium level of income;
- the level of consumption;
- the government budget deficit.

d) Starting over one last time at  $G = 250$  and  $T = 150$ , suppose that government expenditures and taxes were both increased by 10 to 260 and 160, respectively. What would happen to each of the following?

- the planned expenditure curve;
- the equilibrium level of income;
- the level of consumption;
- the government budget deficit.

2. In a closed economy autonomous consumption equals 200, marginal propensity to consume - 0.9, tax rate - 20%, investment - 50, government expenditures - 30. At the same time, it is known, that actual rate of unemployment is 2% higher, than natural one (the slope coefficient is equal to -3). What is potential GNP? How should government expenditures be changed to eliminate the gap? What will be the change in GNP if the government decides to increase its expenditures by the value of the difference between real GNP and potential GNP?
3. Given a proportional income tax and a government budget that is currently in balance, an increase in autonomous investment, ceteris paribus, will increase the equilibrium level of income and the government budget will be in deficit.

- a) Yes.                      b) No.

4. Let us present budget surplus the following way:

$$BS = tY - G.$$

How the increase in government expenditures influences it? Prove algebraically that budget surplus is to change in a smaller proportion, than government expenditures, using the multiplier model.

### Self-Test:

1. An expansionary fiscal policy requires:
- a) increased government spending, higher taxes or both;
  - b) lowered government spending, lower taxes;
  - c) increased money supply and increased interest rates;
  - d) increased government spending, lower taxes, or both.
2. The government can quickly worsen an inflationary situation when it:
- a) increases taxes;
  - b) increases debt-financed spending;
  - c) exercises money and credit policies to reduce private spending;
  - d) prints money to finance its expenditure.
3. The effect of a government surplus upon the equilibrium level of NNP is substantially the same as:
- a) a decrease in saving;
  - b) an increase in investment;
  - c) an increase in consumption;
  - d) an increase in saving.

4. In determining the government's fiscal posture, one should look at
- a) the actual surplus or deficit;
  - b) the full-employment budget surplus or deficit;
  - c) the personal income tax;
  - d) the inflationary impact which the automatic stabilizers have in full employment economy.

## SEMINAR 9. **Banking System and Monetary Policy.**

### Problems for Discussion:

1. Why does Central Bank rely on open-market operations, and not on reserve requirements in its monetary policy? What is the specifics of each of these instruments' influence on individual banks, on the commercial banking system as a whole and on money supply?
2. What Central Bank monetary policy should be to provide money supply, illustrated by a vertical money supply curve? Are open market operations necessary to preserve money supply curve vertical in spite of money demand fluctuations?
3. Explain the observation that the Central Bank cannot simultaneously stabilize interest rates and the money supply. Explain why the target of stable interest rates might contribute to ongoing inflation.
4. Suppose you are a member of the Board of Governors of the Central Bank. The economy is experiencing a sharp and prolonged inflationary trend. What changes in a) the reserve ratio, b) the discount rate, and c) open-market operations would you recommend?
5. Describe the transmission mechanism of monetary policy.

### Exercises:

1. Calculate the money multiplier for the following values of the currency-deposit ratio  $cr$  and the reserve-deposit ratio  $rr$ :
  - a)  $cr = 0,5$ ;  $rr = 0,25$ ;
  - b)  $rr = 1,0$ ;  $cr =$  any fraction. Explain this result.
2. Assume that the ratio of reserves to deposits is 0.2 and the ratio of currency to deposits is 0.25.
  - a) What is the money multiplier?
  - b) The Central Bank decides to increase the money supply by \$200 mln. through an open market operation. How much should it buy in bonds?
3. Let the reserve requirement be 0.25 and let demand deposits exceed currency by a factor of 2. In that case, an increase of \$1 bln. in the monetary base would increase the money supply by bln.
4. Suppose that the required reserve ratio is .12 for deposits. Suppose also that the total demand for currency is equal to .3 times deposits. Total reserves are \$40 billion.
  - a) What is the level of the money supply?
  - b) By how much does the money supply change if the Central Bank increases the required reserve ratio to .20?
5. How does an increase in the interest rate affect the ratio of reserves to deposits? Taking this effect into account, how would the money supply function look like in a diagram with the interest rate in the vertical axis and the quantity of money in the horizontal axis?

6. Suppose the Central Bank decides that the money supply is too low. It wants to increase the money supply and purchases 100 million worth of securities in the open market. Show the effects of an open-market purchase of securities on the balance sheets of the Central Bank and commercial banks.  
Does it make any difference if the Central Bank buys securities not from a bank, but from an individual?
7. Show the balance sheet changes that would take place if Central Bank sells 100 million worth of government bonds in the open market and the buyer is a commercial bank.
8. Describe the balance sheet changes that would happen when commercial banks borrow 10 million from the Central Bank.
9. Consider the balance sheet of the commercial bank *X*.

Assets		Liabilities and Equity	
Reserves	\$220,000	Demand deposits	\$950,000
Loans, securities, and other assets	\$780,000	Equity	\$50,000
Total assets	\$1,000,000	Total liabilities and equity	\$1,000,000

Assume that the required reserve ratio is 20 percent (0.2).

- a) How much excess reserves does bank *X* have?
  - b) What will be the amount by which money supply can expand, if bank *X* decides to loan all its excess reserves?
10. Assume that reserve-deposit ratio is 0.2 and currency-deposit ratio is 0.3. Budget deficit is 140 bln. rub. Government decides to finance its budget deficit by selling bonds. How much does the money supply change if the Central Bank purchases  $\frac{1}{4}$  of bonds that treasury is selling to finance the deficit.

#### Self-Test:

1. If the ratio of currency to deposits (*cr*) increases, while the ratio of reserves to deposits (*rr*) is constant and the monetary base (*MB*) is constant, then:
  - a) in cannot be determined whether the money supply increases or decreases;
  - b) the money supply increases;
  - c) the money supply decreases;
  - d) the money supply doesn't change.
2. Let the reserve requirement be 0.15 for deposits. Assume that there are no excess reserves. If currency demand equals 40% of deposits, and total reserves equal \$60 bln., than an open market sale of \$1.5 bln. in government bonds would
  - a) increase the money supply from \$560 bln. to \$574 bln.;
  - b) increase the money supply from \$400 bln. to \$410 bln.;
  - c) reduce the money supply from \$400 bln. to \$390 bln.;
  - d) reduce the money supply from \$560 bln. to \$546 bln..

3. The Fed tries to achieve its policy goals in the macroeconomy by:
- a) manipulating the currency component of the monetary base almost exclusively;
  - b) manipulating the reserve component of the monetary base almost exclusively;
  - c) manipulating the saving behavior of private citizens;
  - d) manipulating both the currency and reserve component of the monetary base.

## SEMINAR 10. **Inflation, Unemployment, and the Phillips Curve.**

### Problems for Discussion:

- Are the following statements true or false?
  - If economic agents' expectations prove to be correct, Phillips curve becomes a horizontal line.
  - Inflation and wages grow as a rule at the same rates.
  - An economy in which wages and prices are perfectly flexible is always exactly at full employment.
  - A supply curve shifting to the right means that producers will supply more at each price.
  - A recession never might raise the natural rate of unemployment.
  - The sacrifice ratio depends on cyclical unemployment.
- What is the difference between the economic system responses on the increase of the amount of money in circulation in the long run and in the short run, taking into account the thesis of the neutrality of money?
- Evaluate or explain the following statements:
  - "Taken together, the adaptive expectations and rational expectations theories imply that demand-management policies cannot influence the real level of economic activity in the long run."
  - "The essential difference between the adaptive expectations theory and rational expectations theory is that inflation is unanticipated in the former and anticipated in the latter".
- Assume that people have rational expectations. Explain why the following proposition is true:

"Only unanticipated changes in the money supply affect real GDP. Changes in the money supply that were anticipated when wages and prices were set do not have any real effect".
- What reasons do supply-side economists give to explain leftward shifts of the AS curve? Using the Laffer Curve, explain why they recommend tax cuts to remedy stagflation.
- Present pros and cons against the statement of the supply economy theory advocates, that tax cut encourages people to work more.
- Under what circumstances might it be possible to reduce inflation without causing a recession?

### Exercises:

- The Phillips curve equation is
$$\pi = \pi^e - \beta(u - u^n) + \varepsilon,$$
where  $\pi$  equals the actual inflation rate,  $\pi^e$  equals expected inflation,  $u$  and  $u^n$  equal the actual and natural rates of unemployment,  $\varepsilon$  represents the effects of supply shocks that shift the Phillips curve, and  $\beta$  is greater than zero.
  - According this equation, when the unemployment rate exceeds the natural rate of unemployment and there are no supply shocks, actual inflation will be greater/less than expected inflation.

- b) Suppose that the Phillips curve equation was:

$$\pi = \pi^e - 0.4(u - u^n) + \varepsilon.$$

Suppose in addition, that expected inflation was 8%, the natural rate of unemployment was 5%, and there were no supply shocks. Solve this equation for  $\pi$  and draw it on a Graph and label it  $PC_1$ .

- c) Suppose that the economy was initially at the natural rate of unemployment. Find the point along  $PC_1$  on the graph at which the unemployment rate is equal to the natural rate of unemployment. If the Fed and/or the government thought that inflation must be reduced, they could decrease aggregate demand in the second period by increasing/decreasing government purchases, increasing/decreasing taxes, and/or increasing/decreasing the money supply. If expected inflation does not change (this is important assumption), it will remain equal to \_\_\_\_ percent. Consequently, in the second period, the Phillips curve will not shift, and we will move along  $PC_1$  to the left/right.
- d) Suppose that these policies increased the unemployment rate to 10%. Find this point on your Phillips curve.

2. Coefficient of GNP losses from the reduction of inflation is 4.5%. 1% increase in unemployment corresponds to 2% underproduction of GNP. Accumulated index of cyclical unemployment for 5 years as a whole is 15%. What was the percentage of the inflation rate reduction in that period?

3. Suppose that the economy has the Phillips Curve:

$$\pi = \pi_{-1} - 0.5(u - 0.06).$$

- a) What is the natural rate of unemployment?
- b) Graph the short-run and long-run relationship between inflation and unemployment.
- c) How much cyclical unemployment is necessary to reduce inflation by 5 percentage points? Using Okun's law, compute the sacrifice ratio ( $\beta = 2$ ).
- d) Inflation is running at 10 percent. The Central Bank wants to reduce it to 5 percent. Give two scenarios that will achieve that goal.
4. The higher the average rate of inflation, the more frequently firms must adjust their prices, which implies that a high rate of inflation:
- a) has no effect on the slope of the short-run  $AS$  curve;
- b) should make the short-run  $AS$  curve flatter;
- c) makes the short-run  $AS$  curve steeper;
- d) causes prices to be sticky.
5. A typical estimate of the sacrifice ratio is about 5. Thus, if the inflation rate were to be lowered by 2 percentage points, the amount of one year's GDP we must give up is:
- a) 2.5 percent;
- b) 5 percent;
- c) 10 percent;
- d) 2 percent.

#### Self-test:

1. If actual unemployment rate equals the natural one, then actual inflation rate can exceed the expected one if:

- a) staple prices grow;
- b) staple prices fall;
- c) staple prices are fixed;
- d) nominal wages are fixed.

2. The relationship between short-run aggregate supply curve and Phillips curve is that there:

- a) is no relationship between short-run aggregate supply curve and Phillips curve;
- b) are several short-run aggregate supply curves for each Phillips curve;
- c) are several Phillips curves for each short-run aggregate supply curve;
- d) is exactly one Phillips curve corresponding to each short-run aggregate supply curve.

3. When the aggregate supply schedule is positively sloped, continuous increases in the nominal money supply result in:

- a) no change in the price level and proportional increases in real output;
- b) no change in real output and proportional increases in the price level;
- c) an increase in the price level and real output;
- d) an increase in the price level and a decrease in real output.

4. If the short-run *AS* curve is steep, the Phillips curve will be

- a) flat;
- b) steep;
- c) vertical;
- d) unrelated to the slope of the short-run *AS* curve.

## SEMINAR 11. **Macroeconomic Policy Issues.**

### Problems for Discussion:

1. Are the following statements true or false?
  - a) After an aggregate demand or aggregate supply shock the economic equilibrium restores rapidly without any interference from outside.
  - b) Zero unemployment is one of the targets of macroeconomic policy.
  - c) It would not be an optimal policy for the central bank to stabilize nominal GNP under a condition of aggregate demand shock.
  - d) Central bank policy aimed at maintenance of stable money supply growth rate is always of active type.
  - e) If central bank policy is aimed at stabilization of market interest rate, then any changes in investment cause significant GNP fluctuations.
  - f) Monetary policy is always more effective than fiscal one.
  - g) The amount of government debt can be determined by summing up the value of all government bonds held by economic agents.
  - h) Real value of nominal government debt increases because of inflation.
2. Give three reasons that requiring a balanced budget might be too restrictive a rule for fiscal policy.
3. What are the inside lag and the outside lag? Which has the longer inside lag - monetary or fiscal policy? Which has the longer outside lag? Why?

### Exercises:

1. Draw a diagram to illustrate the specifics of the following economic system development: money supply, stable at the beginning, is in equilibrium in the long run, and then decreases from year to year for several years (some kind of a reverse model of galloping inflation). What price changes are necessary to keep real output at a level less than natural for a long time?
2. Illustrate the outcome of a favorable supply shock, such as import prices decrease, using the diagram of aggregate supply and aggregate demand. What happens to prices and real output, if the amount of money in circulation does not change? What kind of monetary policy provides constant price level? What kind of monetary policy is, to your opinion, most beneficial for economic performance in the short run? And in the long run?
3. The demand for money has suddenly increased. You are a policy adviser who has been asked to recommend a policy that will maintain GNP and keep interest rates constant. Which of the following would you recommend?
  - a) A reduction in the supply of money coupled with an increase in government spending.
  - b) An increase in government spending.
  - c) An increase in the supply of money.
  - d) An increase in the supply of money, but only if it could be accompanied by a reduction in taxes.
  - e) No combination of policies could maintain current levels of both GNP and interest rates.
4. Suppose that federal government purchases  $G = \$500$ , taxes  $T = .4Y$ , and transfers  $F = .2Y$ , with the price level  $P = 1$ . The federal debt  $D$  is \$1000 with the interest rate  $R = .1$  (10 percent). Real

output  $Y = \$2000$ , and potential output  $Y^* = \$2500$ .

- a) What is the budget deficit/surplus?
  - b) Calculate the structural deficit?
  - c) What is the cyclical deficit?
5. In order to reduce the rate of inflation, the government conducts tight fiscal policy. Illustrate its outcome graphically, using AD/AS model, the Keynesian cross, *IS-LM* and Phillips curve.
6. Use aggregate demand-aggregate supply model to sketch graphically the
- a) monetarist,
  - b) Keynesian, and
  - c) rational expectations theories of the macroeconomy.
- Carefully compare the implications of each for public policy.
7. According to the *IS-LM* model, what happens to the interest rate, income and price level in the short run and in the long run when:
- a) the money supply increases;
  - b) government purchases increase;
  - c) taxes increase.

#### Self-Test:

1. An enormous budget deficit under a condition of full employment of the resources, causes, other things being equal:
  - a) cost-push inflation;
  - b) decrease in real interest rate;
  - c) exceeding export over import;
  - d) increase in real interest rate;
  - e) increase in private investment.
  - f) a) and d) are true;
  - g) b) and e) are true.
2. "Automatic stabilizers" tend to
  - a) adjust tax rates to keep the full employment budget in balance;
  - b) adjust tax rates to deep the actual budget in balance;
  - c) reduce national income fluctuations;
  - d) keep the money supply at a steady 4 to 6 percent increase per annum.
3. Which of the following statements is true?
  - a) Monetary policy has an especially long outside lag.
  - b) Fiscal policy has an especially long inside lag.
  - c) Automatic stabilizers eliminate part of the inside lag in the conduct of fiscal policy.
  - d) All of the above.
4. Which of the following statements is true?
  - a) Automatic stabilizers can never fully offset the instabilities of an economy.
  - b) The government cannot achieve an annually balanced budget during a recession by decreasing the tax rates.
  - c) An "income policy" states that the average money-wage increase is to be no higher than the average increase in physical productivity.

d) All of the above are true.

## SEMINAR 12. Trade Policy Instruments.

### Problems for Discussion:

1. Are the following statements true or false?
  - a) Import of goods and services leads to the growth of domestic prices and is a reason of inflation.
  - b) Import helps to increase aggregate demand.
  - c) After introduction of import duties economic welfare of any country is always higher than that under free foreign trade regime.
  - d) Introduction of customs duties encourages domestic consumption.
  - e) The task of import duties is to cut import to protect national industries and employment opportunities from foreign competition.
  - f) The necessity to protect embryonic industries from foreign competition is a reasonable argument for establishing trade barriers.
  - g) Import restrictions help to preserve uncompetitive industries and inefficient employment structure in the economy, restraining this way production efficiency growth.
  
2. "Opening up free trade does hurt people in import-competing industries in the short run. But in the long run, when resources can move between industries, everybody ends up gaining from free trade." Do you agree or disagree? Explain.

### Exercises:

1. The following are production possibilities tables for Japan and Hawaii. Assume that prior to specialization and trade, the optimal product-mix for Japan is alternative B and for Hawaii alternative D.

Product	Japan's production alternatives					
	A	B	C	D	E	F
Radios (in thousands)	30	24	18	12	6	0
Pineapples (in tons)	0	6	12	18	24	30
Product	Hawaii's production alternatives					
	A	B	C	D	E	F
Radios (in thousands)	10	8	6	4	2	0
Pineapples (in tons)	0	4	8	12	16	20

- a) Are comparative-cost conditions such that the two nations should specialize? If so, what product should each produce?
- b) What is the total gain in radio and pineapple output which results from this specialization?
- c) What are the limits of the terms of trade? Suppose that actual terms of trade are 1 unit of radios for 1.5 units of pineapples and the 4 units of radios are exchanged for 6 units of pineapples. What are the gains from specialization and trade for each nation?
- d) Can you conclude from this illustration that specialization according to comparative advantage results the more efficient use of world resources? Explain.

2. Country's  $X$  demand curve for wheat is:  $D = 100 - 20P$ . Its supply curve is:  $S = 20 + 20P$ .

a) Derive and graph country's  $X$  import demand schedule. What would the price of wheat be in the absence of trade?

Now add country  $Y$ , which has a demand curve:  $D^* = 80 - 20P$ , and a supply curve:  $S^* = 40 + 20P$ .

b) Derive and graph country's  $Y$  export supply curve, and find the price of wheat that would prevail in country  $Y$  in the absence of trade.

c) Now allow countries  $X$  and  $Y$  to trade with each other, at zero transportation cost. Find and graph the equilibrium under free trade. What is the world price? What is the volume of trade?

3. You have been asked to quantify the welfare effects of the U.S. sugar duty. The hard part of the work is already done: Somebody has estimated how many pounds of sugar would be produced, consumed and imported by the United States if there were no sugar duty. You are given the following information.

	Situation with Import Tariff	Estimated Situation without Tariff
World price (delivered in New-York)	\$0.10 per pound	\$0.10 per pound
Tariff (duty)	\$0.02 per pound	0
Domestic price	\$0.12 per pound	\$0.10 per pound
U.S. consumption (bln.pounds per year)	20	22
U.S. production (bln.pounds per year)	8	6
U.S. imports (bln.pounds per year)	12	16

Calculate the following measures:

- the U.S. consumers' gain from removing the tariff;
- the U.S. producers' losses from removing the tariff;
- the U.S. government tariff revenue loss;
- the net effect on U.S. national well being.

4. The minister of labor of the country  $X$  is anxious to encourage domestic production of clocks. The minister argues that helping the industry would create jobs and skills that will be carried over into other industries by workers trained in this one. He calls for a 10 percent tariff to take advantage of these benefits. At the same cabinet meeting, the minister of industry argues for a 10 percent subsidy on domestic production instead, stating that the same benefits to the nation can be achieved at less social cost. Show the following using diagrams:

- the effects of the tariff on domestic output and consumption;
- the beneficial side effects of the tariff described by the minister of labor;
- the net gains or losses for the nation as a whole;
- all the same effects for the case of the production subsidy. Identify the differences in the effects of the two alternatives on the government's budget. Which policy would appeal more to a deficit-conscious minister of finance?

5. The minister of trade of the country  $Y$  proposes that the export duty on cotton be removed, so that

producers of cotton can take full advantage of good world prices and earn more foreign exchange. He is opposed by the minister of finance, who argues that he needs the revenues, and by the minister of industry, who argues that it will hurt the domestic industries, which use cotton. Assuming that the price of cotton is tied up in large world markets and is not affected by country's *Y* policies, how each of these effects using diagrams:

- a) the extra exports attainable if the export duty is removed;
- b) the loss of revenue resulting from removal of the duty;
- c) the benefit to cotton producers;
- d) the losses to domestic buyers of cotton;
- e) the net social gain from removal of the duty.

### Self-Test:

1. In addition to raising prices and increasing foreign exchange reserves into a country, a highly protectionist tariff may:
  - a) cause general living standards to rise;
  - b) leave real wages unchanged, although money wages rise;
  - c) increase money wages more than the cost of living so that real wages fall;
  - d) increase money wages less than the cost of living so that real wages fall;
  - e) do none of the above.
2. A difference between a tariff on an imported good and a quota on such a good is:
  - a) that a quota can never be made to yield revenue for the government, whereas a tariff can;
  - b) that a tariff can never be made to yield revenue for the government, whereas a quota can;
  - c) that a quota can be used to shut off all, or virtually all, the inflow of the imported good, whereas a tariff cannot;
  - d) that a tariff can be used to shut off all, or virtually all, the inflow of the imported good, whereas a quota cannot;
  - e) that a quota can provide a stronger protection for domestic industries from foreign competition than a tariff.
3. The infant-economy argument for tariff protection
  - a) is true if a country specializes in the production of only one good;
  - b) contradicts the theory of comparative advantage;
  - c) says that the long-run terms of trade are always shifting against agricultural products;
  - d) is designed to stabilize a country's production possibilities;
  - e) is valid if the production-possibility curve can be shifted outward in the direction of a new comparative advantage.
4. The advocates of tariff say that the imposition of high tariffs, assuming there is no retaliation, will increase money wages. A correct criticism of this argument is:
  - a) such tariffs would tend to lower money wages, not increase them;
  - b) such tariffs would have no effect upon money wages;
  - c) any rise in money wages would be offset by a drop in employment;
  - d) that any rise in money wages would tend to be offset by a rise in the cost of living;
  - e) none of the above.

## SEMINAR 13. **The Balance of Payments.**

### Problems for Discussion:

1. Are the following statements true or false?
  - a) In current account all the transactions between residents of a given country and those of other countries, taking place during the year, are recorded.
  - b) In capital account capital inflow and outflow, net income from investment and net transfers are recorded.
  - c) Current account includes trade balance.
  - d) Strictly speaking, balance of payments balance always equals zero.
  - e) Current account deficit is financed mainly by net capital inflow.
  - f) A country cannot change domestic price level in order to restore balance of payments equilibrium.
  
2. What is better for the economy: export of goods and services exceeding their import or vice versa? If you hesitate, ask the same question in conformity with a household, may be your own. What is better: export of your own goods and services exceeding your import or vice versa?
  
3. Many Americans are concerned about Japanese investment in the United States, especially when Japanese firms buy existing U.S. firms. Suppose that a Japanese firm buys an existing U.S. firm and sends some of its Japanese managers to run the firm with U.S. workers. If the firm's output is unchanged and the former U.S. managers remain unemployed, what happens to:
  - a/ U.S. GNP?
  - b/ U.S. GDP?

### Exercises:

1. If imports exceed exports, then the capital account of the home country must be positive because:
  - a) a positive capital account means that saving exceeds investment;
  - b) the loans that foreigners give the home country that enable the home country to import more than it exports also permit the home country to invest more than it saves;
  - c) the money that foreigners earn from exporting to the home country is saved by the foreigners;
  - d) investment must always equal saving, and thus, the capital account must always be positive.
  
2. Answer the following questions on the bases of Scorpio's balance of payments for 1990 as shown below. All figures are in billions of dollars. What is the balance of trade? The balance on current account? Does Scorpio have a balance of payments deficit or surplus? Would you surmise that Scorpio is participating in a system of fixed or flexible exchange rates? Are Scorpio's international transactions having a contractionary or expansionary effect on its domestic economy?

Merchandise exports	+40
Merchandise imports	-30
Service exports	+15
Service imports	-10
Net investment income	-5
Net transfers	+10
Capital inflows	+10
Capital outflows	-40

Official reserves	+10
-------------------	-----

3. By how much will an extra \$1 billion of government spending raise national income in a underemployed economy having a marginal propensity to import of 0.2 and a marginal propensity to save of 0.1? Ignore foreign repercussions. Calculate the net effect of this increase of government spending on the country's imports.
  
4. An import function is  $100 + 0.1Y$ , and exports are exogenous. If income, ( $Y$ ), is 500, and there is a trade deficit of 50, then exports are:
  - a) 0;
  - b) 50;
  - c) 100;
  - d) 75.
  
5. Which of the following transactions would contribute to a U.S. current account surplus on the balance of payments?
  - a) Boeing barter a \$100 million plane to Yugoslavia in exchange for \$100 million worth of hotel services on the Yugoslav coast.
  - b) The United States borrows \$100 million long term from Saudi Arabia to buy \$100 million of Saudi oil this year.
  - c) The United States sells a \$100 million jet to Libya for \$100 million in bank deposits.
  
6. In an open economy, there are two different measures of total income, gross national product (GNP) and gross domestic product (GDP). With differences between GNP and GDP in mind, complete the following Table.  
If output  $Y$  is defined as GNP, which of the items in the Table would be counted as U.S. net export?

Event	Included in U.S. GNP	Included in U.S. GDP
1. Madonna performs a concert in New-York 2. Madonna performs a concert in London 3. The Rolling Stones perform a concert in New York 4. The Rolling Stones perform a concert in London 5. Toyota earns profits from its car factory in California 6. Ford earns profits from its car factory in England	Yes	Yes

7. Complete the following table:

Case	Y	C	I	G	NX	T	Private Saving	Public Saving	National Saving
1	5,000	3,000	700	1,000		900			
2	5,000	3,200	900	1,000		900			
3	5,000	3,200	900	900		1,000			

For each of the three preceding cases, calculate the current account surplus and the capital account surplus.

8. Suppose that the open economy is described by the following set of equations:

$$Y = C + I + G + NX$$

$$C = 40 + 0.7(Y - T)$$

$$I = 150 - 8r$$

Consumption  $C$  is 530, real interest rate  $r$  is equal to 8 percent and the public saving is 10. Please calculate the current account surplus/deficit.

9. Consider the following table:

Consumption of foreign goods and services	100
Consumption of domestic goods and services	900
Investment of foreign goods and services	20
Investment of domestic goods and services	180
Government purchases of domestic goods and services	240
Taxes	450
Budget deficit	60
Net Exports	100

Based on the data, what are total exports?

10. To reduce balance of payments deficit Spain decides to introduce foreign trade control. Such a policy will have one of the following outcomes in the short run:

- lower rate of employment;
- lower rate of inflation;

- c) lower growth rates;
- d) smaller export from Spain;
- e) smaller import to Spain;
- f) deterioration of trade balance.

Self-Test:

1. Net exports are most likely to be
  - a) positively correlated with both interest rate and GDP;
  - b) negatively correlated with GDP, but positively correlated with interest rate;
  - c) negatively correlated with both interest rate and GDP;
  - d) positively correlated with GDP, but fairly independent of interest rate.
2. An increase in the marginal propensity to import
  - a) has the same effect upon the multipliers as an increase in the MPC;
  - b) has no effect upon the multipliers;
  - c) increases the value of the multipliers;
  - d) decreases the value of the multipliers.
3. Current account as constituent part of balance of payments does not include:
  - a) export of goods;
  - b) net income from investment;
  - c) transportation services to other countries;
  - d) changes in national assets abroad;
  - e) unilateral transfers.
4. The balance of payments deficit can be financed by
  - a) devaluation of currency;
  - b) the external debt accumulation;
  - c) spending the reserves of foreign currencies;
  - d) b) and c).
5. Which of the following can have a temporary positive effect on the balance of payments?
  - a) Tariffs.
  - b) Quotas.
  - c) Reduction of imports.
  - d) All of the above.

## SEMINAR 14. Exchange Rates.

### Problems for Discussion:

1. Explain whether or not you agree with the following statements:
  - a) "A country which grows faster than then its major trading partners can expect the international value of its currency to depreciate".
  - b) "A nation whose interest rate is rising more rapidly than in other nations can expect the international value of its currency to depreciate".
  - c) "A country's currency will appreciate if its inflation rate is less than the rest of the world".
  - d) When price of gold in a country falls, it is called devaluation of national currency.
  - e) Flexible exchange rate system destabilizes domestic economy, causes curtailment of foreign trade and of national investment abroad.
  - f) Central bank policy of market interest rate stabilization is an optimal instrument to stabilize exchange rate.
  
2. Mexico has for many years maintained an exchange rate of 1 peso = 8 US cents.
  - a) Do you think, could fixed exchange rate be maintained at such a level if Mexican rate of inflation were much higher, or, vice versa, much lower than american one, for several years?
  - b) Average annual rate of inflation in Mexico between 1963-1972 was 5%, and they equaled 4% in the USA during the same period. But in 1972-1975 they were already 8% in the USA and jumped to 17% in Mexico. Had mexican government any chance to preserve the same exchange rate ( 1 peso = 8 cents) after 1975?
  
3. As a foreign exchange trader, how would you react to the following new items as they come over the news service ticker tapes:
  - a) Mexico's oil reserves prove much smaller then touted earlier;
  - b) Social Credit Party wins national elections in Canada and promises generous expansion of money supply and credit;
  - c) the United States imposes stiff barriers against auto imports;
  - d) new process generates cheap solar energy using Canadian nickel.

### Exercises:

1. A stronger U.S. dollar, *ceteris paribus*, is expected to mean that:
  - a) a Japanese automobile becomes more expensive to U.S. customers;
  - b) U.S. agricultural exports will cost less in foreign countries;
  - c) vacationing in Europe becomes less expensive for Americans;
  - d) an imported bottle of wine becomes more expensive to Americans.
  
2. A chart of demand for pounds is presented below:

Pound price (dollars)	2,00	2,10	2,20	2,30	2,40	2,50
Demand for pounds (mln.pounds)	200	190	180	170	160	150

- a) Great Britain's government fixes the exchange rate at 1 pound = 2.40 doll. The supply of

pounds at this rate is 180 mln. Should British government buy or sell pounds? If it should, then how much?

b) What happens to British official reserves in this case?

3. Indicate whether each of the following creates a demand for, or a supply of, French francs in foreign exchange markets.

- a) An American importer purchases a shipload of Bordeaux wine.
- b) A French automobile firm decides to build an assembly plant in Los Angeles.
- c) An American college student decides to spend a year studying at the Sorbonne.
- d) A French manufacturer exports machinery to Morocco on an American freighter.
- e) The United States incurs a balance of payments deficit in its transactions with France.
- f) A United States government bond held by a French citizen matures.

4. Suppose that Brazil wants to stabilize the cost of foreign exchange (cruzeiros/dollar) in a world in which dollar prices are generally rising at 5% percent per year. What rate of inflation of domestic cruzeiro prices must it come down to, and what rate of money supply growth would yield this rate, if the quantity theory of money holds with constant  $k$  and Brazilian output is growing at 6 percent per annum?

5. Consider the trade of two mainframe computers between the United States and Germany. In this exercise we assume that the price levels in both the United States and Germany remain constant. In this case, changes in the real exchange rate are reflected by changes in the nominal exchange rate.

Foreign Exchange Rate(DM per \$)	Price of IBM Computer in the U.S.	Price of IBM Computer in Germany	Price of Siemens Computer in Germany	Price of Siemens Computer in the U.S.
1.0	\$10,000	___ DM	15,000 DM	\$
1.5	10,000		15,000	
2.0	10,000		15,000	

- a) Examining the numbers in the table above, note that as the nominal foreign exchange rate increases, U.S. exports of IBM computers will increase/decrease.
- b) As the U.S foreign exchange rate increases, U.S. imports of Siemens computers will increase/decrease.
- c) As the U.S foreign exchange rate increases, U.S. net exports increase/decrease.

6. Which of the following doesn't result in an increase in the net exports of the country?

- a) The domestic currency depreciates.
- b) Major trading partners stimulate their economy.
- c) Foreign currency depreciates.
- d) Foreign trading partners lift their tariff barriers.

Self-Test:

1. If Central Bank takes steps to protect national currency from devaluation, then rate of employment:

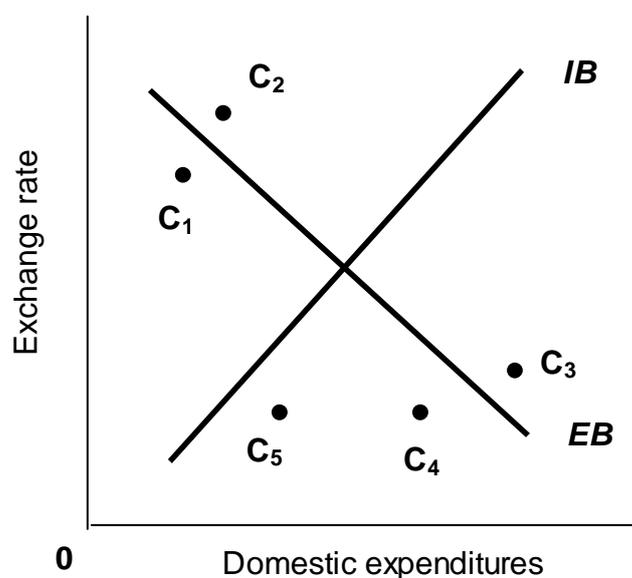
- a) increases;

- b) does not change;
  - c) decreases;
  - d) nothing definite can be stated.
2. An argument in favor of floating exchange rates is that they:
- a) reduce uncertainty and promote international trade;
  - b) allow monetary policy to be used for purposes other than maintaining exchange rates;
  - c) reduce the volatility of exchange rates;
  - d) stabilize the velocity of money.
3. As the real exchange rate of the U.S. dollar increases
- a) foreign goods become cheaper for U.S. citizens;
  - b) U.S. net exports fall;
  - c) the U.S. current account deficit increases;
  - d) all of the above occur.
4. Which of the following will happen in the long run if the German government places high tariffs on all imports?
- a) Germany's net exports rise.
  - b) Germany's real foreign exchange rate increases.
  - c) Germany's capital account surplus decreases.
  - d) All of the above.

## SEMINAR 15. Macroeconomic Policy in an Open Economy.

### Problems for Discussion:

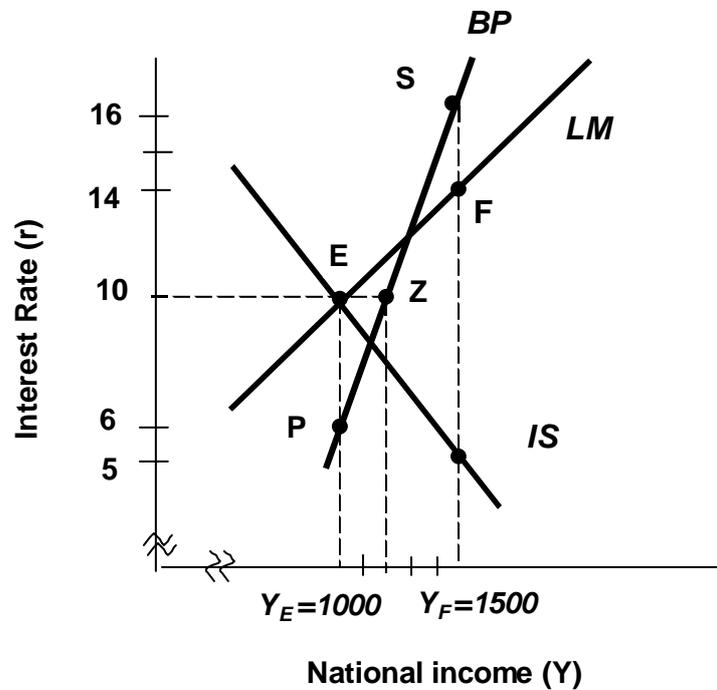
1. Why do nations have policy objective to maintain the current account in equilibrium?
2. Indicate the expenditure-changing and expenditure-switching policies required to achieve external and internal balance simultaneously for points in the following figure.



3. Is the following statement true or false?  
"According to the "assignment rule", fiscal policy should be assigned to external balance when economy is highly open and the marginal propensity to import is high".
4. What determines the slope of the *BP* curve in the *IS-LM-BP* model? Under what condition are the good market, the money market, and the nation's balance of payments simultaneously in equilibrium? Is this necessarily the full-employment level of income?
5. Use the central bank balance sheet to show how a balance of payments deficit affects the stock of high-powered money under fixed exchange rates. Show, to, how sterilization operations are reflected in the central bank's balance sheet.
6. Put together a description of a kind of country that would be an excellent candidate for:
  - a) fixed rate regime;
  - b) a pure floating rate regime.

### Exercises:

1. From the following figure:



- a) Indicate whether the nation faces a deficit or surplus in its balance of payments at  $Y_E = 1000$ .
  - b) Determine the size of the deficit or surplus that the nation faces at  $Y_E = 1000$  if its marginal propensity to import is  $MPM = 0.15$
  - c) Show how the nation can reach full employment with external balance by using the appropriate mix of fiscal and monetary policies.
2. Describe the consequences of devaluation in an open economy with low capital mobility, supposing that the central bank doesn't sterilize the reserve flow.
  3. An open economy with fixed exchange rate and low capital mobility has reached both internal balance (the full-employment level of income) and external balance. The government increased taxes ( $T$ ) and cut expenditures to cover budget deficit. Answer the following questions using the *IS-LM-BP* model.
    - a) What happened to the level of income?
    - b) What measures of trade policy would be effective to restore the full-employment level of income?
    - c) What would be your answer to question b) if the degree of capital mobility is high?
  4. A country imports wine, exports steel, and has a floating exchange rate. If it raises government spending on health care, increasing the budget deficit, how are the following four domestic interest groups affected:
    - a) hospital workers,
    - b) steel mills,
    - c) wineries, and
    - d) construction workers?

How does your answer depend on the degree of international capital mobility?

5. An open economy with flexible exchange rate and high capital mobility has reached both internal balance (the full-employment level of income) and external balance. The Central bank increased

the money supply. Answer the following questions using the *IS-LM-BP* model.

- a) What happened to the level of income?
- b) The government imposes export restrictions and lowers import tariffs. Will these measures be effective to restore the full-employment level of income?
- c) What other measures of macroeconomic policy would be effective in this case?

Self-Test:

1. Which of the following statements is incorrect?
  - a) The *BP* schedule represents combinations of income and the interest rate, that would give an overall balance of payments equal to zero.
  - b) The slope of the *BP* curve in the *IS-LM-BP* model depends on the degree of capital mobility.
  - c) In the case of perfect capital mobility the *BP* curve is vertical.
  - d) Exogenous changes in exports or imports shift the *BP* curve.
2. If the Central bank tries to change the money supply under fixed exchange rates:
  - a) national income will be unaffected;
  - b) the initial increase in the money supply will be offset if the central bank maintains the original fixed exchange rate;
  - c) the *LM* curve will shift first to the right and then to the left, back to its original rate;
  - d) all of the above.
3. In an open economy with a fixed exchange rate and perfect capital mobility a restrictive trade policy will be effective in changing output because:
  - a) the currency will depreciate;
  - b) the monetary expansion will be undertaken by the central bank for purpose of maintaining the fixed exchange rate;
  - c) the change in net exports will lead to a fall in the interest rate;
  - d) the exchange rate will depreciate by the same amount as the interest rate.
4. In an open economy with a fixed exchange rate and low capital mobility devaluation leads to:
  - a) an increase in the exchange rate, the *LM* curve shifts to the right, and the *IS* and *BP* curves are unchanged;
  - b) an increase in the exchange rate, the *IS* and *LM* curves both shift to the right, and the *BP* curve is unchanged.
  - c) an increase in the exchange rate and the *IS*, *LM* and *BP* curves shift to the right.
  - d) an increase in the exchange rate and the *LM* and *BP* curves both shift to the right, and the *IS* curve is unchanged.
5. Trade restrictions have no effect on income under floating exchange rates because:
  - a) net exports increase but investment decreases;
  - b) the exchange rate rises to offset the initial increase in net exports;
  - c) the fall in imports equals the rise in exports;
  - d) all of the above.
6. In an open economy with a floating exchange rate and perfect capital mobility, fiscal policy will

be ineffective in changing output because:

- a) monetary policy will completely offset it;
- b) the exchange rate will remain constant;
- c) any changes in net exports will offset any changes in government purchases or consumption;
- d) the exchange rate will rise by the same amount as the interest rate.

7. In an open economy with a floating exchange rate, a monetary expansion

- a) increases income;
- b) decreases income;
- c) leaves income unchanged;
- d) could either decrease or increase income, depending on the degree of capital mobility.

## SEMINAR 16. **Interrelations among Macroeconomic Accounts..**

### Problems for Discussion:

1. Explain the economic meaning of the following equation:
 
$$(S_p - I_p) + (T - G) = CAB$$
2. In the income-expenditure identity  $Y = C + I + X - IM$ , what would be included in the coverage of  $X$  and  $IM$ , if  $Y$  is defined as
  - a) GDP?
  - b) GNP?
  - c) GNDI?
3. Consider appendix "Macro-Economic Interrelationship". Explain the substance of the marked relationships.
4. Show the relationship of the Monetary Survey to other macroeconomic accounts and its significance for financial programming (use Monetary Survey identities and other accounting identities).
5. There are many possible approaches and starting points in developing a financial program scenario. One of them is to start with a preliminary price, output and change in net international reserves projections. They should be consistent with other macroeconomic variables. Show the possible steps in financial programming.
6. Show the relationship between the monetary accounts: "Monetary Authorities", "Deposit Money Banks", and "Monetary Survey" (See appendix "An Accounting Framework for Monetary Analysis").
7. If the monetary authorities do not want to increase reserve ratios, by what instrument can they reduce the effect on broad money of a large increase in NFA?
8. The table "Flow of Funds" shows the principal financial instruments used for intersectoral financing. Explain how could appear the possible entries in the places marked by asterisks (\*).

**Table: Schematic Flow of Funds**

	Private Sector	Central Government	Banking System	Foreign Countries (*)
	$(S_p - I_p)$	$(S_g - I_g)$		$(-CAB)$
Nonfinancial transactions balances (sectoral balances)	*	*		*
Financial balances				
Money and quasi-money	*		*	
Bank credit to private sector	*		*	
Bank credit to government		*	*	
Net foreign assets			*	*
Foreign borrowing by government		*		*
Foreign borrowing by private sector	*			*
Government domestic nonbank Borrowing	*	*		

\*) The external sector of the reporting country, with sign reversed (deficit, +).