

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ  
НАЦІОНАЛЬНИЙ ТЕХНІЧНИЙ УНІВЕРСИТЕТ  
«ХАРКІВСЬКИЙ ПОЛІТЕХНІЧНИЙ ІНСТИТУТ»

## **MACROECONOMICS**

study guide  
for students of specialties 073 «Management»,  
072 «Finance, Banking and Insurance»

## **МАКРОЕКОНОМІКА**

Практичні завдання з курсу  
для студентів спеціальностей 073 «Менеджмент»,  
072 «Фінанси, банківська справа та страхування»

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## **PREFACE**

In order to ensure effective integration of Ukraine into the world community, it is necessary to discover the laws of functioning of economic system as a whole as well as means of its regulation by the government.

Study of Macroeconomics course unit is based on knowledge gained through the courses of «Economic theory» and «Microeconomics». The aim of the Macroeconomics course is to reveal the mechanism of a national economy functioning on the basis of macroeconomic theories, concepts, models, investigated by international and domestic economic science and proven by practice. The academic course takes one of the leading places in formation of economic thinking of the future economists, gives them the ability to use the tools of macroeconomic analysis in solving economic problems, to make their own expert appraisal with regard to the state of business environment of national economy, to understand content and significance of economic information as well as the objectives, content and consequences of state economic policy.

As a result of learning Macroeconomics students should know the main macroeconomic indicators in a system of national accounts; macroeconomic functions of government and mechanism of their implementation; mechanism of interaction between aggregate demand and aggregate supply; mechanism of establishment of macroeconomic equilibrium. Students should be able to collect and analyze statistical data on key macroeconomic indicators of Ukrainian economy; calculate nominal and real macroeconomic indicators; determine the problems of Ukrainian economic development and propose possible ways of their solution.

This study guide is designed in accordance with the Macroeconomics course outline and consists of twelve topics containing key terms, comprehension questions, tests, cases and exercises, problems and topics for reports.

Performing the practical tasks allows to deepen knowledge on the course, to receive necessary professional competencies, and also to form skills of working with scientific and methodical literature.

This study guide is prescribed for students of National Technical University «Kharkiv Polytechnic Institute» of the following specialties: 073 «Management», 072 «Finance, Banking and Insurance».

# SUBSTANTIAL MODULE 1

## ANALYSIS OF THE MAIN MARKETS OF NATIONAL ECONOMY

### Topic 1. Macroeconomics as a science

1. Subject matter of Macroeconomics.
2. Macroeconomic goals, tools and indicators.
3. Macroeconomic methods and models.
4. Macroeconomics as a theoretic foundation of economic policy.
5. Macroeconomic schools of economic thought.

**Sources of literature:** basic [1-4, 6, 11], additional [1-4, 11, 18, 19]

#### Key terms

Macroeconomics	circular-flow diagram
Microeconomics	method of exceptions and injections
aggregate	method of stocks and flows
macroeconomic subdivisions	macroeconomic indicators
business sector	foreign sector
government sector	household sector

#### Comprehension questions

1. Explain the difference between subject matters of Macroeconomics and Microeconomics.
2. What is a macroeconomic aggregate? Give examples.
3. Reveal the relationship between subject matter of macroeconomics and object of macroeconomic analysis.
4. What main macroeconomic subdivisions do you know?
5. When and why did Macroeconomics as a theory originate?
6. Give examples of major macroeconomic models.
7. What statistics do macroeconomists tend to focus on when trying to assess the health and development of an economy?

#### Tests

1. Which part of Economic Theory examines the forces that affect firms, consumers, and workers in the aggregate:
  - a) Microeconomics;
  - b) Macroeconomics;
  - c) Mesoeconomics;
  - d) International Economics.
2. Joining of phenomena and processes into a single whole, concerning economic actors and markets is called:
  - a) method of stocks and flows;

- b) analysis;
- c) aggregation;
- d) balance method.

3. Chief indicator (s) for performance measurement of national economy are:

- a) GDP;
- b) real GDP, unemployment, inflation;
- c) nominal GDP and rate of inflation;
- d) government expenditures and taxation.

4. Which of the following are specific methods inherent to Macroeconomics only:

- a) model building, induction, deduction, aggregation, balance method;
- b) analysis, comparison, model building, abstraction method;
- c) aggregation, balance method, comparison, abstraction method;
- d) aggregation, method of stocks and flows, balance method, method of exceptions and injections, circular-flow diagram.

5. When economists help the government to develop economic policy Macroeconomics performs:

- a) a cognitive function;
- b) a prognostic function;
- c) a practical function;
- d) a model building.

6. Which of the following refer to exceptions in a method of exceptions and injections:

- a) savings, tax payments, imports;
- b) investment, government spending, exports;
- c) savings, imports, government spending;
- d) government expenditures, taxation.

7. Which basic macroeconomic subdivision creates specific goods and services such as security, science, healthcare, education, develops infrastructure, collects taxes, pays transfers, creates money supply?:

- a) household sector;
- b) business sector;
- c) government sector;
- d) foreign sector.

8. Which basic macroeconomic subdivision forms labor supply and creates demand for goods and services, consumes one part of income and saves another part:

- a) business sector;
- b) government sector;
- c) foreign sector;
- d) household sector.

9. Who is considered to be a founder of macroeconomics:

- a) J.M. Keynes;
- b) A. Smith;
- c) K. Marx;

d) A. Marshall.

10. A simple visual model of the economy that shows how amounts of money flow through markets among households and firms is called:

- a) circular-flow diagram;
- b) input-output model;
- c) model of exceptions and injections;
- d) there is no correct answer.

11. A collection of specific economic units treated as if they were one unit is called:

- a) business sector;
- b) aggregate expenditures;
- c) macroeconomic aggregate;
- d) households.

12. A mechanism of functioning of the entire economy; factors that determine changes in this mechanism, and government methods of influence on economic processes is:

- a) object of macroeconomic analysis;
- b) a practical function of macroeconomics;
- c) government regulation of economy;
- d) subject matter of macroeconomics.

13. When economists investigate economic occurrences, facts and then formulate principles and laws of macroeconomic development, Macroeconomics performs:

- a) a cognitive function;
- b) a practical function;
- c) a prognostic function;
- d) a macroeconomic policy.

14. Which of the research methods involves formulating and testing hypotheses to obtain theories:

- a) induction;
- b) deduction;
- c) abstraction method;
- d) aggregation method.

15. The main goals of macroeconomic policy are:

- a) a high and growing level of national output ;
- b) high employment with low unemployment;
- c) a stable or gently rising price level;
- d) all answers are correct.

## Exercises

1. Match macroeconomic actors in the left column with their functions in the right column. Notice that each actor can perform more than one function.

**Table 1 – Macroeconomic actors and their functions**

1) household sector	A) tries to maximize profit
2) business sector	B) creates a supply of goods and services
3) government sector	C) forms demand for factors of production
4) foreign sector	D) creates specific goods and services
	E) exerts influence upon a state of country's balance of payments
	F) tries to maximize utility
	G) forms labor supply
	H) creates conditions for optimal functioning of economy
	I) gives transfer payments, collects taxes, creates money supply
	J) is the aggregate of all companies, governments and institutions abroad
	K) forms demand for goods and services

2. What functions does Macroeconomics use while performing the following?

- A) investigating economic situation in a country and evaluating the prospects of its development;
- B) researching economic facts and processes;
- C) developing the government economic policy;
- D) building models of phenomena studied.

3. Decide, whether the statements below are true or false:

- A) A level of transfer payments is one of three chief indicators of health and development of an economy.
- B) Macroeconomics uses only specific methods of research.
- C) Evaluation of exceptions and injections is an example of macroeconomic method.
- D) A more realistic circular-flow model would include the role of government.
- E) A general scientific method of induction presupposes transition from facts to theoretic principles.
- F) High employment with low unemployment is not a goal of macroeconomic policy because of its unattainability.
- G) Development of macroeconomics in 1930's led to a much better understanding of how to combat periodic economic crises and how to stimulate long-term economic growth.

4. Indicate whether each of the following statements applies to microeconomics, macroeconomics, mesoeconomics or International Economics:

- A) The unemployment rate in Ukraine was 9.3% in 2017.

B) An American software company discharged 25 workers last month and transferred the work to Ukraine.

C) An unexpected drought affected all agroindustrial complex and caused the prices of agricultural products to rise.

D) Real GDP of Ukraine grew by 2.2% in 2017.

E) Last week PrivatBank lowered its interest rate on business loans by 0.5%.

F) EU faces certain economic and political problems connected with Brexit.

5. Create a tree of macroeconomic goals for Ukraine today (or your native country). Use a hierarchy of goals – strategic, operational and tactical goals.

6. Draw a table (two columns – stocks and flows indicators) and decide which of the following indicators refer to stocks or flows: rate of unemployment, public debt, household savings, capital investments, inventories, consumption expenditures, government purchases, national wealth, corporate profit, budget deficit, depreciation, transfer payments, taxes.

7. Imagine you are a scientist in the field of Macroeconomics. What macroeconomic methods could help you examine the following research issues:

A) Increase in GDP and factors of economic growth in Ukraine.

B) Problems of youth unemployment in Ukraine.

C) Impact of inflation processes on Ukrainian economy.

### **Topics for reports**

1. Origins of macroeconomics. J.M. Keynes as a founder of macroeconomics.
2. Role and functions of Macroeconomics as a theoretic foundation of economic policy.
3. Scientific heritage of major macroeconomic schools of economic thought.



## **Topic 2. Macroeconomic indicators in the system of national accounts**

1. System of national accounts (SNA) and its principal categories.
2. Gross domestic product (GDP) as the main index in SNA.
3. National wealth and other indicators used in SNA.
4. Nominal and real GDP. Price indexes.

**Sources of literature:** basic [1, 6, 8-12], additional [6, 8, 13, 14]

### **Key terms**

system of national accounts	nominal GDP
gross domestic product (GDP)	real GDP
personal consumption expenditures (C)	final goods
gross private domestic investment (Ig)	intermediate goods
government purchases (G)	national wealth
net exports (Xn)	transfer payments
net factor payments from abroad	gross national income (GNI)

### **Comprehension questions**

1. Compare SNA and the system of national economy balance (NEB).
2. What are the main categories of SNA?
3. Why is GDP considered to be the main index in SNA?
4. What items are not counted as part of GDP?
5. What methods of GDP calculation do you know?
6. What is the difference between GDP and GNI (former GNP)?
7. Describe the distinction between nominal GDP and real GDP.

### **Tests**

1. SNA was proposed:
  - a) by the United Nations in 1953;
  - b) by the European Union in 2008;
  - c) by the IMF in 1993;
  - d) by P. Popov in 1926.
2. National economy balance was developed:
  - a) by J.M. Keynes in 1930s in USA;
  - b) by P. Popov in 1920s in USSR;
  - c) by V. Leontiev in 1930s in USSR;
  - d) by UN in 1953.
3. When was SNA introduced in Ukraine?
  - a) in 1992;
  - b) in 1989;
  - c) in 2001;
  - d) in 2013.
4. Institutional units, which economic interests are concentrated on a territory of a certain country are called in SNA:
  - a) non-residents;
  - b) sector;

- c) residents;
- d) accounts.

5. Total market value of all final goods and services produced within the borders of a country during a specific period of time refers to:

- a) gross national income;
- b) net domestic product;
- c) gross national product;
- d) gross domestic product.

6. Which commodities from the following list are intermediate goods:

- a) personal computers;
- b) microcircuit chips;
- c) kitchen machines;
- d) formal dress.

7. Which transaction from the following list should not be counted as part of GDP:

- a) purchasing a machine tool for a new enterprise;
- b) purchasing a house built in 1998;
- c) earning a salary by a manager;
- d) earning rents by a landowner.

8. Gross national income could be calculated as:

- a)  $C + I_g + G + X_n$ ;
- b)  $GDP + \text{net current transfers from abroad}$ ;
- c)  $\text{gross disposable income} + \text{net factor payments from abroad}$ ;
- d)  $GDP + \text{net factor payments from abroad}$ .

9. Wages, interest, rents, profits are accounted within the way of calculating GDP:

- a) by expenditures;
- b) by earnings;
- c) production method;
- d) cost approach.

10. Which item from the following list should be counted as a part of GDP:

- a) wages of employees;
- b) sales of stocks and bonds;
- c) costs on raw materials;
- d) a poem that is not published.

11. Which item from the following is not an example of government transfer payments:

- a) unemployment compensation;
- b) social security payments;
- c) debt servicing;
- d) scholarships and pensions.

12. Which indicator could be calculated as gross national income plus net current transfers from abroad:

- a) gross disposable income;
- b) net national income;

- c) gross national product;
- d) gross domestic product.

13. Association of residents according to their objectives and functions is called in SNA:

- a) sector;
- b) institutional unit;
- c) account;
- d) economic operation.

14. Government purchases include the following elements:

- a) expenditures for final goods and services that government consumes in providing public services;
- b) expenditures for publicly owned capital;
- c) transfer payments;
- d) answers a) and b) are correct.

15. The way to measure GDP that makes it possible to identify the role of different industries in creating GDP:

- a) by expenditures;
- b) by earnings;
- c) production method;
- d) cost approach.

### **Exercises**

1. Decide, whether the statements below are true or false:

A) In calculating GDP, we can sum up the value added at each stage of production or we can take the value of final sales.

B) Net domestic product comes closer to measuring the net amount of goods produced in the country in a given period: it is the total value of production minus the value of the amount of capital used up in producing that output.

C) Total demand for domestic output is made up of several components: consumption spending by households, investment spending by businesses and households, government purchases of goods and services.

D) While calculating GDP, we do not use the value of total sales in an economy to measure how much output has been produced.

E) Consumption spending by the household sector includes spending on anything from food to English lessons, but it does not involve consumer spending on durable goods such as automobiles, which is regarded as investments.

G) If you pay a fee to a broker for selling a stock of yours to someone else, this fee is not counted in GDP.

H) Positive net investment means that the amount of new capital produced exceeds the amount that wears out, and negative net investment means that the amount of new capital produced is less than the amount that wears out.

I) Nominal GDP adjusted for price changes is called real GDP.

J) Most nonmarket and domestic activities, such as housework and child care, are also counted in GDP because they amount to real production.

K) Income that is earned but not reported as income for tax purposes is usually missed, although some adjustments are made in the GDP calculations to take misreported income into account.

2. Fill in the table about essence, advantages, disadvantages and possibilities of approaches to calculating GDP.

**Table 2 – Approaches to calculating GDP**

Approaches	Essence	Advantages	Disadvantages	Possibilities
Expenditure approach				
Income approach (by earnings)				
Production (value added) method				

3. Visit the website of State Statistics Service of Ukraine (<http://www.ukrstat.gov.ua>, pages Statistical Information / Economic statistics / National accounts), find corresponding information and compute the GDP of Ukraine of the previous year using three approaches to calculating GDP (expenditure approach, income approach and value added method). Compare the results.

4. How can the following events affect Ukrainian GDP?

- A) Ukrainian scientist wrote an article but has not published it yet.
- B) You purchased a car made in the year 2000.
- C) A family gathered a rich crop of potatoes on their backyard this year.
- D) Government raised a level of minimum subsistence wage.
- E) Your family decided to employ a housemaid from corresponding agency or on someone's advice.

5. How will GDP and/or gross national income of Ukraine and/or Hungary change if the following events take place:

- A) Hungarian firm produces medicines in Ukraine.
- B) Ukrainian firm produces agricultural goods in Hungary.
- C) Ukrainian company exports agricultural goods produced in Ukraine to Hungary.
- D) Hungarian firm produces medicines in Hungary and exports them to Ukraine.
- E) Ukrainian company sells securities on a stock market.

### **Problems**

1. Calculate net domestic product, if gross output is 405 billion, material costs are 235 billion, product taxes are 26 billion, subsidies are 7 billion and depreciation is 5 billion.

2. Calculate GDP of a country C, if corporate profits are 252 billion, consumption expenditures are 430 billion, gross private investments are 277 billion, compensation of employees is 550 billion, proprietors' income is 45 billion, rental

income is 38 billion, interest is 20 billion, depreciation is 30 billion, indirect taxes are 53 billion, subsidies are 8 billion.

3. Compute net exports, if personal consumption expenditures are 95 billion, government expenditures are 43 billion, net private investments are 23 billion, transfer payments are 8 billion, depreciation is 9 billion, gross national income is 166 billion, net factor income is 10 billion.

4. Calculate gross disposable income of a country, if corporate profits are 120 billion, consumption expenditures are 130 billion, gross private investments are 97 billion, government purchases are 85 billion, net exports are (-4) billion, net factor income is 22 billion, net current transfers from abroad are (-2) billion.

5. Calculate growth rate of real GDP in 2018 according to the data: nominal GDP in 2018 is 590 billion, growth rate of GDP-deflator is 112%, nominal GDP in 2015 is 420 billion, real GDP in 2015 is 396 billion.

### **Topics for reports**

1. System of national economy balance: evolution and specifics.
2. System of national accounts: peculiarities of different editions.
3. Advantages and disadvantages of System of national accounts.

### Topic 3. Model of aggregate demand and aggregate supply

1. Aggregate demand and its factors.
2. Aggregate supply and its dynamics.
3. AD-AS model as the basic model of economic equilibrium.
4. Short-run and long-run equilibrium in AD-AS model.

**Sources of literature:** basic [3, 4, 9-11], additional [1, 2, 8, 13]

#### Key terms

aggregate demand	Keynesian theory of aggregate supply
aggregate supply	Classical theory of aggregate supply
AD-AS model	long-run aggregate supply curve
ratchet effect	short-run aggregate supply curve
real-balances effect	determinants of aggregate demand
interest-rate effect	determinants of aggregate supply
foreign purchases effect	macroeconomic equilibrium

#### Comprehension questions

1. Explain the difference between market demand and aggregate demand.
2. What price reasons of the downward slope of aggregate demand curve do you know?
3. Describe non-price determinants of aggregate demand.
4. Compare Keynesian theory and Classical theory of aggregate supply.
5. Discover non-price determinants of aggregate supply.
6. Why is AD-AS model considered to be the basic model of economic equilibrium?
7. When does ratchet effect take place in economy?

#### Tests

1. Higher price level increases the demand for money, and it drives up the price paid for use of money – this refers to:
  - a) interest-rate effect;
  - b) real-balances effect;
  - c) foreign purchases effect;
  - d) ratchet effect.
2. Real-Balances Effect can be described as follows:
  - a) higher interest rates, as a result of increase in money demand, curtail investment spending and interest-sensitive consumption spending;
  - b) a higher price level reduces purchasing power of financial assets, therefore consumers become poorer in real terms and will reduce their spending;
  - c) the rise in the price level reduces the quantity of national goods demanded as net exports;
  - d) there is no correct answer.
3. Which of the following determinants of aggregate demand refer to investment spending:

a) excess plant capacities, new technologies, interest rates, business taxes, expectations;

b) taxes, expectations, household borrowing;

c) exchange rates, national income abroad;

d) consumer wealth and expectations, household borrowing.

4. Which of the following determinants of aggregate demand could shift the AD-curve to the right:

a) increase in government spending, increase in excess plant capacities;

b) implementation of new technologies, growth of tax burden;

c) increase in household borrowing, growth of net exports;

d) increase in consumer spending, decrease in business taxes.

5. Aggregate supply shows the relationship between:

a) the price level and personal income;

b) the price level and amount of manufactured goods produced;

c) the price level and the amount of real domestic output that firms in the economy produce;

d) there is no correct answer.

6. Which of the following ideas are presented in Keynesian theory of aggregate supply:

a) economy does not always function at full employment, resource prices are not flexible, AS-curve is a horizontal line;

b) increase in national output can be achieved by attracting free resources without increasing prices, AS-curve is a vertical line;

c) aggregate supply does not depend on price level, but depends on available economic resources and technologies;

d) prices are flexible; economy produces full-employment output level no matter what the price level is.

7. Contemporary economics supposes the generalized aggregate supply curve to consist of:

a) two sectors: Classical, Keynesian;

b) three segments: intermediate, classical, Keynesian;

c) no segments, and AS-curve looks like the Keynesian one;

d) no segments, and AS-curve looks like the classical one.

8. Which of the following determinants of aggregate supply could shift the AS-curve to the left:

a) positive changes in institutional environment;

b) increase in productivity;

c) growth of resource prices, depreciation of national currency;

d) introduction of new business taxes and subsidies.

9. Macroeconomic equilibrium in terms of AD-AS model:

a) occurs at the price level that equalizes the amounts of real output demanded and supplied;

b) takes place in the point of intersection of the aggregate demand curve and the aggregate supply curve;

- c) occurs only within intermediate segment of aggregate supply curve;
  - d) answers a) and b) are correct.
10. Ratchet effect occurs in a case:
- a) when aggregate supply decreases;
  - b) when aggregate demand decreases within the classical or intermediate segments of AS-curve;
  - c) when aggregate demand decreases within the Keynesian segment;
  - d) when aggregate demand increases within the classical segment.
11. A decrease in aggregate supply causes:
- a) cost-push inflation;
  - b) demand-pull inflation;
  - c) ratchet effect;
  - d) real-balances effect.
12. Growth of real national output and employment at constant prices might be a result of:
- a) increase in aggregate demand within the classical segment of AS-curve;
  - b) changes in aggregate supply;
  - c) decrease in aggregate demand within the intermediate segment;
  - d) increase in aggregate demand within the Keynesian segment of AS-curve.
13. Which of the following determinants could raise aggregate demand:
- a) increase in business taxes;
  - b) consumer expectations about increase in prices in the near future;
  - c) increase in excess plant capacities;
  - d) economic crisis in foreign countries.
14. Which of the following determinants could shift the AS-curve to the right:
- a) low domestic resource prices;
  - b) depreciation of national currency;
  - c) decrease in business subsidies;
  - d) increase in consumer spending.
15. An increase in aggregate demand on intermediate segment often results in:
- a) an increase in prices;
  - b) an increase in real output without changes in prices;
  - c) a decrease in real output;
  - d) an increase in real output and a rise in price level.

### **Exercises**

1. Decide, whether the statements below are true or false:
- A) In microeconomics, supply curves are relatively more elastic in the long run than in the short run, but the aggregate supply curve is vertical in the long run and horizontal in the short run.
  - B) The Keynesian supply curve is based on the assumption that the labor market is in equilibrium with full employment of the labor force.
  - C) The leftward shift of the aggregate supply curve cuts output and raises prices.
  - D) Potential GDP is exogenous with respect to the price level, so while potential GDP changes each year, the changes also depend on the price level.



E) Expansionary policies—such as increases in government spending, cuts in taxes, and increases in the money supply—move the aggregate demand curve to the right.

G) Removing unnecessary regulation, maintaining an efficient legal system, encouraging technological progress and enlargement of consumer spending are examples of supply-side policies.

H) Over long periods, output is essentially determined by aggregate supply and prices are determined by the movement of aggregate demand relative to the movement of aggregate supply.

2. Look at the Figure 1 (a, b). AD and AS curves change their locations. What reasons could lead to these consequences?

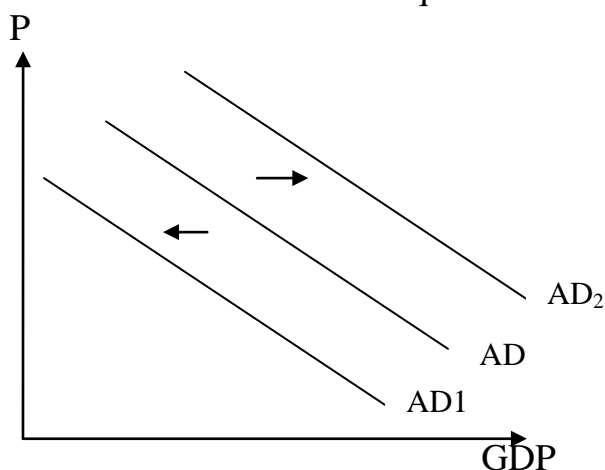


Figure 1a. Changes in AD

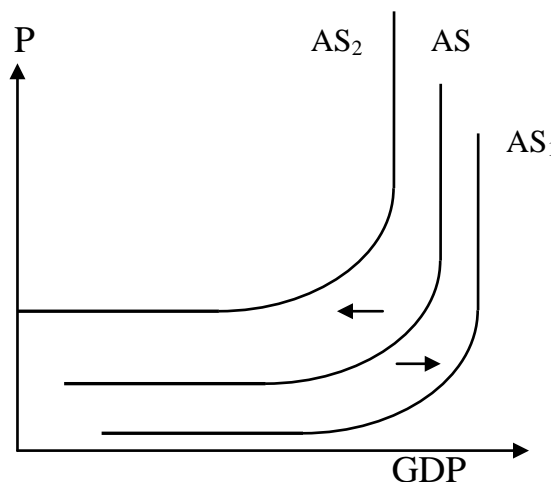


Figure 1b. Changes in AS

3. Suppose AD curve changes its position:

A) AD moves from AD1 to AD2;

B) AD moves from AD3 to AD4;

C) AD moves from AD5 to AD6;

What impact does it have on GDP and price level (Figure 2)?

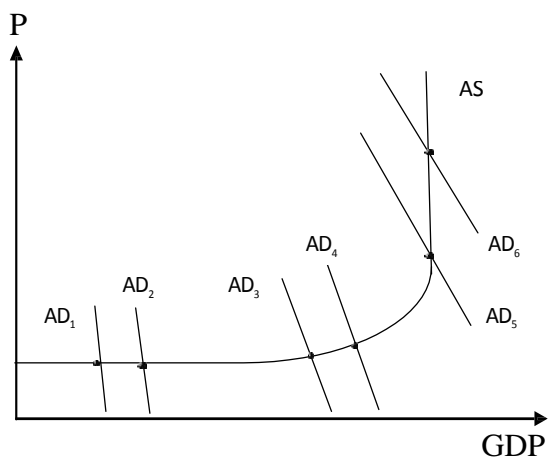


Figure 2. Changes in AD in AD-AS model

4. Explain how the events listed below could influence a long run aggregate supply.

- A) floods destroyed crops and buildings;
- B) increased wages attracted lots of immigrants into the country;
- C) in a country new mineral deposits have been explored;
- D) natural increase rate of population is negative;
- E) a country is involved in a military conflict.

5. As a result of a sharp increase in investment demand, a shock of aggregate demand occurred. The Central Bank took measures to stabilize price level by changing money supply. Draw a graph of initial situation, a demand shock and stabilization policy of The Central Bank.

### Problems

1. Look at the table below (Table 3). Perform the following tasks:
  - A) define changes of real GDP within the Keynesian segment of the aggregate supply curve;
  - B) define changes of real GDP within the classical segment of the aggregate supply curve;
  - C) define changes of real GDP within the intermediate segment of the aggregate supply curve;
  - D) plot the aggregate supply curve.

**Table 3 – Real GDP in terms of different price levels**

Price level	Real GDP
280	2300
265	2300
200	1900
175	1700
145	1350
125	1000
125	800
125	400
100	0

2. Equilibrium output is 7000 (monetary units), equation of AD-curve is  $Y = 7200 - 2P$ . Recently equilibrium output (Y) has increased by 15%, and aggregate demand equation has become  $Y = 8000 - 2P$ . To what extent have overall price level (P) and real output (Y) changed?

3. Consumption function is  $C = 150 + 0,7(Y - T)$ , investment function is  $I = 60 + 0,1Y$ ,  $G = 90$ ,  $X_n = 5$ ,  $T = 100$ . Define equilibrium output.

### Topics for reports

1. Oil embargo of OPEC in 1973 as a classic example of AS shock.
2. F. Roosevelt's New Deal as an economic policy of AD stimulation.
3. Analysis of modern macroeconomic policy in Ukraine from the standpoint of AD-AS model.

## Topic 4. Money market

1. Supply function for money.
2. Demand function for money. The main factors of money demand.
3. Equilibrium in the money market. Nature and types of interest rates.
4. Banking system.

**Sources of literature:** basic [1-4, 8-10], additional [6, 4, 8, 13, 14]

### Key terms

asset demand	transactions demand
money market	classical concept of money demand
money supply	Keynesian concept of money demand
monetary aggregate	required reserves
reserve ratio	monetary multiplier
money multiplier	money demand
nominal interest rate	real interest rate

### Comprehension questions

1. Describe the essence of monetary aggregates. Discover the concept of liquidity.
2. What does it mean when modern banking system operates in terms of partial reserve covering?
3. What is the difference between money multiplier and monetary multiplier?
4. Compare classical and Keynesian concept of money demand.
5. Reveal the difference between transactions demand and asset demand.
6. What institution regulates money supply in most countries?
7. What is the difference between nominal interest rate and real interest rate?

### Tests

1. The price paid for the use of money is:
  - a) interest;
  - b) profit;
  - c) rental payment;
  - d) dividend.
2. What reasons, according to J. M. Keynes, motivate people to save part of their wealth in the form of money:
  - a) transactions incentive;
  - b) thrift incentive;
  - c) speculative incentive;
  - d) all answers are correct.
3. Which of the following elements is not a part of monetary aggregate M1?
  - a) fixed-term deposits;
  - b) call deposits;

- c) cash;
  - d) current accounts in national currency.
4. Money supply is regulated by:
- a) the Parliament;
  - b) the Central Bank;
  - c) the central bodies of executive power;
  - d) Accounting Chamber.
5. Money demand function according to Keynesian approach is:
- a)  $D_m = (1/V) * P * Q$ ;
  - b)  $D_m = K * Y - h * i$ ;
  - c)  $M_s = m * MB$ ;
  - d)  $\Delta M_s = m * D$ .
6. Which of the following elements is not a part of monetary aggregate M2?
- a) banknotes and coins in circulation;
  - b) call deposits and checkable deposits;
  - c) clients' monetary funds in trust transactions of banks;
  - d) savings in foreign currency.
7. The ease with which an asset can be converted quickly into the most widely accepted and easily spent form of money, cash, is called:
- a) purchasing power;
  - b) cash ratio;
  - c) liquidity;
  - d) medium of exchange.
8. Which item from the following list should not be considered as function of money:
- a) unit of account;
  - b) medium of exchange;
  - c) store of value;
  - d) regulation of money supply.
9. Money supply does not depend on the interest rate, that's why its curve:
- a) looks like a horizontal line;
  - b) looks like a vertical line;
  - c) is downsloping;
  - d) there is no correct answer.
10. Combination of cash in circulation and general reserves of commercial banks that are located at the central bank's accounts is called:
- a) monetary base;
  - b) money supply;
  - c) monetary aggregate M1;
  - d) required reserves.
11. The «specified percentage» of checkable-deposit liabilities that a commercial bank must keep as reserves is known as:
- a) monetary multiplier;
  - b) money multiplier;

c) reserve ratio;

d) cash ratio.

12. Discount rate can be regarded as:

a) cash-to-deposits ratio;

b) the percentage of checkable-deposit liabilities that a commercial bank must keep as reserves;

c) the interest rate Central Banks charge on loans to commercial banks;

d) there is no correct answer.

13. If reserve ratio is 20%, monetary multiplier equals to:

a) 5; b) 0,05; c) 20; d) 10.

14. Monetary multiplier equals to 4. If credit capabilities of a bank equal to 1000 monetary units, what amount of money supply can be created by banking system:

a) 250; b) 4000; c) 1004; d) 2500.

15. Money multiplier differs from monetary multiplier because:

a) it takes into account people's behavior;

b) it uses cash ratio;

c) it serves to calculate money supply;

d) answers a) and b) are correct.

### Exercises

1. How will the slope of a money demand curve change, if money demand of households becomes more sensitive to interest rates? Does it influence on interest rate changes, if money supply increases? Show it graphically.

2. Compare classical and Keynesian theories of money demand, using the following criteria. Fill in the table below.

**Table 4 – Theories of money demand**

Criteria	Classical theory	Keynesian theory
Authors of theories		
Factors of money demand		
Algebraic model		
Advantages and disadvantages		
Relevance		

3. Visit the website of the National Bank of Ukraine. (<https://bank.gov.ua/control/uk/index>), find and analyze corresponding information about monetary aggregates in Ukraine for the last ten years and make conclusions.

4. Look at the Figure 3 (a, b). What factors could lead to the consequences shown on the graphs?

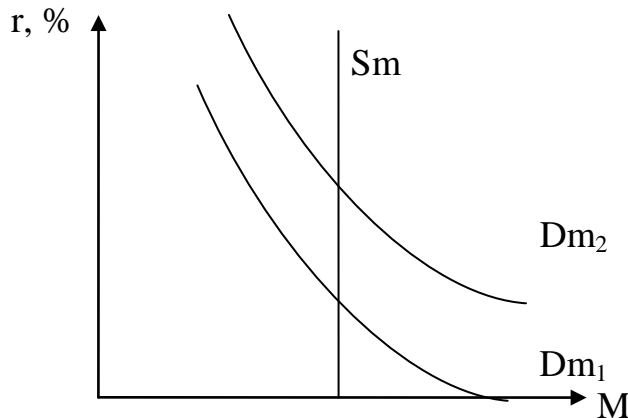


Figure 3a. Changes in money demand

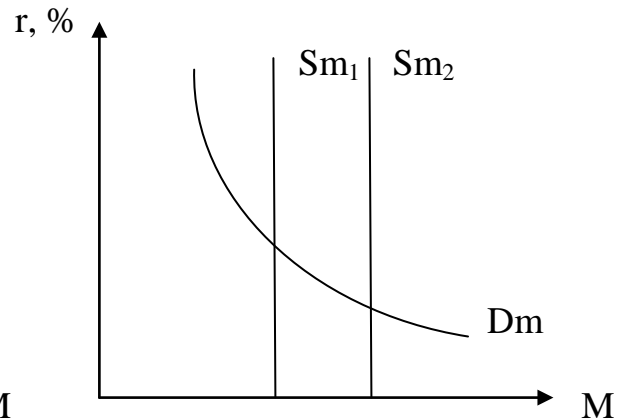


Figure 3b. Changes in money supply

### Problems

1. Reserve ratio is 16%, cash amounts to 44% of deposits, required reserves are 85 billion (monetary units). Calculate money supply.
2. Deposits of a commercial bank amount to 195 million (monetary units), total bank reserves are 49 million, reserve ratio equals to 17%. How money supply will change, if bank uses its excess reserves for lending loans?
3. Cash equals to 18% of deposits. Reserve ratio is 0,15. How monetary base must be changed to increase money supply by 650 billion?
4. Cash in circulation is 65 billion (monetary units); current accounts in national currency are 51 billion; call deposits and checkable deposits are 35 billion; deposits with fixed period are 19 billion; savings in foreign currency amount to 12 billion; monetary funds of clients in trust transactions of banks are 5 billion. Calculate monetary aggregate M2.
5. Central Bank decided to increase money supply from 380 to 520 billion. To what extent monetary base must be enhanced, if cash ratio is 0,5 and reserve ratio equals to 20%.

### Topics for reports

1. Equilibrium in the money market as a factor of general macroeconomic equilibrium.
2. Problems of Ukrainian banking system.
3. Relevance of classical and Keynesian models of money demand.

## Topic 5. Labour market

1. Employment and unemployment.
2. The mechanism of labour market.
3. Social and economic consequences of unemployment.
4. State policy of employment.

**Sources of literature:** basic [2-4, 8-12], additional [1-4, 8, 13, 14]

### Key terms

economically inactive population	labour force
employed people	unemployed people
unemployment	unemployment rate
frictional unemployment	structural unemployment
cyclical unemployment	natural rate of unemployment
labour market	labour demand
labour supply	Okun's Law

### Comprehension questions

1. What groups of employed people do you know according to the Law of Ukraine “On Employment of people”?
2. Describe the interrelation between concepts of labor force, employed people, unemployed people, economically inactive population, economically active population.
3. What are the peculiarities of defining unemployed people according to the International Labour Organization and Law of Ukraine “On Employment of people”?
4. Reveal the main types of unemployment.
5. Discover major theories of unemployment.
6. Describe the mechanism of labour market.
7. Describe classical and Keynesian theories of labour market.
8. Reveal the Okun's Law.
9. What are the main social and economic costs of unemployment?
10. Describe the measures of government policy of employment.

### Tests

1. Which of the following groups of people is not counted as economically inactive population:
  - a) children under the age of 16;
  - b) retirees;
  - c) people at training;
  - d) people who stopped job searching.
2. If someone is elected to a position of a mayor of a city, he (she) refers to the group of:
  - a) employed people;

- b) people at training;
  - c) labour force;
  - d) answers a) and b) are correct.
3. Which of the following groups of people is not counted as labour force?
- a) employed people;
  - b) people who stopped job searching;
  - c) unemployed people;
  - d) self-employed people.
4. Workers who are either searching for jobs or waiting to take jobs in the near future refer to:
- a) frictional unemployment;
  - b) structural unemployment;
  - c) cyclical unemployment;
  - d) hidden unemployment.
5. According to the Law of Ukraine “On Employment of people”, which of the following groups of people can be regarded as employed people:
- a) part-time workers;
  - b) self-employed people;
  - c) people who are looking for work, willing and able to perform relevant work;
  - d) answers a) and b) are correct.
6. Unemployment connected with changes in demand for labor, both occupationally and geographically, is called:
- a) cyclical unemployment;
  - b) frictional unemployment;
  - c) structural unemployment;
  - d) natural unemployment.
7. At the natural rate of unemployment, the economy is said to be producing its:
- a) actual GDP;
  - b) potential output;
  - c) equilibrium output;
  - d) nominal GDP.
8. Natural rate of unemployment can be calculated as:
- a) frictional unemployment + structural unemployment;
  - b) unemployment rate + cyclical unemployment;
  - c) cyclical unemployment - frictional unemployment;
  - d) unemployment rate - structural unemployment.
9. Labor demand is formed under the influence of the following factors:
- a) demand for goods and services;
  - b) phase of the economic cycle;
  - c) science and technology;
  - d) all answers are correct.
10. In a purely competitive labor market intersection of the labor demand curve and the labor supply curve determines:



- a) equilibrium interest rate and level of employment;
- b) equilibrium wage rate and level of employment;
- c) equilibrium wage rate and level of unemployment;
- d) there is no correct answer.

11. Which of the following factors cannot be considered as labor supply factor:

- a) demand for goods and services;
- b) retirement age and immigration;
- c) involvement of women as a labor force;
- d) influence of trade unions.

12. GDP gap is the difference between:

- a) nominal GDP and real GDP;
- b) equilibrium GDP and potential GDP;
- c) actual GDP and potential GDP;
- d) actual GDP and equilibrium GDP.

13. A labor market monopsony has the following characteristics:

- a) there is only a single buyer of a particular type of labor;
- b) this type of labor is relatively immobile;
- c) The firm is a “wage maker”;
- d) all answers are correct.

14. Suppose the number of unemployed people equals to 10 million, labour force is 85 million, then unemployment rate is:

- a) 10%; b) 11,8%; c) 8,5%; d) 7,5%.

15. According to Okun's Law, if actual unemployment rate is above natural rate of unemployment by 3%, and  $\beta$  is -2,5, then GDP gap is:

- a) -7,5%; b) -5,5%; c) -0,5%; d) 3%.

### Exercises

1. Compare theories of unemployment, using the following criteria. Fill in the table below.

**Table 5 – Theories of unemployment**

Criteria	Malthusian theory	Marxian theory	Keynesian theory	Neoclassical theory
Authors				
Time period				
Reasons of unemployment				
Advantages and disadvantages				
Relevance				

2. Visit the website of the State Statistics Service of Ukraine (<http://www.ukrstat.gov.ua>), find corresponding information and try to analyze the following data for the last several years. Make conclusions.

A) Dynamics of economically active population, employed people, unemployed people.

B) Employment and unemployment by gender, type of locality and age groups.

C) Demand and supply in the labour market (unemployment and labour requirements of enterprises by occupational groups).

3. Look at the Figure 4 (a, b). Compare the conditions of formation of Phillips curve in the short run and in the long run.

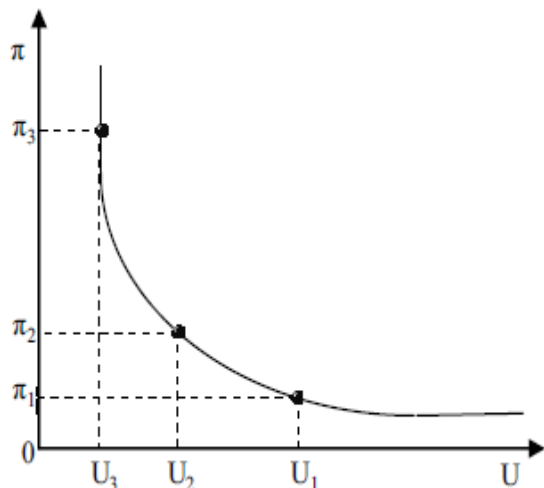


Figure 4a. Phillips curve in the short run

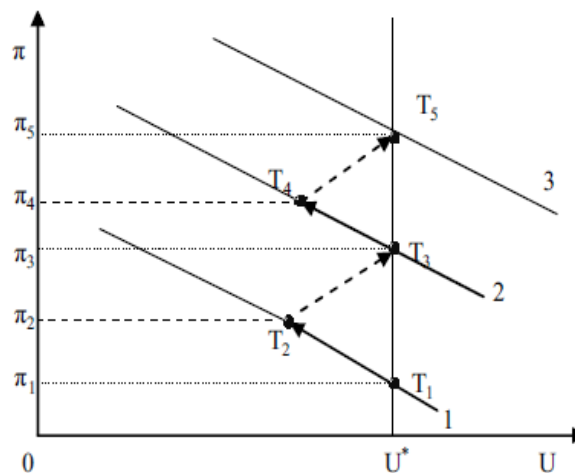


Figure 4b. Phillips curve in the long run

4. Look at the figure below (Figure 5).

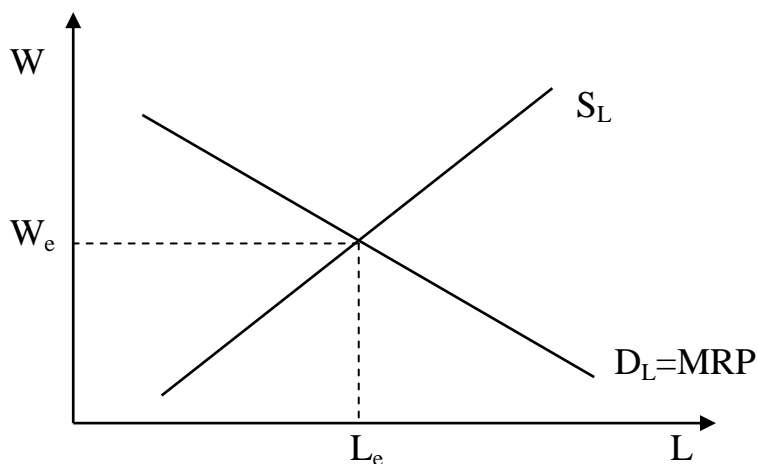


Figure 5. Supply and demand in the labour market

Describe the consequences of the following factors in the labour market:

- A) Retirement age was raised in a country last year.
- B) Immigration processes have intensified lately.
- C) Labour productivity has grown in more recent times due to scientific and technical progress.
- D) Demand for IT-services has increased sharply not long ago.
- E) Ukrainian economy has experienced a recovery recently.

### Problems

1. Population of a country is 125 million people; 18 million – children under 16 years old; 0,5 million – institutionalized people; 24 million – people out of a labor force; 9 million – unemployed people. Calculate unemployment rate.

2. Population of a country is 67 million people; 8,3 million – children under 16 years old; 0,6 million – institutionalized people; NRU – 5%; 7 million – retirees; 4,5 million – unemployed people. Calculate unemployment rate and GDP-gap in percent.

3. Natural rate of unemployment in a country is 5%, unemployment rate is 12,4%,  $\beta$ -coefficient is 2,5; actual GDP is 1570 billion. Calculate GDP-gap in percent.

4. NRU in a country is 4%, unemployment rate is 11,5%,  $\beta$ -coefficient is 3; actual GDP is 1780 billion. Calculate GDP-gap in percent and absolute losses of GDP.

5. Calculate the percentage of GDP-gap in Ukraine because of cyclical unemployment according to the Okun's law. Suppose NRU is 4%. Complete the table.

**Table 6 – Unemployment and GDP-gap in Ukraine**

Year	2012	2013	2014	2015	2016	2017
Unemployment rate (according to International Labour Organization)	8,2	7,8	9,7	9,5	9,7	9,9
Cyclical unemployment						
GDP-gap						

### Topics for reports

1. Monopsony and monopoly in the labour market.
2. Youth unemployment in Ukraine.
3. State Employment Service as the main agent of government employment policy in Ukraine.
4. Problems of social costs of unemployment.

## Topic 6. Inflation

1. Essence and types of inflation.
2. Causes and effects of inflation.
3. Anti-inflationary policy.

**Sources of literature:** basic [6, 8-12], additional [2, 3, 5, 12]

### Key terms

inflation	suppressed inflation
Phillips curve	sacrifice ratio
price index	deflation
hyperinflation	demand-pull inflation
cost-push inflation	anti-inflationary policy

### Comprehension questions

1. Describe the interrelation between concepts of inflation, deflation and disinflation.
2. Describe classifications of inflation according to criteria of growth rate, forms, causes, scale of distribution, ability to affect inflation, degree of predictability.
3. Reveal the main causes of inflation.
4. Discover major theories of inflation: Keynesian and monetarist ones.
5. What are the main social and economic consequences of inflation?
6. Describe the effect of Olivera-Tanzi.
7. Explain the mechanism of wage-price spiral.
8. Reveal the measures of anti-inflationary policy.

### Tests

1. When growth rate of inflation is 20% a year, it is regarded as:
  - a) moderate inflation;
  - b) galloping inflation;
  - c) hyperinflation;
  - d) explicit inflation.
2. What type of inflation occurs, when total spending exceeds the economy's ability to provide goods and services at the existing price level:
  - a) cost-push inflation;
  - b) predicted inflation;
  - c) suppressed inflation;
  - d) demand-pull inflation.
3. What type of inflation occurs, when government set prices at lower level than market equilibrium:
  - a) uncontrollable inflation;
  - b) unexpected inflation;
  - c) hidden inflation;

- d) unbalanced inflation.
4. Which of the following factors often leads to the phenomenon of inflation:
- increase in the government spending;
  - unplanned expansion of money supply through massive lending;
  - monopoly of unions;
  - all answers are correct.
5. The curve showing the relationship between the unemployment rate and inflation, is called:
- Phillips curve;
  - Lorenz curve;
  - Laffer curve;
  - labour demand curve.
6. When growth rate of inflation slows down, it is called:
- deflation;
  - disinflation;
  - hyperinflation;
  - stagnation.
7. Which of the following factors do not result in inflation processes:
- monopoly of large companies;
  - inflationary expectations;
  - increase in real national output;
  - imbalances in savings and consumption, supply and demand, government revenues and expenditures.
8. The most common effects of inflation are the following:
- redistribution of income and wealth among different groups;
  - distortions in the relative prices and outputs of different goods;
  - imbalances in output and employment for the economy as a whole;
  - all answers are correct.
9. The loss associated with disinflationary policies is called:
- sacrifice ratio;
  - interest rate;
  - reserve ratio;
  - discount rate.
10. The effect of inflationary taxation, which essence lies in the fact that any inflation reduces the tax burden, is:
- real-balances effect;
  - Olivera-Tanzi effect;
  - interest-rate effect;
  - foreign purchases effect.
11. Income that the state receives from emission of additional money in circulation, is called:
- profit;
  - seigniorage;
  - budget revenues;

- d) inflation tax.
12. Adaptation means of anti-inflationary policy do not include:
- gradual restriction of money supply;
  - stabilization of inflation expectations;
  - implementation of confiscatory monetary reform;
  - indexation of monetary incomes.
13. Active (strategic) means of anti-inflationary policy do not contain:
- indexation of monetary incomes;
  - control over monetary emission and direct monetary means;
  - prohibition against monetization of budget deficit;
  - implementation of confiscatory monetary reform.
14. Which of the following factors is not a factor of demand-pull inflation:
- monetization of budget deficit;
  - panic buying;
  - outstripping growth of exports compared to imports;
  - outstripping growth of wages in comparison with labor productivity.
15. What does real interest rate amount to, if nominal interest rate is 18% and inflation rate is 10%:
- 28%;
  - 1,8%;
  - 8%;
  - 8%.

### **Exercises**

1. Decide, whether the statements below are true or false:
- There is no direct loss of output from inflation, as there is from unemployment.
  - The costs of holding currency rise along with the inflation rate.
  - When the inflation rate rises, the nominal interest rate rises, and the interest lost by holding currency decreases.
  - The costs of making more trips to the bank to cash smaller checks are often described as the “shoe-leather” costs of inflation.
  - The costs of fully anticipated inflation are as large as the costs of unexpected inflation.
  - «Menu costs» of inflation arise from the fact that with inflation people have to devote real resources to marking up prices and changing pay telephones and vending machines as well as cash registers.
  - The redistribution effect of inflation operates with respect to all assets fixed either in nominal or real terms, in particular, money, bonds, savings accounts, insurance contracts, and some pensions.
  - Unanticipated inflation often transfers wealth from the creditors or holders of bonds to the borrowers and from pensioners to firms.
  - A bond is indexed (to the price level) when either the interest or the principal or both are adjusted for inflation.
  - Considering the effects of wage indexing the demand shocks should be noticed.

2. Visit the website of the State Statistics Service of Ukraine (<http://www.ukrstat.gov.ua>), find appropriate information, analyze and make conclusions about inflation processes in Ukraine during 1992–2017. Define characteristics and types of inflation inherent for Ukrainian economy.

3. Look at the Figure 6 (a, b). Compare two types of inflation by reasons and conditions of their emergence. Explain its mechanisms.

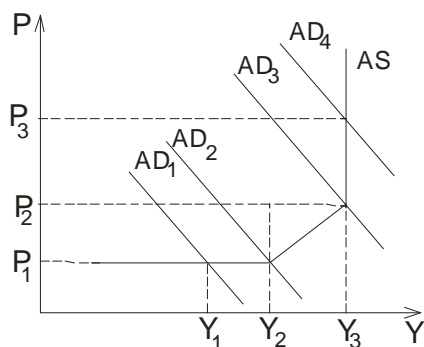


Figure 6a. Demand-pull inflation

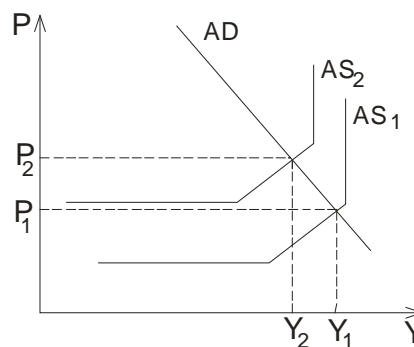


Figure 6b. Cost-push inflation

4. Proponents of zero inflation argue that even mild demand-pull inflation (1–3%) reduces the economy’s real output. Other economists say that mild inflation may be a necessary by-product of the high and growing spending that produces high levels of output, full employment, and economic growth. Give a comment on these statements.

### Problems

1. Calculate growth rate of inflation, if it is known that price index in 2017 is 166,7%, and in 2016 is 134,2%. Is it moderate, galloping inflation or hyperinflation?

2. Calculate growth rate of inflation according to the data: in 2017 nominal GDP is 990 billion and real GDP is 826 billion; in 2016 nominal GDP is 795 billion and real GDP is 686 billion. Define the type of inflation.

3. Calculate growth rate of inflation according to the equation of Phillips curve. Suppose expected inflation rate is 17%; sensitivity coefficient is 0,5; unemployment rate is 10%, structural unemployment is 4% and frictional unemployment is 2%.

4. You provided a loan for a year, anticipating to get real interest rate of 8% per year and expecting an inflation rate of 25%. But, in fact, growth rate of inflation was 35%. What real income did you get? What did your losses amount to?

5. Calculate expected inflation according to the equation of Phillips curve. It is known that inflation rate in current year is 21%; sensitivity coefficient is 0,5; unemployment rate is 9% and NRU is 6%.

### Topics for reports

1. Problems of inflation and anti-inflationary policy in Ukraine.
2. Stagflation in Ukraine and foreign countries.
3. Inflation tax: essence and types.

## SUBSTANTIAL MODULE 2

### ANALYSIS OF THE STRUCTURE AND COMPONENTS OF STATE ECONOMIC POLICY

#### Topic 7. Household consumption

1. Incomes of households. Household consumption.
2. Keynesian theory of consumption.
3. Theories of consumption: hypotheses of life cycle and permanent income.

**Sources of literature:** basic [2-4, 10-12], additional [1-4, 8, 14]

#### Key terms

household	household consumption
personal income	disposable income
savings	consumption curve
autonomous consumption	induced consumption
income inequality	Lorenz curve
Gini coefficient	basic psychological law
average propensity to consume	marginal propensity to consume

#### Comprehension questions

1. Reveal the notion of household and describe the functions households perform in national economy.
2. What factors influence distribution of household incomes between consumption and saving?
3. What indicators are used for assessment of income inequality?
4. What is the difference between autonomous consumption and induced consumption?
5. Describe Keynesian model of consumer behaviour.
6. Describe hypotheses of life cycle and permanent income in consumption.
7. What nonincome determinants of consumption do you know?

#### Tests

1. Which of the following functions is not generally inherent to households:
  - a) supplying the production factors on the relevant markets;
  - b) formation of consumer demand;
  - c) consumption; making savings, investments;
  - d) supplying goods and services on the relevant markets.
2. Which of the following elements is not a part of personal income of households:
  - a) wages and mixed income;
  - b) earnings on property;



- c) corporate profits;
- d) social transfers.

3. Consumption function reflects:

- a) direct consumption–disposable income relationship;
- b) inverse relationship between consumption and income;
- c) inverse relationship between consumption and interest rate;
- d) there is no correct answer.

4. A part of consumer expenditures that doesn't depend on disposable income

is:

- a) induced consumption;
- b) autonomous consumption;
- c) personal income;
- d) savings.

5. Disposable income consists of two main parts:

- a) wages and social transfers;
- b) saving and investment;
- c) consumption and saving;
- d) mixed income and earnings on property.

6. Which of the following elements is not a factor of distribution of household incomes between consumption and saving:

- a) expectations of households;
- b) differences in education level and qualification;
- c) changes in prices;
- d) level of taxation and traditions.

7. The graph of actual distribution of incomes among families with different incomes compared with even distribution is called:

- a) Lorenz Curve;
- b) consumption curve;
- c) Keynesian cross;
- d) Phillips curve.

8. The coefficient of income concentration, that shows the deviation of actual income distribution from a line of uniform distribution, is called:

- a) decile coefficient;
- b) average propensity to consume;
- c) marginal propensity to consume;
- d) Gini coefficient.

9. Basic psychological law developed by J. M. Keynes supposes:

- a) people tend to increase their consumption due to increased income, but more slowly than revenue grows;
- b) factors of autonomous consumption are wealth and borrowing;
- c) as income and wealth increases, the propensity to consume reduces;
- d) answers a) and c) are correct.

10. Fraction, or percentage, of total income that is consumed is:

- a) marginal propensity to consume;
- b) average propensity to consume;
- c) marginal propensity to save;

d) average propensity to save.

11. In the short run as current disposable income goes up, average propensity to consume:

a) reduces; b) increases; c) stabilizes; d) sharply goes up.

12. Which of the following factors cannot be regarded as intrinsic factor of marginal propensity to consume:

a) changes in wages;

b) changes in taxation;

c) willing to leave a legacy;

d) interrelation between current and future incomes.

13. Which of the following factors cannot be counted as subjective factor of marginal propensity to consume:

a) trying to make money savings for evil day;

b) interest rate reduction;

c) money accumulation for retirement, education;

d) willing to leave a legacy.

14. Which of the following factors are nonincome determinants of consumption:

a) wealth and borrowing;

b) expectations and interest rates;

c) changes in wages;

d) answers a) and c) are correct.

15. If autonomous consumption is 124 billion, marginal propensity to consume is 0,6 and disposable income is 750, consumption is:

a) 574 billion; b) 674 billion; c) 124 billion; d) 626 billion.

### **Exercises**

1. Decide, whether the statements below are true or false. Explain your opinion.

A) The marginal propensity to consume is the increase in consumption per unit increase in income.

B) Autonomous consumption is determined inside the model and specifically assumed to be independent of income.

C) Consumption makes up a large fraction of GDP and it is relatively stable.

D) Early Keynesian models suggested a low MPC, while modern theories based on rational consumer decisions sometimes indicate a very high MPC.

E) The lifecycle hypothesis emphasized choices about how to maintain a stable standard of living in the face of changes in income over the course of life.

G) Permanent income theory focused on forecasting the level of income available to a consumer over a lifetime.

H) Both theories (permanent income and lifecycle hypothesis) pay little attention to microeconomic foundations.

I) The MPC out of permanent income is large and the MPC out of transitory income is small, fairly close to zero.

J) According to Keynesian theory of consumption households increase their spending as their disposable income rises in absolute figures; and spend a smaller proportion of a small disposable income than of a large disposable income.

K) The theory of durable-goods purchases is really the theory of investment applied to households instead of firms.

2. Visit the website of the State Statistics Service of Ukraine ([http://www.ukrstat.gov.ua/operativ/operativ2007/gdvdg\\_rik/dvdg\\_u/strukt\\_res2010\\_u.htm](http://www.ukrstat.gov.ua/operativ/operativ2007/gdvdg_rik/dvdg_u/strukt_res2010_u.htm)), find appropriate information and analyze the structure of household incomes in Ukraine during 1999–2016. Make conclusions.

3. Look at the Figure 7. How functions of income, consumption and savings are interrelated? Give a comment on basic psychological law of J. M. Keynes. Describe its mechanism. Is it relevant in a modern economy?

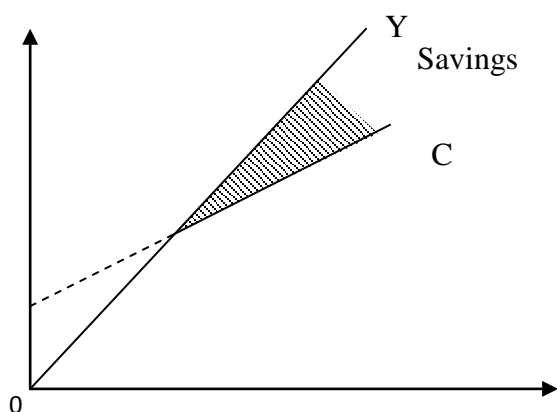


Figure 7. Basic psychological law of J. M. Keynes

4. Look at the Figure 8. Decide how the following factors influence on consumption. Describe the shifts of the curve depending on these factors.

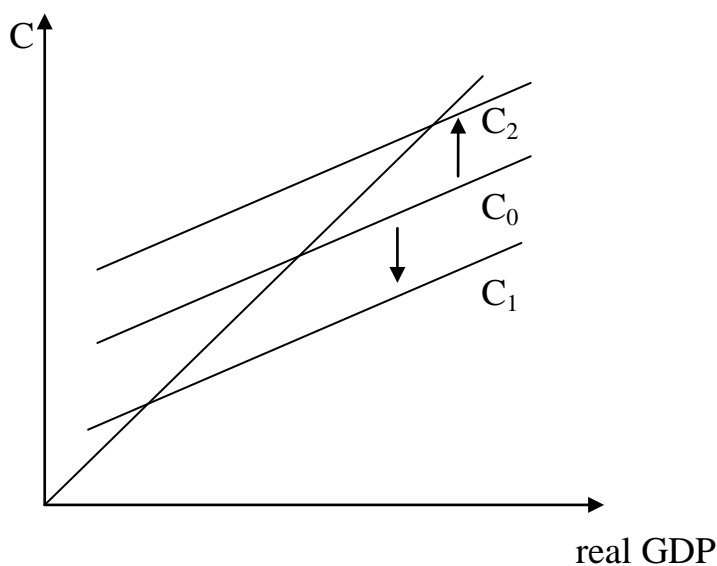


Figure 8. Shifts of the consumption curve

A) The debts of households on payments for public utility services have grown sharply.

- B) Households expect prices to rise in the near future.  
 C) Mixed income and earnings on property in a structure of household incomes have increased recently.  
 D) Households expect a recession in the near future.  
 E) Real interest rates have fallen not long ago.
5. Compare modern theories of consumption, using the following criteria. Complete the table below. Make conclusions.

**Table 7 – Theories of consumption**

Criteria	Classical theory	Keynesian theory	Institutional economics	Life cycle hypothesis	Permanent income hypothesis
Authors					
Time period					
Main concepts					
Advantages and disadvantages					
Relevance					

6. Analyze consumption of foodstuffs per capita in Ukraine: A) calculate growth rate in 2016 comparing with 2014; B) compare real consumption with established standards (Index of consumption sufficiency); C) make conclusions.

**Table 8 – Consumption of foodstuffs per capita in Ukraine**

Foodstuffs	Consumption of foodstuffs, per capita, kg/month 2014	Consumption of foodstuffs, per capita, kg/month 2016	Growth rate, $4=3/2$	Established standards, per capita, kg/year	Index of consumption sufficiency, 2016, $6=3/5$
1	2	3	4	5	6
Bread and cereal products	9.0	8.3		101	
Meat products	4.9	4.7		80	
Milk products	20.3	19.6		380	
Fish products	1.6	1.2		20	
Eggs, items	20	19		290	
Vegetables	9	9.2		161	
Fruits and berries	3.7	3.3		90	
Potato	6.9	6.7		124	
Sugar	3.0	2.7		38	
Vegetable oil	1.7	1.5		13	

### Problems

1. Calculate consumption expenditures, if autonomous consumption is 78 billion, marginal propensity to consume is 0,6; personal income is 670 billion, taxes are 55 billion, transfer payments are 45 billion.

2. Complete the table below. Analyze the changes in average propensity to consume and average propensity to save in a country Beta.

**Table 9 – APC and APS in a country Beta**

Year	Yd	C	APC	APS
2015	100	90		
2016	130	95		
2017	185	124		

3. The following changes have occurred in national economy during the year: disposable income at the beginning of the year is 300 billion, and consumption is 210 billion; at the end of the year disposable income is 371 billion, consumption is 226 billion. Calculate APC, APS, MPC, MPS.

4. All income is spent on consumption and saving. At the income of 3400 UAH, 3300 UAH is spent on consumption. With an increase in income to 5700 UAH, 5180 UAH is spent on consumption. Calculate the average propensity to consume and marginal propensity to consume.

5. The consumption function is given by the formula:  $C = 40 + 0,8 \cdot Yd$ , where Yd is the national disposable income in a country Alfa. Fill in the table below and build a consumption schedule.

**Table 10 – Disposable income, consumption and savings in a country Alfa**

Yd	C	S
0		
135		
225		
285		
375		

### Topics for reports

1. Income inequality in Ukraine.
2. Income inequality: causes, effects and indicators.
3. Government policy of incomes in Ukraine and foreign countries.

## Topic 8. Private investments

1. Investments: essence, types, function.
2. Interrelation between savings and investments.
3. Profitability of investment projects.

**Sources of literature:** basic [2, 6, 11, 12], additional [1, 3, 13, 20]

### Key terms

savings	saving curve
investments	investment function
marginal propensity to save	investment project
average propensity to save	discounted cash flow analysis
multiplier	inventory investment
multiplier effect	private saving
government saving	personal saving

### Comprehension questions

1. Explain the graphical and algebraical models of savings.
2. Describe the concepts of marginal propensity to save and average propensity to save.
3. Discover the essence and classifications of investments.
4. Describe the main factors of investment process.
5. Reveal the ways of measuring profitability of investment projects.
6. Discover the relationship between savings and investments from the point of view of classical and Keynesian theories.
7. Explain the multiplier effect.

### Tests

1. In what way does investment affect short run output:
  - a) through its impact on aggregate demand;
  - b) through the impact of capital formation on potential output and aggregate supply;
  - c) through additions to inventories;
  - d) there is no correct answer.
2. Investment demand curve:
  - a) is upsloping;
  - b) is downsloping;
  - c) is perfectly elastic;
  - d) is perfectly inelastic.
3. The main determinants of investments, besides the interest rate, are the following:
  - a) taxes, inventories;
  - b) fiscal policy, monetary policy, changes in wages;

- c) wealth and borrowing;
  - d) revenues, costs, expectations.
4. Savings could be calculated as:
- a) disposable income minus consumption;
  - b) wealth minus borrowing;
  - c) assets minus the amount of liabilities;
  - d) assets minus consumption.
5. Relationship between saving and disposable income is:
- a) inverse; b) negative; c) direct; d) there is no interdependence.
6. Which of the following statements is correct:
- a) the larger the income, the larger the saving;
  - b) the larger the income, the smaller the saving;
  - c) the smaller the income, the larger the saving;
  - d) there is no correct answer.
7. The fraction of total income that is saved is:
- a) marginal propensity to save;
  - b) average propensity to save;
  - c) average propensity to consume;
  - d) marginal propensity to consume.
8. The fraction of any change in income saved is:
- a) marginal propensity to save;
  - b) average propensity to save;
  - c) average propensity to consume;
  - d) marginal propensity to consume.
9. If APC is 0,6 then APS is:
- a) 1,6; b) 1,2; c) 0,4; d) 0,3.
10. Which of the following elements can be counted as investment:
- a) expenditures on capital equipment, machinery, software;
  - b) consumption expenditures on durable goods;
  - c) expenditures on new plants and additions to inventories;
  - d) answers a) and c) are correct.
11. A change in a component of total spending that leads to a larger change in GDP is called:
- a) real-balances effect;
  - b) Olivera-Tanzi effect;
  - c) multiplier effect;
  - d) foreign purchases effect;
12. The ratio of a change in GDP to the initial change in spending is called:
- a) accelerator; b) multiplier; c) reserve ratio; d) discount rate.
13. If marginal propensity to save is 0,4, then multiplier is equal to:
- a) 2,5; b) 0,6; c) 1,67; d) 1,4.
14. The equilibrium situation in national economy is expected when:
- a) marginal propensity to save is equal to marginal propensity to consume;
  - b) changes in GDP are equal to initial changes in spending;

- c) all savings turn to investments;
- d) there is no correct answer.

15. If saving is 150 billion and disposable income is 300 billion, then average propensity to save is:

- a) 450; b) 2; c) 0,8; d) 0,5.

### **Exercises**

1. Decide, whether the statements below are true or false:

A) The multiplier is the amount by which equilibrium output changes when autonomous aggregate demand increases by 1 unit.

B) Investment is the flow of spending that adds to the physical stock of national wealth.

C) The distinction between gross and private investment is essential even though the difference, depreciation, is hard to measure.

D) Economic depreciation may be much more rapid than physical depreciation.

E) Individuals invest not only in physical capital but also in human capital, in increasing the productive capacity of people, through schooling and training.

G) Aggregate supply depends on gross investment, since in the long run net investment determines the capital stock; aggregate demand, in contrast, depends on net investment.

H) The larger the marginal propensity to consume, the smaller the multiplier.

I) Investment spending is very volatile and thus responsible for much of the fluctuation of GDP across the business cycle.

J) Investment can be considered as spending that increases future productivity.

K) The multiplier suggests that output changes when autonomous spending (including investment) changes but the change in output cannot be larger than the change in autonomous spending.

2. Visit the website of the State Statistics Service of Ukraine (<http://www.ukrstat.gov.ua>), find appropriate information about investments in fixed capital in Ukraine, analyze dynamics of their annual volume and structure by funding sources. Make conclusions.

3. Look at the table (Table 11). Define the structure of fixed capital investments by branches of industry in Ukraine in 2016. Try to make conclusions and forecast of economic growth in Ukraine by branches of industry in the near future.

4. The cost of investment project on building the supermarket is 54 million UAH. Amount of expected profit is 7,9 million UAH. Decide whether this investment project is profitable if it is known that the nominal interest rate is 23%, and the annual rate of inflation is 7% per year.

5. Robert Eisner of Northwestern University estimated that the stock of human capital in the United States is almost as large as the stock of physical capital. There is much evidence that this investment, like that in physical capital, yields a positive real return; indeed, the return on human capital typically exceeds that on physical capital. Give a comment on these statements.



**Table 11 – Fixed capital investments by branches of industry in Ukraine**

Branches of industry	Capital investments	
	million UAH	%
A) Extractive industry	22545,6	
B) Manufacturing industry, which includes:	62223,3	
food, beverages and tobacco production	21291,0	
oil processing	759,0	
chemical products	1708,5	
pharmaceuticals	1597,9	
metallurgy industry	14662,8	
mechanical engineering	5327,5	
C) Supply of electricity and gas	30733,5	
Industry, total	117753,6	100

**Problems**

1. Determine the size of investment if it is known that autonomous investment is 615 million UAH; when interest rate changes per 1 unit, investments change by 10 million UAH, nominal interest rate is 18%, and inflation rate is 13% per year.

2. The cost of investment project of summer camp reconstruction is 37 million UAH, profit rate is 30%, corporate profits tax is 18%. The nominal interest rate is 24%, the rate of inflation is 15%. Determine expected net profit and its rate.

3. If marginal propensity to save is 0,25, what increase of investments ensures GDP growth by 400? By 2400?

4. GDP in current year is 450 billion. Marginal propensity to consume is 0,75. Next year investments will increase by 30 billion. What GDP should be expected next year?

5. The consumption function is given by the formula:  $C = 35 + 0,7 \cdot Y_d$ , where  $Y_d$  is the national disposable income in a country Alfa. Fill in the table below and build consumption and saving schedules.

**Table 12 – Disposable income, consumption and savings in a country Alfa**

$Y_d$	C	S
0		
470		
535		
910		

**Topics for reports**

1. Role of financial system in transformation of savings into investments.
2. Dynamics of investments in fixed capital in Ukraine.
3. Keynesian and neoclassical approaches to the function of fixed capital investment.

## Topic 9. Aggregate expenditures and GDP

1. Equilibrium model of «Keynesian cross».
2. Equilibrium model of «Injections and exceptions».
3. Interrelation between multiplier and accelerator effects.
4. Recessionary and inflationary gaps.
5. IS-LM model.

**Sources of literature:** basic [1, 2, 8-10], additional [6, 11, 13]

### Key terms

input-output model	injections-exceptions model
accelerator effect	recessionary gap
inflationary gap	equilibrium GDP
planned investments	unplanned investments
unplanned inventories	exception
injection	closed private economy
open and regulated economy	autonomous investments
induced investments	IS-LM model

### Comprehension questions

1. Explain establishing equilibrium GDP in terms of «Keynesian cross model».
2. Describe determination of equilibrium GDP on the basis of «injection-exception» model.
3. Discover the difference between autonomous and induced investments.
4. Describe the difference between planned and unplanned investments.
5. Explain the situation of recessionary gap.
6. Describe the situation of inflationary gap.
7. Explain interrelation between multiplier effect and accelerator effect.

### Tests

1. The basic premise of the «Keynesian cross» model is:
  - a) amount of goods and services produced depends directly on the level of aggregate expenditures;
  - b) total output depends directly on resources used;
  - c) there is inverse relationship between real GDP and savings;
  - d) there is direct relationship between total output and investments.
2. The simplifying assumptions of the input-output model are:
  - a) prices in the economy are fixed;
  - b) private closed economy;
  - c) real GDP equals disposable income;
  - d) all answers are correct.
3. In terms of «Keynesian cross» model angle of 45° line is the line which

shows:

- a) planned investments are equal to unplanned investments;
  - b) that at any point on it GDP equals aggregate supply;
  - c) that at any point on it GDP equals aggregate expenditures;
  - d) there is no correct answer.
4. In terms of input-output model when GDP is above the equilibrium level:
- a) total spending is less than GDP;
  - b) underspending causes unplanned inventories to decline;
  - c) firms tend to reduce production level;
  - d) answers a) and c) are correct.
5. In terms of input-output model when GDP is below the equilibrium level:
- a) total spending is below total output;
  - b) firms tend to reduce production level;
  - c) excess spending causes inventories to fall below their planned level, prompting firms to adjust production upward;
  - d) excess spending causes inventories to rise.
6. Actual level of investments in the economy equals to:
- a) the sum of planned investments and induced investments;
  - b) the sum of planned investments and unplanned investments;
  - c) autonomous investments;
  - d) difference of planned and unplanned investments.
7. A part of current income that is not directed to aggregate spending and thus reduces it is called:
- a) exception; b) injection; c) investment; d) savings.
8. For open and regulated economy exceptions include:
- a) investment, government purchases, export;
  - b) savings, taxes, import;
  - c) investment, export, savings;
  - d) government purchases, taxes, consumer spending.
9. Closed private economy can be described as:
- a)  $Y = C + I$ ;
  - b)  $Y = C + I + G$ ;
  - c)  $Y = C + I + G + X_n$ ;
  - d)  $Y = C + I + G - X_n$ .
10. An accelerator effect can be explained as:
- a) autonomous investments ensure economic growth;
  - b) low interest rates lead to growth in investments;
  - c) induced investments promote economic growth;
  - d) there is no correct answer.
11. The basic premise of the «injection-exception» model is:
- a) equilibrium GDP is defined at the point where total spending equals total output;
  - b) equilibrium GDP is the one that is produced in terms of balance between savings and planned investment;
  - c) equilibrium GDP can be determined in terms of equality in exceptions and injections in the economic cycle;

d) answers b) and c) are correct.

12. The situation when aggregate expenditures are less than potential GDP is:

- a) recessionary gap;                      b) inflationary gap;  
 c) GDP-gap;                                d) accelerator effect.

13. The amount by which actual aggregate expenditures should be reduced to achieve non-inflationary level of potential GDP is named:

- a) GDP-gap;                                b) inflationary gap;  
 c) recessionary gap;                      d) unplanned investments.

14. In terms of private closed economy actual aggregate expenditures are 530 billion, and GDP is 515 billion; unplanned investments in inventories are equal to:

- a) 0 billion; b) 15 billion; c) -15 billion; d) 30 billion.

15. For open and regulated economy the equilibrium condition is:

- a)  $S + T = I + G$  ;                      b)  $C + T + Im = C + G + Ex$ ;  
 c)  $S + T + Im = I + G + Ex$ ;        d) there is no correct answer.

### Exercises

1. Look at the figure below (Figure 9). Answer the questions.

A) Which of the following figures shows recessionary gap? Inflationary gap?

B) Show the points of equilibrium GDP.

C) Indicate the segments symbolizing recessionary and inflationary gaps.

D) Which cases could be characterized with unemployment and excess production capacities?

E) In which case GDP growth is possible without inflation?

F) Can macroeconomic equilibrium be sustainable when actual GDP exceeds potential GDP?

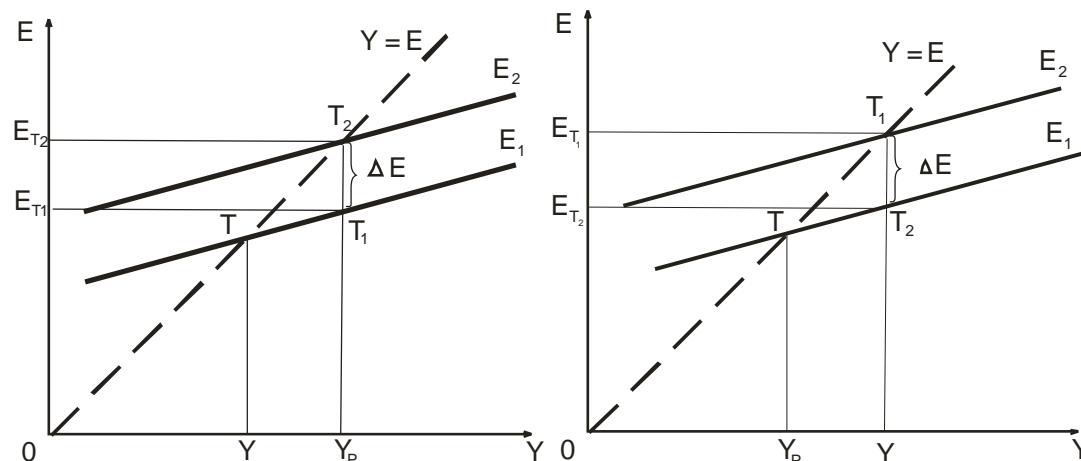


Figure 9. Equilibrium GDP in terms of different levels of employment

2. Look at the Figure 10 (a, b). Compare the conditions of establishing equilibrium GDP in terms of two basic models of macroeconomic equilibrium. Make conclusions.

3. How does intensity of the multiplier effect depend on slope of the saving curve? Demonstrate this effect using the graph, explain operation of multiplier. Explain your opinion.

4. Under which conditions does Keynesian paradox of thrift occur in the economy? Show it graphically. Is it relevant in the modern economy? Prove your opinion.

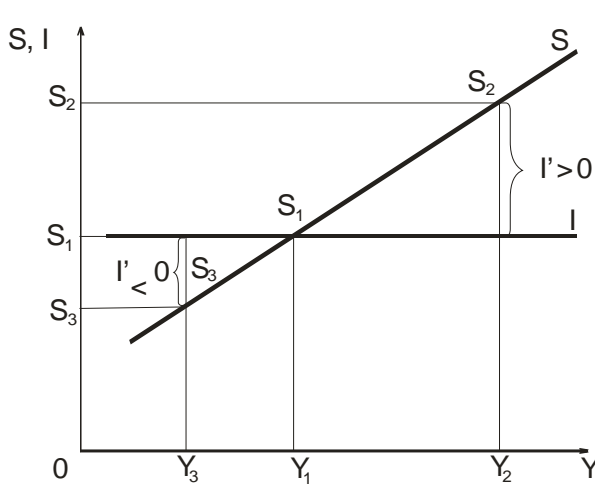


Figure 10a. «Input-output» model

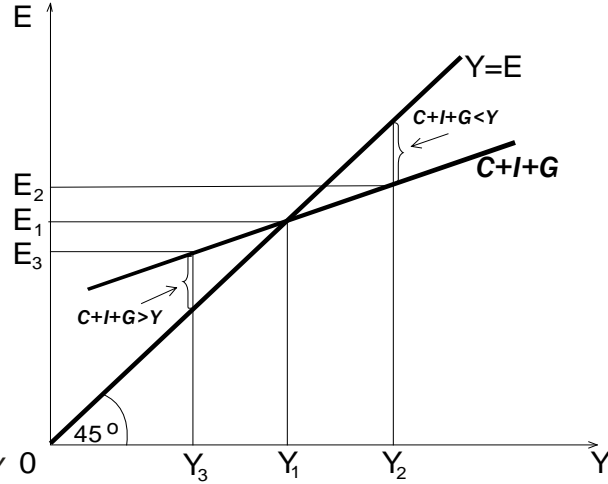


Figure 10b. «Injections-exceptions» model

5. How IS-LM model of macroeconomic equilibrium on a money market and commodity market is connected with AD-AS model and “Keynesian cross” model? Under which conditions could equilibrium be managed? What consequences could be expected if a) government expenditures rise; b) money supply increases?

### Problems

1. Calculate the equilibrium GDP in terms of private closed economy, if the consumption function is  $C = 72 + 0,5 \cdot Y$ , autonomous investment is 110 billion.

2. Calculate the equilibrium GDP, if investment function is  $I = 96 + 0,3 \cdot Y$ , and the function of savings is  $S = -24 + 0,7 \cdot Y$ .

3. Recessionary gap is 20 billion. Actual GDP is 300 billion. Marginal propensity to consume is 0,5. Calculate the potential GDP.

4. Calculate inflationary gap, if actual GDP is 250 billion, marginal propensity to consume is 0,8; potential GDP is 210 billion.

5. In terms of private closed economy, consumption function is  $C = 200 + 0,7 \cdot Y$ , autonomous investment is 100 billion. Answer the following questions.

A) Calculate the equilibrium GDP.

B) Calculate the equilibrium level of consumption and saving.

C) If GDP equals to 1200 (850) billion, what level of investments in inventories is expected to be in the economy? Show it graphically.

D) If autonomous investments are 200 billion, what changes in GDP could be found in the economy?

E) Calculate the investment multiplier.

### Topics for reports

1. Equilibrium of economic systems and mechanisms of its maintenance.
2. Multiplier effect and its mathematical and graphical interpretation.
3. Keynesian paradox of thrift and its relevance.

## Topic 10. Macroeconomic dynamics

1. Economic cycle, its types, phases.
2. Economic growth: factors, types, indexes.
3. Basic models of economic growth.

**Sources of literature:** basic [3, 4, 6, 9], additional [1-4, 7, 13, 14]

### Key terms

economic growth	GDP per capita
determinants of economic growth	extensive economic growth
intensive economic growth	economic cycle
R. Harrod - E. Domar model	R. Solow model
classic business cycle	crisis
depression	recovery
upswing	modern economic cycle
«long waves» of N. Kondratyev	short-term economic cycles
medium-term economic cycles	efficiency factor

### Comprehension questions

1. Explain interrelation between concepts of economic growth and economic development.
2. What indexes do economists usually use to assess economic growth?
3. Reveal determinants of economic growth. Which of them are crucial for Ukraine?
4. What institutional structures promote economic growth?
5. Describe the difference between extensive and intensive economic growth. Which of these types is more widespread today?
6. Compare two main types of economic growth models, the neo-Keynesian models and neoclassical ones.
7. Describe the classifications of economic cycles.
8. What is the difference between classic business cycle and modern economic cycle?

### Tests

1. Which indicators are often used to measure economic growth:
  - a) percentage rate of real GDP growth;
  - b) increase in real GDP per capita;
  - c) unemployment, plant capacities, inflation;
  - d) answers a) and b) are correct.
2. A stable increase of volumes of real GDP and real national income from year to year can be considered as:
  - a) business cycle;
  - b) economic growth;

- c) economic development;
  - d) economic progress.
3. Increases in the quantity and quality of human resources refers to:
- a) supply factors of economic growth;
  - b) demand factor of economic growth;
  - c) efficiency factor of economic growth;
  - d) institutional factors of economic growth.
4. A competitive market system refers to:
- a) demand factor of economic growth;
  - b) supply factors of economic growth;
  - c) institutional factors of economic growth;
  - d) efficiency factor of economic growth.
5. When economy uses its resources in the least costly way, this case is known as:
- a) productive efficiency;
  - b) allocative efficiency;
  - c) competitive market system;
  - d) command economic system.
6. If the economy involves new plant capacities to increase its output, that means:
- a) productive efficiency;
  - b) extensive economic growth;
  - c) intensive economic growth;
  - d) allocative efficiency.
7. Which of the following features is not inherent to R. Harrod - E. Domar model of economic growth:
- a) it is based on the theory of the multiplier-accelerator;
  - b) the rate of economic growth is determined by marginal propensity to save;
  - c) dynamic equilibrium in a market system is unstable;
  - d) it is based on Cobb-Douglas production function.
8. If the economy tries to increase labour productivity to boost its output, it signifies:
- a) extensive economic growth;
  - b) the economy tends to gain its potential GDP;
  - c) intensive economic growth;
  - d) increases in the quantity and quality of human resources.
9. Which of the following features is not inherent to R. Solow model of economic growth:
- a) the rate of economic growth is determined by marginal propensity to save;
  - b) pure competition on factor markets;
  - c) interchangeability of resources;
  - d) it is based on Cobb-Douglas production function.
10. Which business activity indicators are used to estimate cyclical fluctuations more often:

- a) GDP growth rate, inflation rate, unemployment;
  - b) GDP growth rate, general level of prices, unemployment, level of production capacities;
  - c) real GDP per capita;
  - d) inflation rate, unemployment rate.
11. Short-term economic cycles were studied by:
- a) K. Zhuhlyar;
  - b) N. Kondratyev;
  - c) K. Marx;
  - d) J. Kytchyn.
12. Length of medium-term economic cycles is:
- a) 1–4 years;
  - b) 7–11 years;
  - c) 48–66 years;
  - d) there is no correct answer.
13. The main reason for long-term economic cycles is:
- a) changes in basic technologies and energy sources;
  - b) uneven reproduction of working capital;
  - c) renewal of active part of fixed capital;
  - d) changes in monetary circulation.
14. A classic business cycle can consist of the following phases:
- a) upswing and downturn;
  - b) crisis, depression, recovery;
  - c) crisis, depression, recovery, upswing;
  - d) upswing and depression.
15. Features of modern economic cycles do not include:
- a) stagflation;
  - b) a policy of «cheap money»;
  - c) a reduction in the economic downturn phase and an increase in the phase of upswing;
  - d) prices usually fall significantly.

### **Exercises**

1. Visit the website of the State Statistics Service of Ukraine (<http://www.ukrstat.gov.ua>), find appropriate information about real GDP in Ukraine during 1990–2018, analyze its dynamics. Decide, what type of economic crises occurred in Ukraine in 1990th, 2008–2009, 2014–2015.

2. Compare classifications of economic cycles, using the following criteria. Complete the table below (Table 13). Make conclusions.

3. Look at the figure Figure 11. Answer the questions.

A) Define the phase of a cycle, describe dynamics of GDP and inflation, if AD curve changes its location from  $AD_2$  to  $AD_1$ .

B) Define the phase of a cycle, describe dynamics of GDP and inflation, if AD curve changes its location from  $AD_3$  to  $AD_4$ .



C) Identify the type of economic growth. Under which conditions does economic growth occur?

**Table 13 – Theories of economic cycles**

Criteria	Short-term economic cycles	Medium-term economic cycles	Long-term economic cycles
Authors			
Time period			
Length of cycles			
Reasons of emergence			
Relevance			

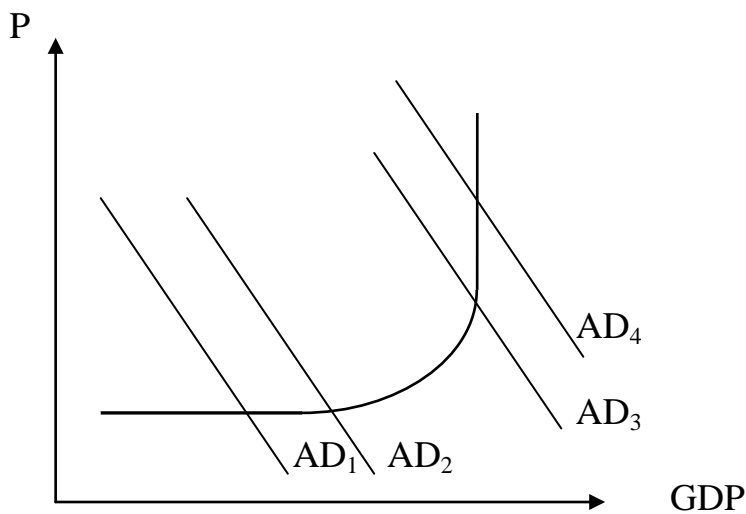


Figure 11. AD and AS curves

4. Calculate and then compare GDP per capita in different countries and Ukraine (Table 14). Complete the table. Make appropriate conclusions.

### Problems

1. Calculate growth rate of real GDP in 2017 according to the data: nominal GDP in 2017 is 690 billion, growth rate of GDP-deflator is 112%, nominal GDP in 2016 is 620 billion, real GDP in 2016 is 600 billion.

2. Real GDP in 2016 is 429 billion, real GDP in 2017 is 460 billion, population of a country in 2016 is 16 million, in 2017 it has grown by 2%. Calculate growth rate of real GDP per capita in 2017.

3. Production function is  $Y=A*K^{0.4}*L^{0.6}$ . Growth rate of capital resources is 3,5% per year; growth rate of labour is 3,1% per year; growth rate of general productivity of factors is 1,5% per year. Calculate growth rate of output.

**Table 14 – GDP per capita in selected countries**

Country	GDP, million doll., 2016	Population, thousands, 2016	GDP per capita
Angola	89633	28813	
Austria	386427	8747	
Brazil	1796186	207652	
China	11199145	1378665	
Ethiopia	72374	102403	
France	2465453	66896	
Germany	3466756	82667	
Moldova	6749	3552	
Poland	469508	37948	
Ukraine	93270	45004	
United States	18569100	323127	
World	75543542	7442135	

4. Production function of the economy is  $Y=A*K^{0,3}*L^{0,7}$ . Expected growth rate of GDP next year is 2,7%; growth rate of labour is 1,4%; growth rate of general productivity of factors is 1,3%. Define growth rate of fixed capital investment that ensures growth rate of output mentioned.

5. In a country Alfa marginal productivity of capital is 0,3, in a country Beta – 0,42. Marginal propensity to save is equal to 0,25 in a country Alfa, and is equal to 0,35 in a country Beta. Calculate growth rate of real output in both countries according to E. Domar model.

#### **Topics for reports**

1. Theories of economic cycle.
2. Macroeconomic analysis of cyclical fluctuations
3. Problems of economic growth in Ukraine.
4. Cyclical fluctuations and innovations.

## Topic 11. Government macroeconomic regulation of economy

1. Role of government in economic circulation.
2. Fiscal policy, its objectives, types and instruments.
3. Budget deficit and ways of its reimbursement. Public debt: reasons, structure, consequences.
4. Monetary policy: essence and strategies.

**Sources of literature:** basic [1-4, 8-10], additional [9, 15, 12]

### Key terms

functions of state	economic policy
government regulation of economy	fiscal policy
monetary policy	budget deficit
public debt	government expenditures
taxes	expansionary fiscal policy
restrictive fiscal policy	discretionary fiscal policy
nondiscretionary fiscal policy	built-in stabilizer
central bank	open-market operations
reserve ratio	discount rate

### Comprehension questions

1. What are the reasons for intervention of government into economic circulation? Describe major functions of state.
2. What is government regulation of economy? What direct and indirect means of government regulation of economy do you know?
3. Reveal the main tools of fiscal policy.
4. Compare two main types of fiscal policy – expansionary and restrictive fiscal policy.
5. Describe the difference between discretionary fiscal policy and nondiscretionary fiscal policy.
6. Under what conditions does budget deficit occur? What are the ways of its reimbursement?
7. Describe interrelation between budget deficit and public debt.
8. Discover the main tools of monetary policy.
9. What types of monetary policy do you know?

### Tests

1. Combination of market regulation and government regulation of economy is a main feature of:
  - a) mixed economic system;
  - b) command economic system;
  - c) traditional economic system;
  - d) market economic system.

2. Indirect ways of government regulation of economy do not include:
  - a) monetary policy; b) fiscal policy;
  - c) external trade policy; d) government contracts and licensing.
3. Expansionary fiscal policy presupposes:
  - a) an decrease in government spending; a decrease in taxes;
  - b) an increase in taxes;
  - c) an increase in government spending, a decrease in taxes;
  - d) a rise in discount rate.
4. Restrictive fiscal policy consists of:
  - a) an decrease in reserve ratio;
  - b) government spending reductions, tax increases;
  - c) an increase in government spending, a decrease in taxes;
  - d) an increase in government spending, an increase in taxes.
5. Which of the following is not a tool of a fiscal policy:
  - a) government spending; b) taxes; c) transfer payments; d) reserve ratio.
6. When recession occurs, government should use:
  - a) expansionary fiscal policy and cheap money policy;
  - b) expansionary fiscal policy;
  - c) restrictive fiscal policy;
  - d) innovation and investment policy.
7. To control demand-pull inflation in terms of economic upswing, government can introduce:
  - a) expansionary monetary policy; b) expansionary fiscal policy;
  - c) restrictive fiscal policy; d) social policy.
8. Which of the following can be regarded as a built-in stabilizer:
  - a) progressive income tax; b) unemployment assistance;
  - c) subsidies; d) all answers are correct.
9. Which of the following is not a tool of a monetary policy:
  - a) open-market operations; b) reserve ratio;
  - c) transfer payments; d) discount rate.
10. The interest rate the Central Bank charges on the loans it makes to commercial banks is called:
  - a) discount rate; b) reserve ratio; c) cash ratio; d) there is no correct answer.
11. Appropriate macroeconomic goals for government in a modern mixed economy are:
  - a) improving economic efficiency;
  - b) reducing economic inequality;
  - c) stabilizing the economy through macroeconomic policies;
  - d) all answers are correct.
12. Cheap money policy of Central Bank comprises:
  - a) an increase in money supply as a result of selling government securities on the open market;
  - b) an increase in money supply as a result of buying government securities, a decrease in reserve ratio and discount rate;

c) lowering interest rates and a decrease in money supply;  
d) a decrease in money supply by means of an increase in reserve ratio and discount rate.

13. Which of the following items is the way of reimbursing a budget deficit:

- a) monetization of deficit; b) debt financing;  
c) selling government reserves; d) answers a) and b) are correct

14. When government expenditures exceed revenues in terms of full employment, that is known as:

- a) structural deficit; b) actual deficit; c) cyclical deficit; d) nominal deficit.

15. Tight money policy presupposes:

- a) a decrease in money supply and lowering interest rates;  
b) a decrease in money supply by means of an increase in cash ratio;  
c) a decrease in money supply as a result of selling government securities, an increase in reserve ratio and discount rate;  
d) issue of money.

### **Exercises**

1. Decide, whether the statements below are true or false:

A) There are three multipliers referring to government fiscal policy: government spending multiplier, tax multiplier, balanced-budget multiplier.

B) Government spending multiplier is defined as the ratio of the change in the equilibrium level of output to a change in investments.

C) Public debt is the total of all accumulated deficits minus surpluses over time; however, when the government runs a surplus, the debt can increase.

D) Tax revenues depend on the state of the economy even when the government does not change tax rates.

E) Automatic stabilizers help stabilize the economy with some government amendments to laws.

G) Fiscal drag is the negative effect on the economy that occurs when average tax rates increase because taxpayers have moved into higher income brackets during an expansion.

H) The government has complete control over tax revenues and certain expenditures, although they are partially dictated by the state of the economy.

I) Automatic destabilizers are revenue and expenditure items in the budget that automatically change with the state of the economy in such a way as to destabilize GDP.

2. Visit the website of the Ministry of Finance of Ukraine (<https://www.minfin.gov.ua/>). Find appropriate information about budget deficit and public debt in Ukraine, analyze their dynamics. Make conclusions.

3. Economists often consider the following concepts of budget balancing: annual balancing, balancing within a business cycle, concept of functional finance. Study the concepts, compare their features, define pros and cons. Which of them are widespread in developed countries, developing countries, in Ukraine? Which of them are the most effective?

4. Look at the table below. Analyze budget deficit as percentage of GDP in Ukraine and foreign countries. Make conclusions.

**Table 15 – General Government budget deficit in 2016 in selected countries**

Country	Spain	France	Croatia	Italy	Poland	Slovakia	United Kingdom	Ukraine
Budget deficit, percentage of GDP, %	-4,5	-3,4	-0,8	-2,4	-2,4	-1,7	-3	-2,2

### Problems

1. GDP of a country is 6800 billion. Government is going to increase GDP to 7800 billion. Marginal propensity to consume is 0,5. To what extent should government decrease taxes to gain potential GDP of 7800 billion?

2. GDP of a country is 6000 billion. Government is going to increase GDP to 8500 billion. Marginal propensity to consume is 0,5. To what extent should government increase expenditures to gain potential GDP of 8500 billion?

3. GDP of a country is 10300 billion. Marginal propensity to consume is 0,8. To what extent should government decrease taxes or increase expenditures to gain potential GDP of 11400 billion? What tool would be more effective? What type of fiscal policy does government use in this case?

4. Suppose government purchases are 1050 billion; amount of value added tax is 840 billion; amount of excise tax is 540 billion; function of transfer payments is  $TR=0,15*Y$ . Price level is constant. Government debt is 280 billion, interest rate is 10%. Actual GDP is 3780 billion. Is there a government budget deficit or surplus?

5. Government purchases are 760 billion.; tax function is  $T=0,5*Y$ ; function of transfer payments is  $TR=0,18*Y$ . Price level is constant. Government debt is 320 billion, interest rate is 7,5%. Actual GDP is 4000 billion, potential GDP is 4350. Calculate actual budget deficit, structural deficit and cyclical deficit.

6. In the country Beta demand for cash equals 20% of deposits. Reserve ratio is 18%. To what extent should Central Bank change monetary base if it plans to increase the money supply by 187 billion? What type of monetary policy is used in this case? What other tools of monetary policy could be applied?

### Topics for reports

1. Central bank as an agent of monetary policy.
2. Problems of budget deficit and public debt in Ukraine.
3. Government monetary regulation in Ukraine.
4. Interrelation of fiscal and monetary policy.
5. Modern models of fiscal policy in developed countries.

## Topic 12. External economic activity

1. International trade and its influence on economics. Mechanisms and tools of foreign economic policy.
2. Balance of payments: essence and components.
3. Exchange rate and its types.
4. Evolution of international monetary systems.

**Sources of literature:** basic [1-4, 8-12], additional [1, 13, 12]

### Key terms

international trade	foreign economic policy
comparative advantage	exports
imports	net exports
trade deficit	trade surplus
marginal propensity to import	open-economy multiplier
balance of payments	exchange rate
international monetary system	foreign exchange market
depreciation	appreciation
tariffs	import quotas
nontariff barriers	export subsidies

### Comprehension questions

1. What are the reasons for international trade? Describe advantages and pitfalls of international trade.
2. Reveal the main theories of international trade.
3. Discover pros and cons of protectionism and free trade.
4. What trade barriers can governments set?
5. Describe the structure of balance of payments.
6. Explain the concept of exchange rate. Describe the difference between depreciation and appreciation.
7. Discover the main features of different international monetary systems.
8. Is there interrelation between the government policy of protectionism or free trade and the level of national economy development?

### Tests

1. Who was the author of the principle of comparative advantage?  
a) D. Ricardo; b) A. Smith; c) K. Marx; d) A Marshall.
2. When imports exceed exports:  
a) net exports is positive;  
b) net exports is negative; a trade deficit occurs;  
c) net exports is zero; a trade surplus occurs;  
d) a trade surplus occurs.
3. The dollar increase of imports for each dollar increase in GDP is called:

- a) an open-economy multiplier;
  - b) a marginal propensity to consume;
  - c) a marginal propensity to save;
  - d) a marginal propensity to import.
4. Limits imposed by nations on the quantities (or total values) of goods that may be imported during some period of time are named:
- a) nontariff barriers;
  - b) import quotas;
  - c) voluntary export restrictions;
  - d) tariffs.
5. Depreciation of a currency:
- a) is a decrease in the value of a currency relative to another currency;
  - b) means that it takes fewer units of a currency to buy a single unit of some other currency;
  - c) is an increase in the value of a currency relative to another currency;
  - d) there is no correct answer.
6. When the Ukrainian currency hryvnia depreciates:
- a) Ukrainian exports rise, and Ukrainian imports fall;
  - b) Ukrainian imports rise;
  - c) more units of hryvnia are needed to buy a single unit of some other currency;
  - d) answers a) and c) are correct.
7. Purchasing power parity:
- a) is interrelation of purchasing power of currencies;
  - b) is calculated on the basis of a consumer basket price comparison;
  - c) characterizes commodity content of monetary units of different countries;
  - d) all answers and are correct.
8. Direct quotation means:
- a) a unit of national currency is expressed in units of foreign currency;
  - b) exchange rate between two currencies;
  - c) a unit of foreign currency is expressed in units of national currency;
  - d) there is no correct answer.
9. If any determinants of demand and supply of a currency freely affect exchange rate, there are:
- a) fixed exchange regulations;
  - b) floating with restrictions or intermediate exchange regulations;
  - c) flexible or floating exchange regulations in a country;
  - d) exchange restrictions in a country.
10. Which of the following methods does not government use when regulating exchange rates:
- a) depreciation or appreciation;
  - b) voluntary export restrictions;
  - c) exchange market intervention;
  - d) regulations of balance of payments.
11. The monetary system established in 1922 that was based on gold and on leading currencies convertible into gold:



- a) Genoese monetary system;
  - b) Bretton Woods Monetary System;
  - c) Paris monetary system;
  - d) Jamaica monetary system.
12. The factors influencing exchange rate include:
- a) dynamics of exports and imports; balance of payments;
  - b) changes in volume of money supply and changes in expected inflation;
  - c) dynamics of interest rates within the country and abroad;
  - d) all answers are correct.
13. In a case of surplus of balance of payments:
- a) official reserves fall;                      b) official reserves increase;
  - c) net balance is negative;                      d) net export is certainly positive.
14. Capital and financial account does not include:
- a) capital transfers;                              b) direct investment;
  - c) current transfers;                              d) reserve assets.
15. Current account of balance of payments does not contain:
- a) exports and imports of goods and services;
  - b) incomes;
  - c) current transfers;
  - d) portfolio investment.

### **Exercises**

1. Decide, whether the statements below are true or false. Prove your opinion.

A) Current account balance is positive if import exceeds export and it is negative when export exceeds import.

B) Capital and financial account balance is positive, when capital import exceeds exports, and it is negative if there is an excess of exports over imports; in the first case there is an inflow of capital into the country, in other case there is outflow of capital from the country.

C) Real transactions are related to the export and import of goods and services, external factor incomes from abroad and capital transfer payments.

D) Financial transactions are related to changes in financial assets and liabilities and are recorded in the account of operations with capital and financial operations.

E) Complete chart of the balance of payments contains 212 articles.

G) A credit is an outflow of values outside the country for which country will receive payments in foreign currency.

H) All the articles of balance of payments are divided into current account balance, capital and financial account balance and financial account.

I) Debit is a flow of values into a country for which it needs to pay in foreign currency.

2. Visit the website of the State Statistics Service of Ukraine (<http://www.ukrstat.gov.ua>), find appropriate information about exports and imports

of Ukraine during 2000-2018, analyze its geographical and commodity structure and dynamics. Make conclusions.

3. «Equilibrium of balance of payments means that country spends and invests abroad as much as other countries spend and invest into this country. Deficit of balance of payments is paid off at the expense of foreign-exchange reserves of Central Bank. If this deficit is chronic, then balance of payments crisis occurs. Government can overcome this crisis only by means of macroeconomic correction (direct control, combating inflation, changing exchange rate of national currency)». Give a comment on these statements. Does Ukrainian balance of payments have a deficit or a surplus? How does Ukrainian government regulate balance of payments?

### Problems

1. Analyze external economic activity of a country Alfa, using the following data. Make conclusions.

**Table 16 – External economic activity of a country Alfa**

Years	Export, billion	Import, billion	GDP, billion
2016	215	225	600
2017	260	250	680

2. Compose Balance of payments of a country Gamma. Calculate net balance. Did official reserves change? Make conclusions.

**Table 17 – Articles of the balance of payments of a country Gamma**

External operations	Payments, billion
Export of goods	68500
Import of goods	66300
Investment incomes from abroad	3200
Workers' remittances paid abroad	480
Export of transportation services	7600
Capital outflow	5200

3. In a basic year cost of a basket of consumer goods in Ukraine amounted to 3200 UAH, in USA – 130 dol. In a current year inflation rate in Ukraine was 14,4%, in USA – 2,1%. Define hryvnia's exchange rate to dollar, in direct quotation according to purchasing power parity.

### Topics for reports

1. Economic equilibrium in open economy.
2. Government regulation of external economic activity in Ukraine.
3. Problems of exchange rate stability in Ukraine.
4. Peculiarities of economic relationships between Ukraine and European Union.

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## GLOSSARY

**Macroeconomics** is the part of economics that examines either the economy as a whole or its basic subdivisions or aggregates, such as the government, household, business and foreign sectors.

**Subject matter of macroeconomics** is a mechanism of functioning of national economy; factors determining changes in this mechanism, and government methods of influence on economic processes.

**Object of macroeconomic analysis** is economic system and its aggregated parameters.

**Circular-flow diagram** is a visual model of the economy that shows how amounts of money flow through markets among households and firms.

**System of national accounts** is a collection of balance tables that reflect the movement of goods and revenues between members of social production in an aggregated form, reflect saving process and level of national wealth.

**GDP** is the total market value of all final goods and services produced within the borders of a country during a specific period of time, typically a year.

**Transfers** are economic transactions by which some institutional units give all other institutional units goods, services, assets or ownership free of charge.

**Aggregate demand** shows the amounts of real output (real GDP) that buyers collectively desire to purchase at each possible price level.

**Aggregate supply** shows the relationship between the price level and the amount of real domestic output that firms in the economy produce.

**Liquidity** is the ease with which it can be converted quickly into the most widely accepted and easily spent form of money, cash, with little or no loss of purchasing power.

**Money market** is a part of the financial market where the purchase and sale of short-term liquid assets takes place.

**Money supply** is a collection of monetary assets that are used in the national economy at any specific period of time.

**Unemployment** is a social and economic phenomenon on a labor market, when economically active population is not involved in the production process.

**Frictional unemployment**—consists of search unemployment and wait unemployment—for workers who are either searching for jobs or waiting to take jobs in the near future.

**Structural unemployment** is connected with changes in “structure” of the total demand for labor, both occupationally and geographically.

**Cyclical unemployment** is unemployment that is caused by a decline in total spending and typically begins in the recession phase of the business cycle.

**Potential output** is the real GDP that occurs when the economy is “fully employed”.

**Labor market** is a range of economic relations concerning buying and selling of a specific good which is labor force.

**Inflation** is a rise in the general level of prices, that results from violations of macroeconomic balance, when much of the money is unsecured by goods and services.

**Demand-pull inflation** occurs when total spending exceeds the economy's ability to provide goods and services at the existing price level; total spending pulls the price level upward.

**Cost-push inflation** occurs when factors such as rapid increases in the prices of imported raw materials drive up per-unit production costs at each level of output; higher costs push the price level upward.

**Household** is an association of individuals who have the common housekeeping and common budget, who are engaged in the activities on looking after the house together.

**Differentiation of incomes** is the difference in the level of monetary incomes of various segments of the population.

**Lorenz Curve** is a graph of the actual distribution of income among families with different incomes compared with even distribution.

**Marginal propensity to consume** is the proportion, or fraction, of any change in income consumed.

**Average propensity to consume** is the fraction, or percentage, of total income that is consumed.

**Average propensity to save** is the fraction of total income that is saved.

**Marginal propensity to save** is the ratio of a change in saving to the change in income that brought it about.

**Injection-exception model** is the macroeconomic model for determination of equilibrium GDP in terms of equality in exceptions and injections in the economic cycle.

**Recessionary gap** is the amount by which the actual aggregate expenditures should grow to provide an increase of actual GDP to potential GDP without inflation.

**Inflationary gap** is the amount by which the actual aggregate expenditure should be reduced to achieve non-inflationary level of potential GDP.

**Economic growth** is a stable increase of volumes of real GDP and real national income from year to year; it is a positive part of economic development's dynamics.

**Economic cycle** (business cycle) is periodically repeated over the years upswings downturns in the economy.

**Fiscal policy** consists of deliberate changes in government spending and tax collections designed to achieve full employment, control inflation, and encourage economic growth.

**Monetary policy** consists of deliberate changes in the money supply to influence interest rates and thus the total level of spending in the economy.

**Exchange rate** is the rate at which the currency of one nation can be exchanged for the currency of another nation.

**Depreciation** (of a currency) is a decrease in the value of a currency relative to another currency.

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