National University of Life and Environmental Sciences of Ukraine

Gushcha I.

MACROECONOMICS

Educational-scientific manual
for students of economic specialties

Kyiv - 2015
Recommended by the Academic Council of the Faculty of Agricultural Management of National University of Life and Environmental Sciences of Ukraine protocol №2 from March, 26, 2015.

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Themes are offered and to the test of question, that allows to check up the knowledge of discipline.

A manual is made to order the students of higher educational establishments for independent and interactive preparation.
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MACROECONOMICS AS A SCIENCE

Introduction to macroeconomics

Macroeconomics is a science that studies conformities to natural laws of economy functioning in general. But economy is a complicated system. That’s why besides macroeconomics economy is studied by other economic sciences: political economy, microeconomics, marketing, management, trade and functional economies etc. First of all Macroeconomics as a science is based on regulations and conclusions of political economy about development of production relations, broadened recreation, action of objective economic laws and mechanisms of their use in practice of management. It has also a net link with mathematics and statistics, it widely uses methods of economic-mathematical modeling that makes it an exact science and allows to pass from qualitative to quantitative analysis of economic phenomena, processes and conformities to natural laws that take place in economy. So, macroeconomics forms scientific conceptions about economy functioning on national level. Analyzing basic factors and consequences of macroeconomic development this science offers methods of active influence on object of its research, that’s why on process of broadened recreation. Without determining the content of economic state policy, macroeconomics is always used as its theoretical base. This states that it doesn’t make researches only in factual state of national economy but also allows to suggest different variants of influence on economic development process.

As in any economic science a fundamental contradiction of human society lies in macroeconomics base: contradiction between material needs of people and those economic resources that people have for their satisfaction. The essence of this contradiction is that material needs of people are unlimited and economic resources necessary for their satisfaction - limited. The peculiarity of macroeconomics is that this contradiction is considered from the position of not separate subjects of economic activity (physical or juridical persons), but of all aggregate economic subjects, so of national economy as the whole. Usually macroeconomics can’t be neutral to this contradiction. It is as other economic sciences to be one of instruments of its resolving.

Object and subject of macroeconomics

To determine the object of macroeconomics as a science, it is necessary first of all to distinguish macroeconomics and microeconomics. Microeconomics studies functioning mechanism and interrelations of separate economic subjects to which enterprises and organizations (firms, commercial banks etc.) belong. Macroeconomics studies economic activity and interaction of the aggregate of economic subjects, so national economy as the whole. So, macroeconomics formulates scientific conceptions about functioning of economic system on national level. Internal state and functioning of economic system as the whole are provided by links between elements entering to its structure and by external environment.
But in reality there is no economy at all, but economy always exists as that one with correspondent type of production relations that form an adequate economic system. This means that the object of macroeconomics is not simply a national economy in general, but its correspondent type, historically determined economic system.

Considering development of economic systems in historic aspect, there can be determined three basic types: market, command-administrative and mixed economy.

Market economy is characterized by private property form of economic resources and use of market mechanism for economy regulation. The main force of market economy is concurrence. A concurrence economy is the economy where a consumer rules. This economy type is frequently considered as the best economic system, when state interference in economic processes becomes unnecessary. Government role in this type is ought to be limited by defense of private property and establishment of favorable legal field for free market functioning.

Command-administrative (planned) economy is straightly opposed to market economy. It is founded on state property and regulation of economic processes is made by central state planning.

Mixed economy is such economic system, which combines different property (private, cooperative, state) forms and two mechanisms of macroeconomics’ regulation: market and state. However in each country with mixed economy correlation between market and state regulation, or distribution of regulative functions between market and state, is unequal.

There are three most typical models of mixed economy: American, Japanese and Swedish.

The base of American model is a system of business encouragement, personal success achievement, enrichment of the most active part of population. Active interference of the state in economy is typical for Japanese model. Typical peculiarity of Swedish model is its social orientation on the level of state policy.

The subject of macroeconomics is a mechanism of functioning of economic system. Macroeconomics on one hand has to study real facts and find out reasons and consequences links in economic mechanism and on the other hand it has to recommend tools to improve economic mechanism in order to use more effectively existing resources and to reach a higher level of social needs satisfaction. So, macroeconomics does not have only a distinguishing function but also a normative one. Macroeconomics dealing with a distinguishing function, i.e. studying stable links and dependences appropriate to national economy is called positive or macroeconomic analysis. Meanwhile it studies subjective approaches of recommendation character such as theories, concepts and models aimed to solve definite problems of national economy development, this macroeconomics is called normative, or macroeconomic regulation.

History of macroeconomic science development

Macroeconomics is one of the youngest economic sciences. As generally acknowledged it reached its maturity in the 30-s of the XX-th century, in the period
of the world economic crisis, when it gained the ability to influence an economic practice.

But macroeconomic science takes its beginning in XVI-th century. In 1576 a Frenchman Jean Bodein proved price level change (inflation) as a result of change of correlation between quantity of money and goods. These were first attempts of macroeconomic analysis of prices using quantitative theory of money. This theory became the base of contemporary monetary theory.

Researches of English economists V. Petty and G. King also had a macroeconomic orientation, they were the first in world practice who made calculations and gave estimation of national income of England and France 300 years ago. First estimations of national income of England made by V. Petty previewed concrete practical aims. The scientist studied questions of influence of tools and methods connected to improvement of tax system in a country on economy and incomes distribution.

Further a macroeconomic analysis was developed in the XVIII-th century in works of French school of phisiocrates. A Founder of this school Francois Kene developed a macroeconomic model of economy turnover, so called “Economic table” (1758). This table reflected a general picture of turnover of goods and services for principal economy sectors and society grades and gave conception about mechanism of economy functioning as the whole. But it used concepts that were not proved by time. Kene was both a doctor and an economist. That's why its model of economy turnover is based by parity of blood cycle of a man.

By parity of human organism Kene subdivides society in three classes: productive (peasants), prosperous (landlords) and sterile (artisans). These classes according to F. Kene theory exchange results of their labor and in that way they reproduce themselves, their productive force.

Developing the “Economic table” Kene used two principles:

1. Economy turnover is to be based on natural economic order without external state interference. So, F. Kene was an adherent of economic liberalism.

2. Analogy of economic processes to blood circulation pushed Kene to think about possibility of determined violations in economy turnover, up to appearance of crisis phenomena by analogy to cerebral or coronary thrombosis.

Kene anticipated possibility of inflationary augmentation of streams cost of economic turnover. The most dangerous point was to his opinion a level rise of consumption of luxury goods bought at sterile class by prosperous class.

The principal disadvantage of Kene’s “Economic table” was that it didn’t explain how in economy “natural laws" are provided, the scientist did not show the mechanism of self-regulation of market system.

This question is answered by the representatives of classic theory. According to classic theory the ability of market to self-regulation is guaranteed with help of the mechanism of price making. The most prominent representative of this theory was Adam Smith. He considers two prices: natural one that covers costs and gives a middle market income norm, so called factual price at which a commodity is sold on the market. A regulative role of price is explained in this point as follows.
Influence of competition and dependency on demand and supply correlation cause market price up or down deviation from natural price. If demand is higher than supply and market price deviates up from natural one, then in the industry where a given commodity is produced income is higher of a middle norm. This makes economic subjects remove their capital into more profitable industry. And on the contrary, if demand is lower than supply, market price is lower than natural one and income is lower of a middle one, then the capital is withdrawn from a low profit industry.

The above-mentioned shifts of capital provide equilibrium in economy, so such allocation of resources between industries corresponds to public needs. In given capital redistribution each cares only of own interests that consist in obtaining the highest income. But by this action each satisfies public interests not realizing that. So, market provides reaching a macroeconomic equilibrium automatically through price mechanism.

Marxist theory offers a contrary approach to estimation of regulative market possibilities. K. Marx developed two models of economic turnover – the models of simple and broadened recreation. He concluded that in conditions of permanent stocking of capital income norm has a tendency to lowering (law of tendency and income norms to lowering). To Marx opinion these circumstances deprive capitalists of desire to convert unconsumed part of additional value into investment. Consequently it breaks the process of economic turnover, causes production shortage, arises a crisis and impoverishment of people takes place that after all destroys a capitalist market system.

Marx macroeconomic ideas were acknowledged only in socialist countries. Macroeconomics began its development according to classic theory. But the world economic crisis in 1929 -1933 didn’t confirm basic postulate of classic theory - ability of market economy to fast self cerement that caused in confidence to it. There appeared necessity of new macroeconomic theory. An English economist Jon Manard Keyns became its founder and his theory was named in his honor – Keyns. Keyns criticized a classic theory. If classics affirmed that markets prices are capable to install equilibrium in economy automatically and that's why state interference in economy is not necessary, then Keyns was the first to submit the idea that market equilibrium is not the only well for economy yet. He proved that in market economy can be “equilibrium at incomplete employment" and that for its removing a state intervention is necessary. Keyns considers basic levers of such interference financial and monetary policy and the object of influence was an aggregate demand according his thoughts. Keyns exposed his thoughts regarding the problems of market economy regulation in the book “General theory of employment, percentage and money” (1936), where he demonstrated that state influence, can effectively realize economy regulation on definite macroeconomic indexes such as total revenue, consumption, investments, savings etc.

In this period an English scientist K. Klark, an American economist of Ukrainian origin S. Kuznets, an American scientist A. Gilbert, an American economist of Russian origin V. Leontyev and others pointed out considerable ideas in the development of macroeconomic theory and practice, especially macroeconomic
analysis. In their works they exposed in theory structure and content of important macroeconomic indexes such as national product, revenue and wealth’s, gross issue, calculated them; concretized a number of statements as for estimations of non-market services of state management organs, conceptions of final and intermediate consumption and regulation of economy on national level.

However in the period of new world economic crisis of 70-s of the XX-th century it turned out that state interference in economy does not always give expectative positive result and that state influence on aggregate demand in the period of economic activity collapse does not provide a production increase, but gives birth to inflation. It was for the first time in world practice that appeared such phenomenon as stagnation when production decrease and prices growth have place simultaneously.

At this point “neoclassical” theory started developing intensively. A neoclassical theory appeared in 70-s of the XIX-th century. It’s appearing, on one hand, was a reaction on marxism with its capitalism criticism, on the other it was an attempt to introduce new statements and conclusions proving self-regulation function of market into neoclassical theory. The neoclassical theory has a plenty of different trends. Consequently, a welfare theory was the first to introduce notions of “social well” and “external effects of monopoly” with which a market can’t cope without a state help into scientific cycling. The theory of state finances of P. Samualson is based on the above-mentioned notions. So, a neoclassical school appeared as reaction to disadvantages of Keynes’ theory. It includes a number of theories contradicting Keynes’ theory. Now there can be distinguished monetary theory, theory of rational waiting, supply economy theory and others. Each of them has both advantages and disadvantages. The idea that the main role in economy regulation belongs to money-credit and not to fiscal policy lies in base of the monetary theory exposed by an American economist Milton Fridmen. According this theory the basic instrument are money. Increasing or decreasing money supply a state can realize regulative influence on economic activity. However some scientists from the USA (Feldstain, G. Guilder and A. Laffer) think that deep violations of economic growth and employment can not be explained only by aggregate demand that is insufficient for use of production potential as Keynes representatives affirm, or by regulation of money mass as monetarists affirm. The reason of this, to their opinion, is underestimation of aggregate supply. By increasing taxes, social payments and guarantees a state advances extra demands for adaptation of market economy mechanism, as a result individual initiative and market flexibility are essentially diminished. Through tax mechanism fiscal policy can influence an aggregate supply and consequently a real volume of production.

So, contemporary macroeconomics does not have the only dominating theory. It is based on a number of theories that fill one another and give possibility of choice in order to define effectiveness of each theory depending on subjective conceptions and taking into account individual conditions, aims and priorities of economic policy of a concrete country.
Theme 1

Subject, methods and functions of macroeconomics

Content

1. Subject and functions of macroeconomics.
2. Economic systems and their types.
3. Macroeconomic subjects and their interaction.

1. The subject of macroeconomics

Macroeconomics studies essence, results and consequences of common economic activity of all participants of national economy.

Specific task of macroeconomics is a cognition, arrangement and explanation of processes that are conditioned by functioning mechanism of national economy as the whole.

There are two levels of macroeconomic analysis:
- ex post – national accountancy;
- ex ante – forecast modulation.

Ex post analysis is based on macroeconomic parameter definition of the past period with purpose to get information how national economy functioned and what results are obtained. On the basis of the results of ex post analysis macroeconomic concepts are corrected and new concepts are developed.

Ex ante analysis is a forecast modulation of economic events and processes on the base of some theoretical concepts. The purpose of ex ante analysis is to assess which factors and by what means will influence significance of macroeconomic indexes in the future.

The object of macroeconomic analysis is economic system as the whole and its aggregate parameters.

Principal functions of macroeconomics are:
- Theoretically-cognitive function means researches of economic processes on macrolevel and construction of the models of these processes.
- Practical function means developing of practical recommendations on the base of an economic process (theoretical base of economic policy).
- Educational function – macroeconomics should develop a new type of economic thinking and form a contemporary world view of a person.

2. Economic system

Economic system is an ordered system of connections between producers and customers of material and nonmaterial goods and services.
The base elements of economic system

- Concrete economic links between economic subjects.
- Socioeconomic relations that are based on correspondent forms of property on economic resources and results of economic activity.
- Organizational forms of economic activity: labor division, specialization and cooperation of production.
- Economic mechanism, i.e. a mean of regulation of economic activity on macrolevel.

Economic systems are multilevel and formally are written so:

\[ ES = f(A_1, A_2, ..., A_n) \]

ES – economic system that is determined by properties.

These properties are criterions while defining a type of economic system.

Types of economic systems

Market economy systems:
- Market economy of free competition – a pure capitalism (the 19th – beginning of the 20th century)
  Principal peculiarities:
  ✓ Private property on investment resource;
  ✓ Free competition;
  ✓ Freedom of participants of economy activity;
  ✓ Unexpected market regulation.

- Modern market economy – modern capitalism (the end of the 20-thcentury).
  Principal peculiarities:
  ✓ Collective private and state property;
  ✓ State regulation of economy aimed to stimulate aggregate demand and supply;
  ✓ Marketing system of production management.

Non-market economy systems:
- Traditional economy system (appropriate for underdeveloped countries)
  Principal peculiarities:
  ✓ Going behind technology;
  ✓ Manual labor;
  ✓ Multilevel structure;
  ✓ Natural production;
  ✓ Principal way of production is petty commodity;
  ✓ Active role of the state.
• Administrative – command system.
Principal peculiarities:
✓ State property on tools of production;
✓ Monopolization and bureaucratization of economy;
✓ Centralized planning and management of production;
✓ Centralized division of material, labour and financial resources.

The object of macroeconomic analysis is characterized by aggregate indexes. Aggregate indexes reflect the aggregate of specific economic units in such a way that they form the whole.

3. Macroeconomic subjects and their interaction

Among macroeconomic subjects there can be distinguished:
• Household sector - it contains all private economies of the country whose activity is directed to private needs satisfaction. Households have tree types of economic activity: they suggest factors of production, consume a part of obtained revenue and save.
• Business sector is an aggregate of all firms that are registered inside the country. Business sector has such types of economic activity: it forwards demand on factors of production, suggests results of its activity and makes investments.
• Public sector includes all state institutions and establishments. The state produces public goods which come to customers “free of charge” (security, achievement of fundamental science, state services, social and productive infrastructures).
• Foreign sector includes all economic subjects which are outside of a definite country and foreign state institutions. Foreign influence on domestic economy is effectuated through goods, services, capital and national currencies exchange.

4. Methods of macroeconomic analysis

Macroeconomics uses dialectically-materialistic methods such as:
✓ analysis;
✓ synthesis;
✓ induction;
✓ deduction;
✓ abstraction etc.

A principal method of macroeconomic researches is economically-mathematical modulation.

Macromodels are mathematical equations in which real economic processes are expressed in abstract and simplified view.

To create a model means to find a function which connects endogenous and exogenous parameters of a macromodel.
Exogenous parameters are parameters that are outside of a macromodel (as a rule this is a technology of production and character of behaviour of economic subjects on each market).

Exogenous parameters are determined in result of a model resolving (for example: an amount of real national revenue, employment level, rate of real wage, real percentage rate and price level).

Functional links of endogenous parameters have such classification:

- Behavior functions express advantages that were formed in a society. For example, it can be a function of household consumption from revenue:

\[ C = C(Y) \]

- Technical functions characterize technical dependence. For example, it can be a productive function:

\[ Q = f(X_1, X_2, \ldots, X_n) \]

- Institutional functions reflect institutionally established dependences between model parameters. For example: the sum of tax payments (T) is a function from revenue (Y) and tax rate T(Y) that is determined by a corresponding institution:

\[ T = f(T(Y), Y) \]

- Definitional functions express dependencies that derive from the definition of economic events. For example: aggregate demand on the market of goods (Y) consists of aggregate demand of households (C), demand of investments of a business sector (I), government (G) and foreign (E) expenses:

\[ Y = C + I + G + E \]

There are two types of macroeconomic model:

- static model;
- dynamic model.

Static models fix an economic process at the beginning and the end of a definite period and don’t reflect transition from one state to another.

Dynamic models reflect processes taking into account a time factor.
Theme 2

Macroeconomic indicators and methods of their measurement

Content

1. The main macroeconomic indicators.
2. The indicator of GNP in the system of national accounts.
3. Nominal and actual GNP. GNP deflator.

1. The main macroeconomic indicators

- National volume of manufacture

This indicator is used to determine the volume of products and services produced in some period of time. According to the method which uses most countries of the world national manufactured production is determined in such an indicator as gross internal product (GIP).

GIP is determined as a whole value of all final products and services produced in the country per year.

- Derive income GNP which is totally out of current manufacture and is used for consumption, accumulation, export, and also for replacement of lost means of manufacture.

Derive income includes such production as:
- used for individual and social consumption
- intended for replacement of main production and non-production funds
- used to gain production and non-production funds
- intended to gain production and non-production stocks
- used for export.

Gross internal product includes intermediate products which are used for the manufacture of other products: raw material, materials, fuel and so on.

To avoid double account measuring GIP we need to sum added values on every stage of manufacture.

- Added value is a value which is created in process of manufacture on concrete enterprise and determines its real contribution in creation of value of concrete product. Added value includes wage, amortization and income.

Added value is determined as a difference between the income from selling and value of financial costs on manufacture and products realization.
Adding the difference between the incomes from means of manufacture from abroad and factorial incomes, which foreign investors took within the country, to GIP we’ll get GNP indicator.

- General price level

This indicator determines an average price level of some products group which is counted due to price index. Price level is monetary appraisal of good or aggregate of goods, which works as price scale.

Price index shows relative change of the average price level during some period. Price index is determined using such a formula:

\[
\text{Price index of the current year} = \frac{\text{Current year prices}}{\text{Base year prices}} \times 100\%
\]

Price index which is used to move off inflation influence on GIP indicator is called GIP – deflator.

Deflator is determined as an average weight price of all goods and services in GIP and weight of every good equals to some part in total GIP.

- Interest rate

Interest rate level (i) characterizes costs which macroeconomical subjects do using bill of debt counting on OPKU lending monetary unit per year. Interest rates are under the influence of the market mechanism; if monetary supply decreases then the interest rates increase and on the contrary.

There are nominal and actual interest rates:

\[
\text{RIR} = \text{NIR} – \text{IL}
\]

Where, RIR - real interest rate;
NIR – nominal interest rate;
IL – inflation level.

- Unemployment rate

This indicator reflects the ratio between the amounts of adult working population and amounts of unemployed people in concrete country.

**Gross national product in the system of national accounts**

The system of national accounts is the international standard of estimation of the main economical indicators of the country. It contains such macro economical indicators as: GNP, GIP.
**Gross National Product. Methods of calculation**

The methods of GNP calculation by the costs of manufactured production and by the incomes which was get from the manufactured production:

**GNP calculation by the costs:**

\[
\text{GNP} = C + I_g + G + \text{NE}
\]

Where, 
- \(C\) – consumers’ expenditure;
- \(I_g\) – gross private investments;
- \(G\) – public (goverment) expenditure;
- \(\text{NE}\) – net export.

Consumption expenditure \((C)\) include expenditures of domestic firms on different kinds of goods and services.

Gross private investments \((I)\) consist of:
- investments on capital replacement, which was used in the process of manufacture during the year (amortization);
- net investments (net gain of the main capital volumes).

In this case public expenditures \((G)\) unite all state expenditures, which directly go on products and service manufacture.
State transfer payments are not included because they don’t reflect current manufacture growth.

Net export \((\text{NE})\) is the difference between export and import or:

\[
\text{NE} = E - Z
\]

Where, \(E\) – export;
\(Z\) – import.

\(\text{NE}\) can be negative data.

*Government transfer payments* are payments to the individuals who don’t directly cause their participation in social manufacture.
They include:
- unemployment help;
- pensions to veterans;
- help to old and ill people.
They are intended to satisfy a concrete kind of needs. As transfers are not intended for purchasing current goods and services by the state, they are not taken into account calculating GNP.

*Calculation of GNP by the incomes:*

\[ \text{GNP} = W + R + I + p + A + Tn \]

Where, W – wage;
R – rent;
i – interest;
p – profit;
A – amortization;
Tn – indirect taxes.

**Wage** is money award given for the labor to workers and employees, which include additional payments for social maintenance, social insurance, payments from individual’s pension funds.

**Rent** determines incomes from rent, which receive domestic facilities for the grounds, buildings, accommodations given in rent.

**Interest** in this case is an income from the money capital, saved by the domestic facilities.

**Profit** which the sole facilities, communities (non-corporate profit) and corporations (dividends + undivided profit) owners receive.

**Amortization** is an equivalent of the size of the main capital depreciation during the year.

**Indirect taxes** are established in goods and services prices and their size for the separate payer does not directly depend on his profits (universal excises, customs duty, tax to added cost).

*Gross internal product*

GNP includes production and services, which are produced by the residents of the country during the year.

Residents are:
- the physical persons of the country with a constant residence in this country (including those who temporarily is out of the country);
- the legal persons of the country with a site in this country;
- the enterprises and organizations - not the legal persons, which were created according to the legislation of the country, but are out of it.
- diplomatic and other representations out of the country;
- foreign branches and representations of the country residents.
$GIP = GNP - NE$

Where, $GIP$ – gross internal product;
$GNP$ – gross national product;
$NE$ – net export.

*Net national product*

Net national product represents the Gross National Product, from which was the cost of manufacture means taken out; this cost was worn out during the process of manufacture (amortizations deductions).

$NNP = GNP - A$

Where, $NNP$ – net national product;
$GNP$ – gross national product;
$A$ – amortization.

*National Income*

National income is the income, which is determined through taking out indirect taxes from the value of net national product.

$NI = NNP - Tn$

Where, $NI$ – national income;
$NNP$ – net national product;
$Tn$ – indirect taxes.

National Income is the sum of income factors from the labor, ground and capital per year.

$NI = W + R + i + p$

Where, $NI$ – national income;
$W$ – wage;
$R$ – rent;
$i$ – interest;
$p$ – profit;

*Personal Income*

Personal Income is the income, which was taken by the individuals. It is divided to consumption, saving and taxes payment.
\[
PI = NI – social insurance payments – income taxes of the corporations – undivided profit + transfer payments
\]

**Derive income**

Derive income is a part of personal income, which is left after paying the individual taxes. Ended consumption profit is divided to consumption and savings.

\[
DI = PI – Tind
\]

Where, \( PI \) – personal income;
\( Tind \) – individual taxes.

Individual taxes include:
1. Personal income taxes.
2. Personal property taxes.
3. Inheritance taxes.

System of national accounts is the international standard of estimation of the main economic indicators of the country. In the table one can see the conditional model of indicators interaction in the system of national accounts.

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<td>Gross personal internal investments</td>
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<td>State’s purchasing of goods and services</td>
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<td><strong>GNP</strong></td>
<td><strong>5347</strong></td>
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<td>Amortization deduction</td>
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<td>Indirect business taxes</td>
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<tr>
<td>Payments on social insurance</td>
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<tr>
<td>Income taxes of the corporations</td>
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<tr>
<td>Unshared income of the corporations</td>
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<tr>
<td>Transfer payments</td>
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<td><strong>Personal income</strong></td>
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<tr>
<td>Individual taxes</td>
<td>-649</td>
</tr>
<tr>
<td><strong>Derive income</strong></td>
<td><strong>3821</strong></td>
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</table>
3. Nominal and actual GNP

Nominal GNP is a cost indicator, which is determined by the current market prices.

Real GNP is an cost indicator which is determined by the basic prices. It shows the dynamic of physical volume of manufacture products more precisely.

GNP deflator (prices index) is taking into account the prices dynamic and changes in manufacture structure.

\[
\text{Real GNP} = \frac{\text{Nominal GNP}}{\text{GNP deflator}} \cdot 100\%
\]

4. Net economical income

In 1972 researches from Yell University (USA) William Nordhouse and James Tobin suggested a new indicator – “Net economical wealth” (NEW).

\[
\text{NEW} = \text{GIP} - \text{negative ecological consequences of industrial development of society in money equivalent} + \text{out market activity in money measurement} + \text{results of shadow economy activity in money measurement} + \text{money equivalent of increasing of spare time and quality of rest.}
\]
Theme 3

Aggregate demand and aggregate supply.

Content

1. The structure of aggregate demand (AD). The price and nonprice factors which define aggregate demand. The curve AD.
2. The multiplier.
3. The structure of aggregate supply. The price and nonprice factors which define aggregate supply. The curve AS.
4. Aggregate supply and demand equilibrium.

1. The structure of aggregate demand (AD). The price and nonprice factors which define aggregate demand. The curve AD

National quantity of production and level of prices are determined by interaction of aggregate demand and aggregate supply.

Aggregate demand is a based specific form (a display social requires in conditions of functioning of commodity and monetary relationships.

Aggregated demand is a quantity of production which may be bought by macroeconomic subjects in the presence of each level of prices (P).

AD is the planned expenditures of all macroeconomic subjects.

Aggregate demand may be determined by the formula of accounting of GNI (Gross national income) by the method of costs:

\[ \text{GNI by the costs} = \text{(AD)} = C + I + G + NE \]

Where, C – consumption demand: a demand of payment abilities of consumption goods;

I – investment demand: a demand of enterprises on the means of production for:
- renovation of worn-out capital (amortization);
- increasing of real capital;

G – a state demand on goods and services:
1) for production of public goods;
2) state investments.

NE – foreign demands.
Consumption demand

Consumption demand depends of:
1. Incomes from participation of production.
2. Taxes and transfer payments.
3. Quantity of property.
4. Income from property.
5. Average and marginal propensity.
6. The level of differentiation of population by incomes.
7. Number of population.

Average propensity of consumption (c) is a part of consumption (C) into income (Y):

\[ c = \frac{C}{Y} \]

Marginal propensity of consumption (c’) is a part of increase of consumption (\( \Delta C \)) in additional unit of income (\( \Delta Y \)):

\[ c' = \frac{\Delta C}{\Delta Y} \]

Consumption function has a such view:

\[ C = C_0 + c' \cdot Y \]

Where, \( C_0 \) – autonomous consumption which does not depends of present income.

Saving (S) is a part of income which is not consumed. Each saving function correspond to each consumption function.

\[ S = -C_0 + (1 - c') \cdot Y \]

So, \( 1 - c' = s' \)- marginal propensity of saving
Graph 3.1 The consumption and saving functions

**Investment demand**

Investments are the economic resources that are directed on increasing of real capital of society, so on enlargement and modernization of production potential.

Investment demand depends of:
1. Quantity of production.
2. Expenditures on capital.

Investment demand \((I)\) is more exchangeable part of aggregate demand \((AD)\).

Depending of factors which define the quantity of demand, consists of:
1. Investments which are accomplished in the presence steadfast increasing of demand on goods and services in result of increasing of national income stimulated. These investments are the function of increase of national income. Coefficient of increasing capital capacity is called accelerator \((b)\).

**Accelerator** \((b)\) is a coefficient which shows how many units of marginal fixed capital \((K_0)\) are needed for production of marginal units of products \((\Delta Y)\):

\[
b = \frac{\Delta Y}{\Delta K_0}
\]

Where, \(\Delta K_0\) – increasing of fixed capital influenced by stimulated quantities.

2. Autonomous is investments when they are accomplished in the presence of fixed national income with unchangeable aggregate demand on goods. Autonomous
investments accomplish for new techniques influencing the increasing of quality of production, become the condition of increasing of national income.

Government demand

Public expenditures (G) in macroeconomics modulation of aggregate demand (AD) are viewed as an exogenous number and is declaimed by government budget of the country. That is why it has such view:

\[ G = \text{const} \]

One of the government costs element is public goods.

**Public goods** - this are goods and services of the public using (law control, nature control, national defence and others). Such goods are public used, and it does not depend on if they pay or not, and they are financed from taxes income to budget.

Demand from foreign countries

**Demand from foreign countries** goods of some country depends on the correlation of prices for national and world products and exchange course.

2. The multiplier

John M. Keynes created a multiplier theory in the conditions, when society was in the big crisis with the high level of unemployment and with not used producing resources. In such cases we can see a multiplier effect. The increasing of investment in connecting with multiplier provide the full using of producing resources, which increase GNP and employment.

If economic is in full employment condition, the result of multiplier action will be prices and inflation level increasing, which are provoked by demand surplus, the GNP volume is not changed.

\[ m = \frac{1}{1 - c'} \]

Where, \( m \) – multiplier;
\( c' \) - marginal propensity to consume.

\[ 1 - c' > 1 \quad m > 1 \]

Where, \( 1/c' \) - Keynes multiplier, shows how national equilibrium income is growing, when autonomous demand grows for one unit (graph 3.2).
Graph 3.2 The model of multiplier

The aggregate demand curve

Graphically we can show it as curve AD, which has negative slope (graph 3.3).

Graph 3.3 The aggregate demand curve (AD)
Where, P - price level;
Q - produce volume.

The most important reason of the negative slope is a money supply effect: a price increasing nominal supply is constant, made money more “expensive” and accordance a small total costs.

AD curve shows a quantity of real costs, when other conditions are constants.
Price factors which have influence on the aggregate demand:
- interest rate change;
- wealth effects;
- import volume and structure.

A wealth effects

In high prices conditions real cost (purchasing power) of the finance active accumulations especially with fixed cost (deposits or obligations), will be reduced, - it means that citizens become more poor and we can see the reducing of consumption expenditure.

Non-price factors which have influence on the aggregate demand:
- change in consumption spending;
- change in investment spending;
- change in spending on net export;
- change in governmental spending.

Under the influence of non-price factors AD curve is moving:
- To the right top when demand is increasing (\(AD \rightarrow AD_1\));
- To the left top when demand is decreasing (\(AD \rightarrow AD_2\)).

Graph 3.4 Influence non-price factors on the aggregate demand curve.
3. The structure of aggregate supply. The price and nonprice factors which define aggregate supply. The curve AS

*Aggregate supply (AS)*

*Aggregate supply (AS)* is the volume of goods and services which firms are willing to produce and sell during the year per every price level. AS curve shows the volume of real national product per every possible price level (graph 3.5).

![Graph 3.5 Short – run AS curve](image)

Where, P – price level;
Q – real manufacture volume;
AS – aggregate supply curve.

AS curve reflects manufacture costs dynamics per product unit in connection with price level change.

**For short-run period** (few months or years) we talk about short-run curve of AS (graph 3.5).

**For long-run period** (few years, ten years or longer) we talk about long-run AS curve which is displayed as vertical line AS. It means that price increasing doesn’t cause the growth of national manufacture volume in long-run period.
Aggregate supply basically depends on potential volume of manufacture.

**Potential GNP** is such real volume of GNP produced in the country in conditions of complete employment, when actual norm of unemployment equals to natural level of unemployment. The newest researches estimate the natural level of unemployment approximately to 6% of workforce.

Modern economic science examines three parts of AS curve:
1. horizontal piece (keynesian) shows the changes in manufacture volume in conditions of complete employment and constant prices (depressive state of economy).
2. intermediate piece (ascending) shows the changes in GNP volume in conditions of complete employment when the level of actual unemployment equals to natural unemployment and additional growth of GNP doesn’t take place and we can see an inflation price growth.
3. vertical (classic) period shows the change in the volume of GNP under conditions of full employment when the actual level of unemployment is the natural unemployment and further growth of real GNP does not, and there is inflationary price increases.

*Price factors which have influence on the aggregate supply*

- Interest rate change.
- Price level change.
Non-price factors which have influence on the aggregate supply

- Change in price for resources:
  a) presence of own resources;
  b) prices on import resources;
  c) parity on the market of national and import resources.

- Changes of economic rules of law:
  a) enterprise taxes and subsides
  b) government regulation.

- Changes in work productivity.

Graph 3.7 Influence of non-price factors on the aggregate supply curve (AS).

Under the influence of non-price factors AS curve is moving:
- To the lest top when AS is reducing as a result of manufacture costs increasing (AS → AS₁);
- To the right down when AS is increasing (AS → AS₂).
The equilibrium of aggregate demand and aggregate supply

Graph 3.8 The equilibrium of AS and AD

The point of crossing the AD curve and AS curve is the point of equilibrium which determine equilibrium price level \( (P_A) \) and equilibrium actual level of GNP manufacture \( (Q_A) \).

Three variants of macroequilibrium

- If aggregate supply is changing in limits of Kane’s piece then demand growth causes the growth of real GNP volume and employment when the prices are constant;
- If aggregate supply is increasing on an intermediate piece it causes the growth of real GNP volume price level and employment;
- If aggregate supply is increasing on classic piece it causes inflation price growth and nominal GNP when real GNP volume is constant (because it can’t increase more then the level of complete employment).

Multiplier in AD – AS model

Multiplier equilibrium gives the same level of manufacture volume as AD–AS equilibrium, both leads to real GNP which equals \( Q_E \).
Where, $C$ – consumption function;
$C + I$ – aggregate demand growth under the influence of independent investments;
$Q_E$ – equilibrium GNP;
$E$ – equilibrium point;
$Q_F$ – GNP in conditions of complete employment.

Graph 3.9 Interrelation of AD – AS and multiplier models.

A resolute restriction of the multiplier model is that it could be applied for the description of the depression or recession but it couldn’t be applied for a complete employment period when real GNP volume outweighs potential level of manufacture.
Theme 4

National market and its equilibrium

Contest

1. Objects, subjects and structure of national market
2. The market of goods and paid services
3. Money and securities market
4. The labor market and its equilibrium

1. Objects, subjects and structure of national market

National market - is an aggregate of the social-economic relations in the sphere of change, which helps to sell products and services, selling and buying of workforce, exchange of capital.

National market structure

The main components of the national market are: the market of goods and paid services, money and securities market, workforce market.

The subjects of national market are all macroeconomics subjects: state, enterprises, households, foreign.
2. The market of goods and paid services

The market of goods and paid services is a system of the economic relations between customers and traders because of goods and services movement, which satisfy investment and consumer demand of macroeconomics subjects.

Consumer demand - is a solvent demand of the households on:
- the goods of long using (transport, existence subjects);
- using goods;
- services (own servants, dwelling, health protection, education, etc.)

Investment demand - the demand of businessmen on good for:
- upgrading of used capital
- increasing of real capital

In this market of goods the foundation of dealing the firms with the households is a proportion, in which the income \( Y \) is divided on consumption \( C \) and saving \( S \):

\[
Y = C + S
\]

The consumption is a personal and collective using of the consumption good, which is directed to the satisfying the material and spiritual needs of people.

Saving demand is an economical process which is connected with investments. This is the part of income, which still unused after sharing of firm’s money on current producing needs, and on consumption needs in households.

The equilibrium on the market of goods and paid services in the open economy is when saving supply equal to investment demand.

Saving supply \( S \) is a function from income \( Y \):

\[
S = S (Y)
\]

Conditions of equilibrium of the goods market in the open market economy including the State activity:

\[
I = S - \Delta ZB - G
\]

Where \( I \) – investments;
\( S \) – saving;
\( \Delta ZB \) – foreign trade saldo;
\( G \) – governmental expenditures.
3. Money and securities market

The monetary market is the market of short-term credit operations on which demand for money and their supply determine a level of the interest rate (that is the price).

The market of money is created as a result of interaction of National bank with commercial ones, and also as a result of interaction of commercial banks.

Demand for money is represented by the commercial banks, the enterprises, the households and a state.

The supply of money is given by National bank.

Demand for money is determined by desire of economic subjects to have the certain amount of payment means (cash) at the order.

There are two basic motives of demand for money:
1. operational
2. speculative.

Operational demand for money which basis is operations of the purchase and sale depends on an interval of time between the moments of reception and usage of money resources. If the interval is shorter, so demand for money will be smaller, and on the contrary.

\[ M_1 = r \cdot P \cdot Q \]

Where, \( M_1 \) – operational demand for money;
r – delay between reception and usage of money resources;
P – price level;
Q – quantity of manufacture.

Speculative demand for money is determined by interest rate (i):

\[ M_2 = M_2 (i) \]

If the norm of interest is low, it is observed a high rate of securities that weakens stimulus to contributions to them of liquid means by the risk connected with falling of a rate of securities caused by growth of interest rate (i), and on the contrary.

\[ SR = \frac{D}{I} \cdot 100 \% \]

Where, SR – stock rate;
D – dividends;
i – interest rate.

There is such interest rate, at which economic objects cease (to stop) to put liquid means in securities (a liquid trap \( i' \)) (graph 4.1).
4. The labour market and its equilibrium

The labour market represents a system of economic relations between its subjects owing to the purchase and sale of labour services which are offered by the employees behind the prices which develop under influence of a ratio of a supply and demand.

Subjects of the labour market are employers and the employees.

Objects of the labour market are conditions of employment and quality of labor services.

The labour demand \((L^D)\) is a solvent need of employers for labour services of the workers of certain professions and qualifications.

The labour supply \((L^S)\) is a variety and quality of labour services which are offered for realization.

The price of a labour demand is represented as a maximal possible rate of salary from the point of view of the businessman for the employed workers.

The price of labour supply is represented as the minimal salary which satisfies those who is hired.

The equilibrium at the labour market is established when the labor demand is equal to the supply \((L^D = L^S)\) and the level of salaries satisfies both employers and the employees.
Graph 4.2 Equilibrium of the labor market.
Theme 5

Tactical fluctuations of economy.

Content

1. The nature and specificity of cyclist of economic dynamics. Cycles and crises.
2. Classification of main macroeconomic variables according to its cyclical properties.
3. Anti-crisis policy.

1. The nature and specificity of cyclist of economic dynamics. Cycles and crises

The research of economic cycles gives general notion about macroeconomic dynamics.

An economic cycle is characterized by periodical increasing and falling of business activity which is represented in a form of discrepancy of demand and supply. In a general view economic cycle is a result of fluctuation of different economic activity proofs (rate of increasing of GDP, general quantity of sales, general price’s level, rate of employment, loading of a production potentialities).

The direction and degree of change set proof (or proofs) that are characterized development of economy is called economic conjuncture.

Theory of economic cycles is also called theory of conjuncture.

General duration of cycle is measured by time (month, year, etc) between two next higher or lower points of economic activity.

By duration economic cycles are divided on short (small) – fluctuation of business activity by 3-4 years; middle – fluctuation of business activity by 7-13 years and big (long) – the periodicity of 30-40 years.

Short cycles

Short cycles are connected with renovation of equilibrium at consumption market.

The material base of short cycles are processes that exist in the sphere of monetary relationship. Short cycles are divided by monetary crisis which are repeated with certain laws.

By content monetary crisis which are represented as crisis of sphere of monetary turn-over and credit.

Middle cycles

Middle cycles (industry cycles) are connected with a change of demand on means of production.
The material base of middle cycle periodicity is renovation of fixed capital.
The main property of industry cycles is fluctuation of increasing rate of GDP for period of time when economic system moves through four consecutive phases: revival, rise, boom, falling.
The duration of falling is measured by time between higher and next lower point of business activity, and rise – between lower and next higher point of business activity.
The economists call fluctuation ratio between consumption and investments the most important reason of cyclist in economy.

**Recession** – the falling of national production quality during 6 month and till year.

**Dispersion** – the falling of quantity of national production which is accompanied by high level of unemployment and proceeds for a few years.

2. **Classification of main macroeconomic variables according to its cyclical properties**

There are such macroeconomic parameters as:

*Procyclic parameters.* They have a tendency to increase in the period of economic rising and to reduce at phase of economic falling. At the same time procyclic parameters include:

1. Parameters which have a high coordination with cycle:
   - Total issue;
   - Issue in branches of economy (at whole);
   - Monetary aggregates;
   - Short-term interest rate;
   - Price level.

2. Parameters which have a low coordination with cycle:
   - Production of goods of the daily usage;
   - Production of agriculture goods and extraction of natural resources;
   - Prices on agricultural products and natural resources;
   - Long-term interest rates.

*Cyclic parameters.* Its dynamics does not connect directly with business cycle, for example, export.

*Anti-cyclic parameters.* They have a tendency to increase at the period of economic falling and to reduce at phase of economic rising, for example, the stocks of ready products, the stocks of means of production, unemployment rate, bankruptcy rate.

The economic crisis is characterized:
- Overproduction of goods rather with solvent demand;
- Falling of price level in consequence of excess supply on solvent demand;
• Reducing the quantity of production;
• Mass bankruptcy of industrial, banking, trade firms;
• Increasing of unemployment and reducing of nominal salary;
• Failure of credit system.

In difference of this classical circuit of crisis, in Ukraine, as at the same other countries of USSR, it has a place the crisis of underproduction than overproduction one. The duration of falling phase is from 0,5 to 1,5 year in western countries, it was lasting for 5 years. The depth of falling of GDP and industrial production in western countries did not exceed 10% during post war years, in Ukraine it was up 25%.

**Big waves**

The material base of big cycle is a change of basic technologies and generations of machines (jumping in line of technical progress), renovation of infrastructure objects.

Big cycles have two phases:
- First phase – rising one (25-30 years);
  This is long-term rising that appears on the base of revolution jumps of technology and its mass distribution.
- Second phase – falling one (20-25 years), it is already called the “great crisis”.

The crisis appears when old structure of economy proceeds to conflict with requires of new technology, but it does not ready to changes. In this period the crisis of middle and small cycles show sharply itself.

**3. Anti-crisis policy**

Anti-crisis (conjuncture) policy is directed on regulation of fluctuation of economic activity in society during before crisis states and elimination of economics crisis development.

There are two main periods which must be located under especial control – the periods of depression and boom.

**Characteristics of depression:**
- Reducing of production investments;
- Increasing of stocks;
- Reducing of labor demand;
- Sharp falling of norm of pure profit.

**Characteristics of revival:**
- Transition to proof expansion of manufacture;
- Increase of demand on active elements of means of manufacture (equipment, machines, mechanisms etc.);
- Increase of demand on raw material (metal, fuel, energy etc.);
- Increase of demand on a labor;
- Increase of wages and according to demand for the goods of personal consumption.

Characteristics of economic boom:
- Significant gain of the industrial investments;
- Reduction of stocks;
- Sharp increase of demand on a labor;
- Significant gain of a general price level.

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<th>The most important actions of anti-crisis policy</th>
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<td>At the period of depression</td>
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_Monetary and credit policy_

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<th>Reducing of discount rate</th>
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<td>Purchase of the state securities at the open market</td>
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<td>Rising of norms of obligatory banking reserves</td>
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<td>Reducing of state budget costs</td>
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_Fiscal policy_

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Theme 6

Economical growth

Content

2. Economical growth factors: increasing rates of GNP.
3. Economical growth models.

1. Economical dynamics: economical growth and its types

The most common definition of economical growth is:
- actual growth of NP volume in result of increasing of manufacture factors or techniques and technologies improvement;
- growth of actual GNP volume or actual income per person.

Types of economical growth

There are such types of economical growth:

Intensive – growth of manufacture potential through technique and technology improvement.

Mixed (actual) – growth of manufacture capacity in result of increasing of the using manufacture factors quantity and technique and technology improvement.

Extensive – manufacture capacity growth in result of increasing of the using manufacture factors quantity.

2. Economical growth factors: increasing rates of GNP

Among the most important economical growth factors we should admit such factors as:

- Demand factors
- Supply factors
- Distribution factors

Quantity and quality of nature recourses
Quantity and quality of work recourses
The main capital volume
Technology
General representation about the interaction of these factors can give manufacture capacity curve. This curve reflects association of different variants of production manufacture, which could be produced having this quantity and quality of natural, work and main capital resources with this level of technological potential.

**Sources of economical growth**

Manufacture volume gain (ΔQ) can be reached due to three separated sources:
Labour increasing (ΔL);
Capital increasing (ΔK);
Technical innovation (T. I.).

According to manufacture volume growth per year is determined by this fundamental alignment:

\[ \Delta Q = \alpha \Delta L + (1+\alpha) \Delta Q + T.P. \]

Where, T.P. – technological progress (or aggregate productivity of manufacture factors);
\[ \alpha, (1-\alpha) \] – relative entering of every manufacture factor to economical growth according to other relative part of NI, which can be changed during some time.

In the economically advanced countries the increasing of work productivity is provided on 70-80% due to T.P.

**Economical increasing and manufacture opportunities curve**

The economical increasing is determined by movement of the manufacture opportunities curve to the right that is from AB to CD (diagram 6.1).

![Graph 6.1 Manufacture opportunities curve](image-url)
Gain of quantity and quality resources and technology improvement provides an opportunity of such movement. Complete employment and optimal distribution of resources have an essential importance for its realization. Rates of economical increasing.

The information about rates of economical increasing is given by such parameter:

\[
\text{Rate of increasing of GNP} = \frac{\text{GNP}_1}{\text{GNP}_0}
\]

Where, GNP\(_1\) - gross national product of current year; GNP\(_0\) - gross national product of base year.

\[\text{Economical development} = \text{Economical growth, that is the character of using of productive forces of society} + \text{Evolution of economical system in general}\]

3. Economical increasing models

The main problems of economical increasing theory are:
- the tendencies and sources of increasing;
- maintenance of long-working stability;
- consequences of the elected technological politics;
- rates of updating and national facilities structure;
- measurement of the factors and results.

Neoclassical model

The basic entry condition of the neoclassical concept of economical increasing is the assumption that each factor of manufacture "provides" the appropriate part of the produced national product. The basic tool of the neoclassical analysis of economical increasing is production function:

\[Y = F(a_1+a_2 + ... +a_n)\]

\[Y = \frac{dF}{da_1} \cdot a_1 + \frac{dF}{da_2} \cdot a_2 + ... + \frac{dF}{da_n} \cdot a_n\]

Where Y – volume of a product; a\(_i\) – manufacture factors (workforce, capital, ground, enterprise abilities); \(dF / da_i\) – marginal product of i factor.
Thus, according to the given formulas a product volume is determined by the sum of multiplied products of each factor on its marginal product. The rational contents of manufacture function answers to the attempt of reaching a maximal volume of products. With a interchangeability of the factors of manufacture the manufacture function can be used as the analytical tool at planning the rates of economical increasing and other important macroeconomical proportions.

*Model of economical increasing by Robert Solow*

For development of this model R. Solow was awarded to the Nobel Prize (1987).

The basic attributes of model:
1. As the base of increasing Solow took the growth of labour productivity \( y = Y / L \), not a products growth \( Y \).
2. The model takes into account the influence of three factors:
   - capital capacity \( k = K / L \);
   - population increasing \( \Delta L \);
   - technological progress \( T.P. \).
3. Behind his model there is a proof level of capital capacity \( k^* \), which determines an economical dynamics. This proof level of capital capacity \( k^* \) can be determined through the formula:

\[
S / A = k^* / f(k^*)
\]

Where,
- \( S \) – norm of the savings;
- \( A \) – norm of amortization;
- \( k^* \) – proof level of capital capacity;
- \( f(k^*) \) – labour productivity with a proof level of capital capacity.

*The sources of economical increasing by Solow:*

1. The increasing of capital capacity \( k \), which depends on increasing of savings norms \( s \).
   But the increasing of savings norms can not be constant, as the savings \( S \) limit consumption \( C \).
   Solow formulated "a gold rule", which is carried out under the condition that gross product of capital \( GPC \) equals to its departure (amortization - \( A \)):

\[
GPC = A
\]

"A gold rule": Defining the norm of savings the criteria should be taking as the maximization of society wealth, which means the biggest consumption \( C \).
2. The increasing of the population ($t_L$ - rate of population increasing) influences on economical increasing through the dynamics of capital capacity.

$$\Delta K = \frac{i}{L} - (A + t_L)k$$

Where, $\frac{i}{L}$ – investment per one worker;
$A$ – norm of amortization;
$t_L$ – rate of population increasing;
$k$ – capital capacity.

3. The technological progress, which, according to the model, differently from previous factors is a source of constant increasing both the productivity of labour ($y$), and general product ($Y$).

If the manufacture efficiency ($E$) under the influence of technological progress changes with a rate ($g$), then the productivity of labour changes with the same rate, and total volume of manufacture grows with rate $t_L + g$.

$$Y = (t_L + g) y_0$$

Where, $y_0$ - basic productivity of labour.
Model of economical increasing by R. Solow is represented on the diagram 6.2.

Where, $k$ – capital capacity of labour unit with constant efficiency;
$k^*$ - proof condition of capital capacity, when $sk = I$, which means that the size of the capital, which leaves, equals to the capital, which is invested ($I = sf(K)$);
$A$ – norm of amortization;
$g$ – rate of increasing of a manufacture efficiency under the influence of technological progress.
Graph 6.2 Model of economical increase by R. Solow
Neokeynesian model of an multiplier – accelerator

\[ Y_n = (1 - s)Y_{n-1} + b(Y_{n-1} - Y_{n-2}) + I_{na} \]

Where, \( Y_n \) – national income in n year;
\( s \) – part of the savings in the national income;
\( (1-s) \) – part of consumption in NI;
\( b \) – factor of an acceleration;
\( Y_{n-1} \) – national income in (n-1) year;
\( Y_{n-2} \) – national income in (n - 2) year;
\( I_{na} \) – independent investments in n year.

In the given formula both sides of dependence between the national income and investments are displayed.

Neokeynesian macroeconomical of models for a necessary condition of economical increasing consider the equality of the investments as the savings, which means full realization of means, which goes on accumulation. The inequality of these sizes is considered as an attribute of infringement of economical balance.

The excess investment above saving should mean the lack of means to the investment demand, and excess saving above investment - incomplete employment of resources. The task of economical regulation consists of achievement of full usage of the national income as the source of effective demand, in condition that the sum \( \Delta C / \Delta Y + \Delta S / \Delta Y \) should be equal to a unit.
Theme 7

Fiscal policy of the state

Content

1. The concept of fiscal policy.
2. Multiplications of fiscal policy of the state.
3. Automatic stabilizers and discreitional stabilizing policy.
4. State budget and budget restriction.
5. State duty.

1. Fiscal policy

Fiscal policy is the set of state measures in the sphere of taxes and state costs.

The main functions of fiscal policy:
- the influence on the condition of economic conjuncture;
- redistribution of the national income;
- accumulation of the necessary resources to finance the social program.

The main resources of income:
- taxes;
- own incomes of the state from manufacture and other types of activity;
- payments for the resources, which according to current legislation, belong to the state;
- the loan in the form of the state bonds.

To the fiscal policy of the state belong such manipulations of the state budget, which don’t change the amount of money in revolution.

Taxes

The main resource of the state incomes in civilized countries is taxes.
From economical point of view taxes are financial relations between the state and taxes payer in purpose to create nation-wide centralized fund of money means, necessary for the state to do its functions.

Functions of taxes
- Distributive: distribution of the created GNP between the state and legal and physical persons.
- Fiscal: centralization of the GNP part in budget to society needs.
- Adjusting: the influence of taxes on different sides of activity of taxes payers.
Principles of structure of tax system:

- Generality: taxes scope of all economic subjects, who receive incomes independently on organizationally legal form.
- Stability: high guarantee level that, stipulated by the Budget Law incomes, will be received in full volume
- Compulsion: compulsion of taxes, inevitability of its payment, subject independent in its calculation and payment.
- Social validity: establishment of the tax rates and tax privileges, which put all subjects in approximately equal conditions and make softer tax burden on low-income enterprises and groups of population.

We have to differ the source and the subject of taxation. 

Source, independently on the subject of taxation, is net income of society. 

Subject is quantitatively determined economical phenomenon, which serves as the base for charging taxation.

The subjects of taxation are:
- Income (from enterprises or population).
- Property (immovable and mobile).

Dependently on mechanisms of taxes formation taxes are divided into to two groups: direct and indirect.
- direct taxes - are withdrawn directly from owners of property, receivers of incomes;
- indirect taxes - are withdrawn in sphere of realization or consumption of goods and services, which means that they are shifted on the consumer of production.

Direct taxes, because of increasing of prices, could be shifted on the consumer.

The more country is involved the bigger part of receipts goes to direct taxes. The poorer the country is the more it shifts on indirect taxes, especially on taxes from external trade.

Close to the objects in the system of taxation we can see tax rates and tax privileges.


**Taxes classification according to the subjects of taxation**

<table>
<thead>
<tr>
<th>Real</th>
<th>Personal</th>
<th>Fiscal monopolies</th>
<th>The excises</th>
<th>The customs duty</th>
</tr>
</thead>
</table>
| • ground  
  • domestic  
  • on valuable papers | • income tax from population  
  • on corporations income  
  • on capital growth  
  • from inheritance and gifts  
  • property tax | • individual  
  • universal (revolution tax)  
  • added value tax | • on some kinds of goods | origin tax:  
  • export;  
  • import;  
  from goals:  
  • fiscal;  
  • protection;  
  • anti-damping;  
  from rates:  
  • specific;  
  • advaleric;  
  • mixed |

**Tax rate**

**Tax rate** is legislatively established size of tax per taxation unit.

- Marginal tax rate is the ratio of growth of paid taxes to income growth:

\[
T(Y)' = \frac{\Delta T}{\Delta Y}
\]

- Average tax rate is the ratio of taxes volume to the size of income, which is taxied:

\[
T(\bar{Y}) = \frac{T}{Y}
\]

- Zero rate
- Privileged rate

Tax privilege is reduction of tax rates or full clearing from taxes of separate enterprises or manufactures dependently on their profile, character of manufactured production and fulfilled work, used workforce, zone of location.

Classification of taxes dependently on ratio attribute between tax and income rate:
Privileges due to their different character are able to cover significant quantity of taxes payers, which leads to a great decreasing of real rate of taxation in comparison with nominal.

<table>
<thead>
<tr>
<th>Progressive</th>
<th>Regressive</th>
<th>Proportional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average rate increases if income increases</td>
<td>Average rate decreases if income increases</td>
<td>Average rate doesn’t change independently on income size</td>
</tr>
</tbody>
</table>

Graph 7.1 Luffer’s curve
Where, $T$ – tax receipt;
$T(Y)$ – tax rate;
$T_0(Y)$ – tax rate, when tax receipt are maximal.

Luffer’s curve shows the connection between tax rates and volume of tax receipts and shows such tax rate (from zero to 100%), when tax receipts reach maximum.

The curve answers a question dependently on what rate tax receipts in budget are maximal. If we continue to increase rates enterprise motivation becomes less, manufacture volumes fall, tax deductions decrease. Real rate of taxes are not equal in different countries and far not always is optimal.

2. Multipliers of fiscal policy

*Tax multiplier* ($m_T$)

$$m_T = \frac{-c'}{1-c'}$$

Where $c'$ – is marginal consumption propensity

Tax multiplier shows that taxes increasing to some part decreases manufacture volume to bigger part.
Aggregate effect from taxes increasing are determined by such formula:

\[ \Delta Y = m_T \cdot \Delta T \]

Where \( \Delta Y \) – change of income;
\( \Delta T \) – change of tax receipts.

**Multiplier of the government spending (\( M_G \))**

\[ m_G = \frac{1’}{(1-c’) \cdot (1-t)} \]

Where \( t \) – is the part of taxes in aggregate incomes.

Multiplier of the government spending reflects how a change of state costs can change aggregate incomes.

General effect from the change of costs is determined by the formula:

\[ \Delta Y = m_G \cdot \Delta G \]

Where \( \Delta Y \) – is a change of income;
\( \Delta G \) – is a change of state costs.

**3. Automatic stabilizations and discretiononal stabilizing policy**

**Automatic stabilizations** are such mechanisms in economy action of which decreases GNP reaction on changes of aggregate demand.

- Automatic change of tax receipts.
  Tax system progressively depends on personal incomes and enterprises incomes. If manufacture volume decreases then tax receipts decrease in the way that the fall of personal incomes and charges become weaker.
  During inflation periods increasing of tax receipts decreases personal incomes, holds consumption costs, reduces aggregate demand and slows down price and wage increasing.

- Unemployment help, social help and other transfers.
  Unemployment help pours in capital in economy (during crises) or withdraws it (during boom) and, as a result, stabilizes and make smoother consequences of business cycles.
  It’s the same to other transfers.
Discretional fiscal policy

The main means of discretional fiscal policy.
- Change of social works program and other programs connected with costs.
- Change of “transferts types” programs.
- Cycle changes of tax rates level.

Discretional fiscal policy is a policy, when the government consciously manipulates the taxes and state charges to change real volume of national manufacture and employment, to control inflation and accelerate economical growth.

4. State budget and budget restriction

Budget (B) is money expression of balanced estimation of incomes and charges during some period.

Actual budget \((B_A)\) reflects real charges, receipt and deficiency during some period.

Structure budget \((B_S)\) reflects what the state charges should be, receipt and deficiency if economy is functioning having potential volume of manufacture (is determined by the action of discretional programs, which were established legislatively).

Cycle budget \((B_C)\) shows an influence of business cycle on budget and measures charges changes receipt and deficiency, which appears because economy isn’t working having potential volume of manufacture, but is in state of rise or recession (it’s determined by the action of automatic stabilizers). Cycle budget is the difference between actual and structure budgets.

\[ B_C = B_A - B_S \]

State budget

The balance of incomes and charges of the state

- **Incomes:**
  - Income tax of the corporations.
  - Trade tax.
  - Local taxes.
  - Incomes from externally economical activity.
  - Rent payments.
  - Untaxed incomes.
  - Income tax.
  - Other.
- **Charges:**
  - Financing of the economy.
  - Socially-cultural programs and ST programs.
  - Defense.
  - Management.
  - Goal programs.
  - Credits and help to other countries.

Payments from state budget

**Assignment** is the edition money from state budget to hold enterprises and establishments.

**Grants** are type of state money help which is given to organizations, establishment and population.

**Subventions** are type of state money help to local authorities or separate branch economic authorities for development.

**Grants** are type of state money help which is given to organizations, establishments to help them to cover losses.

State budget condition

**Normal**, when given part of state budget equals to income.

**Scarce**, when charges exceed incomes.

Scarce of the state budget isn’t dangerous to economy in general if it’s on 2-3% level of GNP. Otherwise it reflects negatively on functioning of money and credit system and all economy in general.

Types of budget scarce

- **Cycle scarce** is the scarce which is the result of cycle fall of manufacture (reduction of national income and manufacture volume) in a consequence of conjuncture fluctuations.

- **Structure scarce** is the scarce which is the result of discretion policy (establishment of tax rates, social maintenance payments, size of defense charges).

The main factors of state budget scarce growth.

1. Increasing of defense charges.
2. Increasing of state debt payments.
3. Increasing of transfers payments.
4. Decreasing of taxes.
**State debt**

State debt is accumulated sum of money, lent by the government for financing of scarce.

Increasing of state debt during some year equals to budget scarce.

Influence of state debt on economy.

- In short-term period the consequences of budget scarce are known as “replacement” problem.
- In long-term period “debt burden” is shifted on accumulation of capital and consumption of future generations

In sort-term period replacement occurs when efficiency of fiscal policy in consequence of reaction of money market decrease. Increasing of structure scarce, because of taxes decreasing or increasing of government charges, can lead to increasing of interest rates and accordingly leads to decreasing of investments. That’s why, maybe, GNP wouldn’t increase and bigger structure scarce will replace investments.

**Internal state debt** means state debts to its citizens (who own internal state obligations).

**External state debt** means debts to citizens and organizations of other countries.

Economical consequences of state debt

1. Reduction of consumption of country population.
2. Replacement of private capital, which restricts further increasing of economy.
3. Taxes increasing is the instimulation of economical activity.
4. Redistribution of income on benefit of state obligations owners.
Theme 8

Money-credit system

Content

1. Concept and types of the money systems. Monetary policy of the state.
2. Suggestion of money and factors, that it is determined. Deposit and money multiplications.
3. Suggestion of money and budget constraint.
4. Keynesians and monetarists conceptions of money policy.

1. Concept and types of the money systems. Monetary policy of the state

The money system is a form of organization of money circulation, which historically and legislatively appeared in every country.

Money circulation is continuous motion of money, which execute the functions of mean of appeal and payment, and also serve the rotation of commodities and services.

The law of money circulation is determined by the amount of money, necessary day of appeal:

\[ M = Cr + Ca + Pc + \frac{p}{V} \]

Where, 
- \( M \) – amount of money, necessary for an appeal;
- \( Cr \) – a sum of costs of commodities, that realization is subject;
- \( Ca \) – a sum of costs of commodities which are sold on an account;
- \( Pc \) – payments, the term of payment of which came;
- \( p \) – payments which are paid;
- \( V \) – velocity of circulation of one monetary item.

Basic elements of the money system:

- **a monetary item** - is a measure of money, accepted in a country for unit (the costs of commodities and services are expressed in it);
- **a scale of prices** - is a gravimetric amount of money metal, accepted in a country for a monetary item;
- **the emission system** - is establishments which carry out the issue of money and securities and determine the order of emission;
- **forms of money** - an exchange value which provides stability of appeal of commodities and is a stable circulating medium in available circulation materialization in the certain type of general equivalent;
- **institutes of the money system** - state and non state establishments which regulate money circulation;
- **a currency parity** - is correlation of national currency with other currencies.

*Types of credit money:*

- **a bill of exchange** - is a debt obligation of borrower a creditor about payment a debt in the appointed term;
- **a deposit money** - is the system of the special calculations between banks on the basis of bank orders from one account on other;
- **banknotes (circulating note)** - are money signs which are produced emission establishments;
- **cotter pins** - are an order of proprietor of account (drawer of a check) credit establishment which serves him, to pay the certain sum of money the holder of a check;
- **electronic money** - are the system of bank calculations by computer.

Modern money circulation shows by itself the aggregate of money facilities which come forward in 2\(\times\) forms: to available and cashless. On a volume cashs considerably yield to money facilities which are on accounts (banknotes and chinks in modern terms are approximately 10% all money facilities). A variety of money facilities which function in a modern economy generates the problem of measuring of amount of money.

*Structure of amount of money*

**Amount of money** - is an aggregate of all money facilities, which are in a national economy in available and to cashless forms and execute the functions of facilities of appeal, payment and accumulation.

Depending on the degree of liquidity of different forms of money select such indexes of amount of money:

- a money is for operations (**\(M_1\)**)
  \[ M_1 = \text{banknotes, billons chinks which apply out of banks + current check accounts (permanent and other check calculations)} \]

- a money is in the wide understanding (**\(M_2\)**)
  \[ M_2 = M_1 + \text{well-kept and time deposits in commercial banks} \]

- **\(M_3\)**
  \[ M_3 = M_2 + \text{payments in the specialized establishments and the special types of piling up} \]

- liquidity of assets (**\(L_A\)**)
  \[ L_A = M_3 + \text{other liquid assets (short-term to the 3-x months state securities and others like that)} \]
- deposits (D)
  \[ D = L + \text{bonds and other analogical credit instruments} \]

**Deposits** - are payments of legal and physical entities in banks.

Under **liquidity of assets** understand possibility of their converting into a money form without the substantial loss of cost and in short space.

**The money of high efficiency** make basis of all of amount of money of country (banknotes, chinks and deposits of commercial banks, are in the Central bank) - they are yet named a monetary base (H). General size of monetary base of country in every this moment it is possible to define after the Central bank statement:

<table>
<thead>
<tr>
<th>ASSET</th>
<th>PASSIVE VOICE</th>
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</thead>
<tbody>
<tr>
<td>Currency backlogs (CB) (gold and foreign currency)</td>
<td>Cashes are in circulation (CC)</td>
</tr>
<tr>
<td>Securities (SP)</td>
<td>Deposits of commercial banks (DCB)</td>
</tr>
<tr>
<td>Credits of commercial banks (CCB)</td>
<td>Deposits of government (DG)</td>
</tr>
<tr>
<td>Credits of government (CG)</td>
<td>Other passive voices (OPV)</td>
</tr>
<tr>
<td>Other assets (OA)</td>
<td></td>
</tr>
</tbody>
</table>

\[ \text{CB} + \text{SP} + \text{CCB} + \text{CG} + \text{OA} = \text{CC} + \text{DCB} + \text{DG} + \text{OPV} \]

As mediums of exchange can be used only cashes in circulation (CC).

Deposits of commercial banks (DCB) are not a money, but serve as backlogs of the money system.

\[ \text{AM} = \text{CC} + \text{D} \]

Where, AM – amount of money;
CC – cashes in circulation;
D – deposits.

\[ H = \text{CC} + rb = \text{MHE} \]

Where, H - is a monetary base;
rb - minimum bank backlogs;
MHE - money of high efficiency.

With the purpose of prevention of bankruptcy commercial banks must have minimum stocks of available monies. In the modern two-tier banking system (Central bank - commercial banks) for commercial banks the norms of minimum backlogs (r) are set as obligatory interest-free payments to the Central bank. Their size is determined in percents from deposits in commercial banks.
2. Suggestion of money and factors, that it is determined. Deposit and money multiplications

The amount of money grows in a country, if:
- a monetary base grows (H);
- the norm of obligatory minimum banking reserves goes down (r);
- surplus backlogs of commercial banks diminish (B);
- part of cashs goes down in the lump sum of circulating mediums of population (d).

The size of monetary base and norm of obligatory minimum banking reserves is determined the policy of the Central bank and come forward the exogenous parameters of model of suggestion of money ($M^S$):

$$M^S = m_m(r, B(I), d(I)) \cdot H$$

Where, $m_m$ – money multiplication.

*Central bank and suggestion of money*

*Task of the Central bank:*

- providing of stability of national currency;
- providing of pay appeal;
- an assistance state control is after private banks;
- providing of liquidity of commercial banks;
- providing of stability of the banking system on the whole.

*Instruments of the Central bank*

1. There is open-market operation:
   - flexible currency - political instrument which appears at a sale or purchase the Central bank of securities at the “opened market” at commercial banks;
   - used for the lead through of expansive (purchase) or restrictive (sale) of money policy.

2. Policy of registration rate:
   - instrument of the direct adjusting of money-and-credit appeal;
   - it appears in the changes of registration rate in accordance with the conjuncture vibrations of economy;
   - used for a management credit activity.

3. Policy of minimum backlogs:
   - most hard instrument of monetary accommodation;
• it appears in manipulation the norm of obligatory backlogs, what commercial banks are under an obligation to keep on accounts in the Central bank;
• used as a mean for a rapid compression or expansion of credit mass in the system.

_Multipliers_

All together commercial banks in the conditions of the two-tier banking system create a money, when give loans in the volume of the credit resources.

**Credit resources of commercial bank (CRCB) = Deposits (D) are a sum of obligatory banking reserves (Σr)**

Possibility of creation of money is determined all banking system by a deposit multiplier.
A _deposit multiplier_ (m_D) is inversely proportional the norm of minimum banking reserves (r):

\[ m_D = \frac{1}{r} \]

It shows, in how many times commercial banks increase the size of amount of money in circulation.

Money suggestion (M^S) is related to the monetary base (H) thus:

\[ \Delta M^S = m_D \cdot \Delta H \]

Where \( \Delta M^S \) – is an increase of suggestion of money;
\( m_D \) – is a deposit multiplier;
\( \Delta H \) – is an increase of monetary base.

A _money multiplier_ (m_M) is the complicated variant deposit, the conduct of both banks and population is taken into account in which:

\[ m_M = 1 + \frac{d}{r + d} \]

Where \( m_M \) – is a money multiplier;
\( d \) – is attitude of cashes toward deposits in a population;
\( r \) – is a norm of obligatory banking reserves (attitude of backlogs is toward deposits).

_Money multiplier_ (m_M) - it is determined as attitude of amount (M^S) of money toward a monetary base (H) (money of the Central bank).
A money multiplier (m_M) shows in how many times the volume of amount (M^S) of money will change in the case of change of money base (H).
Thus, the amount of money can be presented as work of monetary base and multiplier.

A money multiplier is used the institutes of the money system for macroeconomic prognostication of suggestion of money adjusting of amount of money.

3. Suggestion of money and budget constraint

When the state budget is erected with a deficit, Treasury bonds, to get a money for payment of national debts.

The buyers of bonds of Treasury can be:
- Central bank;
- commercial banks;
- households;
- foreigners (both private and public, sector).

A purchase is named the Central bank of state debt obligations monetization of budgetary deficit.

Monetization of budgetary deficit results in inflation.

There are three methods of financing of budgetary deficit:
- by the increase of amount of money of high efficiency;
- by the increase of bonds of Treasury in a population;
- by an exchange of the Central bank loss.

Thus, for coverage of budgetary deficit the state can print a money, do loans or outlay the currency backlogs.

4. Keynesians and monetarists conceptions of money policy

After keynesians and by monetarist’s conceptions the central problem of money policy is manipulation money suggestion \( M^S \) with the purpose of influence on major macroeconomic parameters.

\[ \textbf{Determination of suggestion of money} \]

\textit{Keynesians conception:}

- a money policy is less influential, than budgetary - tax;
- the change of suggestion of money can influence on the combined charges mediated through the change of rate of percent;
there are certain limitations of influence of money suggestion on the pond of percent, and rates of percent are on the level of investments;

vibrations of money suggestion changes the rate of percent, which determines the level of investing, investments as element of the combined charges influence on the combined demand and equilibrium production volume.

Monetarist’s conception:

growth of amount of money results in growth of rates inflation;
the change of money suggestion directly influences on the combined charges, because equalization of exchange embarks on basis:

$$M \cdot v = P \cdot Q$$

manipulating the amount of money it is impossible to influence on the pond of percent;
the main mean of revival of economy must be not stimulation, but structural changes of economy, expansion of production possibilities, growing money suggestion.
Theme 9

Employment and social defence of population

Content

1. Employment as economic problem.
2. Unemployment: essence, kinds and consequences. The Ouken’s Law.
3. Government control of market of labour force and state system of providing of employment.
4. Intercommunication of inflation and unemployment after classic and by keynesians theories. The Philip curve.

1. Employment as economic problem

- Employment as an economic category is an aggregate of economic, legal, social, national relations, related to providing of capable of working population workers placed and his participating in publicly useful activity which brings a profit.
- Employment as an economic problem is a between’s by the amount of capable of working population and by the amount of busy, which characterizes level of the use of labour resources of society and situation at the market of labour force.

Structure of capable of working population:
- Engage in production (RI is busy);
- Unemployed persons (Up) - those which do not work, but shop around actively;
- Voluntarily not workings (H) - those which do not work and does not shop around at this level ettlings (to the category of unemployed persons does not belong).

General level of labour resources (RI) consist of two groups of population: quantity engage in production (L) and unemployed persons (Up):

\[
RI = L + Up
\]

An actual unemployment (u) rate is calculated as part of the officially registered unemployed persons (Up) to the incurrence of people which can and wish to work (R):

\[
u = \frac{Up}{R} \cdot 100\%
\]

In a market economy, by virtue of its dynamism, necessarily there is optimum reserve of labour force and supported natural norm of unemployment (u*), at which an of long duration equilibrium is arrived at at terms, when an inflation rate equals the expected rate of price advance.
First the concepts of norm of natural unemployment in an economic theory entered independent of each other M.Fridmen and E.Felps in 1968 year.

The natural norm of unemployment \((u^*)\) characterizes better for an economy reserve of labour force, able quickly to carry out the sectorial and regional moving depending on demand on labour force and necessities of production.

*Basic factors which influence on the norm of unemployment:*

1. Growth of time is on the search of work in the conditions of the system of insurance on unemployment:
   a) payment of help in case of unemployment lowers stimuli to rapid employment;
   b) the increase of size of help in case of unemployment and term of its payments is instrumental in the increase of unemployment rate.

2. Firmness of entlings is generated by „unemployment of expectation” („unemployment of expectation” arises up in periods of growth of the real wage and exceeding of its level above a equilibrium value).

3. A difference is in the rates of growth on the sectors of economy.

4. The dynamics of actual unemployment substantially influences on the norm of natural unemployment.

5. Dynamics of minimum wage. The low level of minimum wage increases the terms of search of work, as those, who shops around first, and also and those, who searches more high-paying work.

6. Effect hysteresis. If an unemployment rate rises and long time reposes on a high level under the action of exogenous factors, he can not go back to an initial value after stopping of their action which results in growth of norm of natural unemployment.

For determination the norms of natural unemployment use the average of actual unemployment in a long-term period.

Full employment means the complete use of all suitable labour resources.
In the conditions of full employment actual unemployment equals natural unemployment.

2. Unemployment: essence, kinds and consequences. The Ouken’s law

Unemployment in a market economy is a market of labour force condition at terms, when suggestion of labour force exceeds demand on it.

*Basic types of unemployment*

- Friction unemployment is temporal unemployment which is related to the voluntarily or forced search or expectation of work.
- Structural unemployment is freeing of labour force under act of structural changes in an economy, which change demand on separate professions and professions and suggestion of market of labour force in relation to them.
- Cyclic unemployment is freeing of labour force, caused a general downstream, that by the that phase of economic cycle, which is related to the crisis phenomena in an economy, reduction of the combined demand, proper reduction of employment and growth of unemployment.
- Institutional unemployment is a type of unemployment, related to functioning of instruments of market of labour force and factors which influence on demand and supply on him (incomplete inflation about vacancies, overpriced level of help on unemployment, abated tax on profits etc).

**The Ouken’s law**

The conjuncture vibrations of economy influence on an actual unemployment rate.

*The Ouken’s law:* in a situation, when an actual unemployment rate exceeds natural on 1%, lag of actual GNP under his potential volume is 2,5%.

\[
\text{UR} = \frac{QUP}{QWP} \times 100\%
\]

The Ouken’s law of consists of the 3-x stages:
1. Determination of percent of lag of actual unemployment rate is from natural:

\[
PL = (\text{AUR} – \text{NUR}) \times 2,5
\]

On every percent of exceeding of actual unemployment rate above his natural level of loss are 2.5%.

2. Potential GDP.

\[
GDP_p = \frac{GDP_a \times 100}{100 - PL}
\]

Determination of losses is from cyclic unemployment.

\[
Lc = GDP_p – GDP_a
\]

**Economic and social consequences of conjuncture unemployment**

- In accordance with the Ouken’s law, there is lag of actual volume of VNP by comparison to a volume, which society could attain full employment at terms.
- There is uneven allocation of charges from unemployment among the different social layers of population. неравномерный
During conjuncture unemployment - through the protracted periods of inactivity - qualification of workers, which can afterwards stipulate a considerable wage-cut or new liberations, is lost.

- Unemployment results in worsening of bodily and psychological condition of workers, the level of their diseases rises and others like that.
- Unemployment results in public and political disorder.

3. Government control of market of labour force

After the keynesians theory of employment, in the conditions of market economy there is not a mechanism which provides and guarantees full employment.

One of conclusions of this theory there is fundamental position that the market system can not be considered, which regulates and needs systematic and purposeful government control.

Government control of market of labour force is carried out after three basic principles:

- Employment of unemployment population and grant of help is in relation to preparation and retraining of shots (labour exchanges).
- The social protecting of victims is from unemployment of people (system of helps).
- Stimulation of forming of flexible labour-market. Legal providing of labour relations.

Methods of the state providing of employment:

1. Direct methods:
   a) legislative adjusting of terms of renting and use of labour force (labour legislation);
   b) stimulation of creation of new workplaces and suggestion of labour force;
   c) measures are on a maintainance and increase of level of employment on enterprises.

2. Not direct methods:
   a) public financial policy (assignation and subsidies);
   b) monetary policy (adjusting of money circulation);
   c) fiscal policy (change of tax rates);
   d) payments of different types of helps are in case of unemployment.
4. Intercommunication of inflation and unemployment after classic and by keynesians theories. The Fillips curve

Going near the problems of inflation and unemployment in keynesians and to monetarism theories

<table>
<thead>
<tr>
<th>Purpose of economic policy</th>
<th>Keynesians</th>
<th>Monetarism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achievement of full employment is at stable prices and payment.</td>
<td>A fight is against inflation - reason of unemployment.</td>
<td></td>
</tr>
<tr>
<td>Reason of economic stability</td>
<td>Policy of trade unions which require the increase of ettlings.</td>
<td>Flexible money policy which does not answer the market mechanism of adjusting of economy.</td>
</tr>
</tbody>
</table>

The Fillips curve

Keynesian did not explain reasons of simultaneous existence of inflation and unemployment, and this blank liquidated, australian economist A.U. Fillips, defining universal character of reverse dependence between the changes of ettlings: by an unemployment rate (Graph 9.1).

Graph 9.1 The Fillips curve
The Fillips curve shows that at growth of demand on labour force and, accordingly, reduction of unemployment (u) rate standard of prices (\(P\)) and, accordingly, level of Inflation (\(\hat{P}\)) rises. Thus, the Fillips curve is the simplified one factor model of inflation (P), which determines it as a function of unemployment (u).

The Fillips curve segment on the left of point of N characterizes inflation having a drink, which can arise up as a result of attempts of the state to set high employment artificially.

Segment business from the point of N represents a price decline in a period the crisis of overproduce.

The Fillips curve for certain represents the short-term dynamics of inflation and unemployment only, which is measured current indexes.

At existence of economic intercommunications, expressed the Fillips curve, it is impossible to attain full employment without inflation.

*Stagflation* is a period during which the slump of economic activity (stagnation) is accompanied inflation.

Graphically stagflation can be represented by the change of Fillips curve (u) to the right upwards (Graph 9.2).

Graph 9.2 The Fillips curve is in the conditions of stagflation
Theme 10

Macroeconomic policy is in open economy

Content

1. World economy and national economy. Forms of international economic relations.
   2. Took out a capital as a leading form of international economic relations.

1. World economy and national economy. Forms of international economic relations

A world economy is the diversifyed global economy, which binds national economies in the unique system the exchange of economic activity, international division of labour (IDL).

Forms of international economic relations

International economic relations (IER) exist in such forms:

- International trade
- International currency relations
- Took out a capital and international credit
- International labour migration
- International scientific and technical and production collaboration

One of important tendencies of forming and development of world economy is growth of processes of internationalization. Basis of this process is made by internationalization of production and capital.

Internationalization of production

Reasons of strengthening of international factor are in a reproductive process:

1. Going of reproductive process is beyond national scopes and expansions of capacity of market optimum size of which no less 250-300 million persons.
2. Narrow-mindedness of resources of separate countries is for the independent conducting of fundamental researches.

3. A necessity of including of all factors of production of the national states is for world motion and international division of labor.

4. Growing exchange by ready-to-cook foods, details, knots, within the framework of international specialization and co-operation of production.

**Forms of internationalization of production**

1. Integration is an association at first of markets, and afterwards productions, two held in a free trade and enterprise zone.

2. Transnational is a process of interlacing of economies of the different states due to that enterprises build and buy corporations in other countries, found in them the branches which work on MNC within the framework of specialization and co-operation.

Functions of MNC (multinational corporation):

- disposes of daughter's companies in two or a few countries, regardless of legal form and sphere of activity of these companies;
- has such system of making decision, which allows to carry out the concerted policy and general strategy from one or a few centers;
- it daughter's companies are so linked between itself through the relations of ownness or another way, that each of them can have influence on activity other companies, have an access to knowledge, resources and to partake responsibility with them.

Modern intercommunications within the framework of international division of labor are characterized asymmetricness. They are more expressed as between the highly developed states states which develop; by the east Europe countries and countries with the developed economy; and in a less measure they appear in the international copulas of countries from approximately identical economic and by scientific and technical potential.

2. **Took out a capital as a leading form of international economic relations**

   **Took out a capital** is an exception of part of capital from the process of national appeal and plugging in a production process or in an appeal in different forms in other countries.

   **Purpose of capital exports** - to get the higher norm of income due to advantages, linked with the use of international factor of production by comparison to the national terms of menage.

   Personal touches of modern capital exports:
   1. Growth of scales of export of production capital.
2. Took out a capital began to be carried out mainly between the highly developed states.

3. At the beginning 70-x years the role of countries which develop grows, as exporters of capital (Saudi Arabia, Arabic Emirates, Mexico, are Incorporated, Venezuela and others like that).

4. Took out a capital appeared the form of including of countries which develop, in MPP in industries of electronics, engineer, science, informatics and transformation of them, for world leaders after the row of directions of modern world production (South Korea, Singapore, Malaysia).

5. A change of of a particular branch structure of capital exports is growth of rates of direct foreign investments in the newest technologies and services.

6. In the last decades took out a capital made terms for intensive development of transnational form of internationalization of production.


*International trade* is a form of international economic relations at mediation of export and import of commodities and services, which is based on international division of labor (IDL).

Reasons of international trade:
- Event in distributing and material well-being the economic resources of different countries.
- Effective production of various technologies or combination of resources.

The volume of international trade is characterized the dynamics of indexes of export, import of commodities and services and clean export, by their attitude toward a gross national product.

Functions of international trade:
1. Overcomes narrow-mindedness of national resource base.
2. Extends the capacity of internal market and sets connections of national market with world.
3. Provides the receipt of additional profit due to the difference of national and international charges of production.
4. Extends the scales of production, which are limited possibilities of productions.
5. Assists development of specialization of country, growth of the productivity of the use of resources, increase of production volumes.

In accordance with principle of comparative advantages, which was offered D. Rikardo in 1817 year, the combined volume of products will become maximal then, when every commodity will be made a that country which lower charges are in.
Free trade which is based on principle of comparative advantages enables a world economy to attain more effective placing of resources and higher level of financial welfare.

**Protectionism**

A protectionism policy which by duties or administrative adjusting of trade is directed on protecting of one or a few industries of production from a foreign competition diminishes or erects to the zero benefits from specialization.

Reasons of revival of protectionism:
- liberalization of trade;
- strengthening of competitiveness of foreign firms is in a national economy;
- exceeding of import above an export and saving of proof auction deficit is in separate countries.

<table>
<thead>
<tr>
<th>Protectionism measures</th>
<th>Tariffs</th>
<th>Not tariffs barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tariffs determine size state fees from commodities, values and property, at crossing of scopes of country, that duty.</td>
<td>A quota of import - export is establishment of quotas on an import or took out commodities in quantitative or cost expression.</td>
<td></td>
</tr>
<tr>
<td>Advalern a duty is the fixed percent from the cost of commodity.</td>
<td>Voluntarily limitation of export - to limit an obligation or not extend the volume of export.</td>
<td></td>
</tr>
<tr>
<td>The special duty is a hard rate for the set unit of commodity (weight, volume and others like that).</td>
<td>Difficult custom procedure.</td>
<td></td>
</tr>
<tr>
<td>A difficult duty is a simultaneous exception of advalern and special duty.</td>
<td>Technical and sanitary standards.</td>
<td></td>
</tr>
</tbody>
</table>

| Currency limitations of import of commodities. |

**Balance of payments**

An important concept which represents current external economic position is balance of payments.

**Balance (ZB) of payments** is a statistical report, given in form business accounts, about the commercial and financial treaties of economic subjects of country with a foreign country for certain period of time, as a rule for a year.

**Structure of balance of payments**

<table>
<thead>
<tr>
<th>Account of balance of payments</th>
<th>Credit (receipt of money)</th>
<th>Debit (charges of money)</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.Balance of trade</td>
<td>A profit yield is from the export of commodities</td>
<td>Charges are on the import of commodities</td>
<td></td>
</tr>
<tr>
<td>2. Balance of services</td>
<td>A profit yield is from the grant of services a foreign country</td>
<td>Payment of services, got from a foreign country</td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------------------------------------------------</td>
<td>-------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>3. Balance of translations</td>
<td>Translations oversea subjects</td>
<td>Translations are from oversea subjects</td>
<td></td>
</tr>
<tr>
<td>4. Current operations (1+2+3)</td>
<td>(\text{Import of capital})</td>
<td>(\text{Export of capital})</td>
<td>(\text{NE (net export)})</td>
</tr>
<tr>
<td>5. Operations are with a capital</td>
<td>(\text{Increase of currency backlogs of foreign country})</td>
<td>(\text{Increase of currency backlogs of country})</td>
<td>(\text{DR (account of currency backlogs balance)})</td>
</tr>
</tbody>
</table>

If \(\text{NEC} > 0\), a country has a clean outflow of capitals, and at \(\text{NEC} < 0\) - is a clean wave of capitals.

The deficit of balance of payments means that the population of country for this period paid foreigners more than (payment of import of blessings + export of capital) got from them (a profit yield is from the export of blessings + import of capital), and that is why foreigners have a certain sum of money, which equals the size of deficit of balance of payments of this country. These money will be produced in the National bank of country for an exchange on devezes (foreign currencies), that will result in an exchange of the National bank loss.

If \(\text{ZB} > 0\), currency backlogs of the National bank grow.
Theme 11

Currency system

Content

1. Currency system. Convertibility of the currency. Rate of exchange and factors, that influence on its change.
2. International currency-credit system.
3. Migration of labour power as a form of international economic relations. Migration balance.

1. Currency system. Convertibility of the currency. Rate of exchange and factors, that influence on its change

Foreign economics relations between countries stipulate necessity in exchange of their national currency.

National currency – is a currency note of the given country, which is used in international computations with other countries.

Reserved currency – is national currency–credit means of the leading countries, which are used for computations of foreign economics operations, international investments, during fixing the prices.

Locked up currency – is a national currency, which functions only within the limits of one country and is not exchanged for foreign currencies.

Free convertible currency – is a currency, which is freely and unlimitedly exchanged for foreign currencies.

Convertibility of the currency – is the ability of national currency note to be easily used in international pay circulation for maintenance of different international computations.

Currency exchange and computations between countries are fulfilled on the reason of rate of exchange.

Rate of exchange – is a price of the currency note of the country, expressed in currency notes of other countries.

Currency parity – is a legislative established ratio between two currencies, which is the base of the rate of exchange.

Parity of the purchasing power – is a correlation of the purchasing power of two or more currencies accordingly to a definite set (“basket”) of goods and services.

System of the rate of exchange

Two opposite variants of the system of rate of exchange exist:

1. The system of fixed rate of exchange, which supposes interfering of the state into their changes.
2. The system of flexible (sailing) rate of exchange, during which the rate of exchange of the national currency is determined by demand and supply.
Factors, which determine the rate of exchange:
1. Economic events:
   - change of demand;
   - change of effectiveness;
   - state, financial and money policy.
2. Prices, percentage rate.
3. Political and psychological factors, expectation.
4. Demand and supply of international currency.

Measures of regulation of currency market prompt the government to maintenance devaluation or revaluation of their national currencies.

**Devaluation** – is goal-directed actions of the government on decreasing of exchange rate of exchange of the country.

**Revaluation** – is actions of the government, oriented on increasing of exchange rate of national exchange.

Devaluation means, that the goods of the country become cheaper on the international market, so long as other countries pay for them less currency. Goods, bought abroad, become more expensive, and it leads to decreasing of import (decreasing of internal demand on imported goods).

Correction of national rate of exchange can be fulfilled with the help of currency taking stock.

**Currency taking stock** – is the influence on the rate of national currency by means of buying–and–selling of foreign currency.

2. **International currency–credit system**

International currency–credit system is a totality of rules, laws, establishments, which regulate activity of central emissive banks in external currency markets.

Peculiarities of the currency regime in Ukraine during transitional period:
1. High rates of inflation increase demand on the foreign currency and decrease the rate of national currency.
2. Shortage of export decrease possible piling up of the foreign currency.
3. A great state debt, deficit of purchasing balance, money emission decrease demand on the state currency.
4. Non-effective structure of economy, export та import decrease coming of the foreign currency.
5. Non-stability of economic and political state causes flow-out of the currency to foreign banks, which decreases its supply on the external market of Ukraine and accordingly leads to decreasing of the rate of national currency.
6. Necessary conditions of ensuring of convertibility of national currency:
1. Finishing credit emission of paper money, which are not ensured by goods and services.
2. Maximum decreasing of military expenses, non-effective capital construction, refusal from financial injections for support of unprofitable enterprises.

3. Limitations of social programs, which are not ensured by money and other resources.

4. Stimulation of production of goods and services, which are able to counteract increasing money weight, in circulation.

5. Consecutive conducting the line on stabilization and strengthening by the National bank the rate of exchange of hryvnia with the help of firm currency–credit policy, introduction of measures of the regime of imitation of convertibility of hryvnia, mobilization of internal and external current resources, taking stock on the current market.

6. Receiving on favorable conditions assistance from International Currency Fund and big banks of the “seven” highly developed countries.

7. Wide drawing of foreign capital into the economy of Ukraine.

3. Migration of Labor Forces

Migration of labor forces is one of the forms of international economic relations. Labor migration is movement of population beyond the borders of the country. Migration saldo is the difference between number of people, that left the country (emigrants) and number of people that came to live in the country contemporarily (immigrants).

Reasons of the international Labor migration

Economical:
- Decease of demand on the low-qualified labor force and its increased supply
- Increased demand on highly qualified specialists in the USA and Western
- Interstate differences in
- Differentiation of the labor force demand (need in qualified and non qualified employees as well)

Foreign Economic:
- demographical;
- political-legal;
- religious;
- national;
- cultural;
- family;
- Psychological;
- Ecological.

Main migration directions:
- Europe, Asia, Central America ————> the USA, Canada
- Mediterranean countries, Eastern Europe, republics of the former USSR, Arabic countries —————> Western Europe
Work Program
of the course

“MACROECONOMICS”

for preparation of specialists of direction
6.030601 – “Management”

faculty of agrarian management

Objectives of course

The purpose of discipline study course "Macroeconomics" is to give students a deeper theoretical knowledge of the problems of the economy - an important sphere of human activity, the objective economic laws, familiarity with the methods and conditions of effective management and systematic holistic understanding of macroeconomic theory and policy.

Logic and structure of the course "Macroeconomics" will allow students to acquire the necessary amount of knowledge that makes it possible to achieve a high level of professional competence and economic experts.

Target. The main objectives of the course is to examine issues such as:
- Methods for measuring dynamics of domestic production;
- Conditions of formation and the consequences of violating the macroeconomic equilibrium;
- The impact of inflation on unemployment and economic development;
- Methods of state budget and tax regulations;
- Tools of the state of monetary policy;
- Mastering the universal tools of rational economic decision-making;
- Knowledge of the laws of functioning micro (individuals, households, businesses, and organizations) in different market situations.
- Disclosure of the functioning of factor markets and pricing services of labor, capital, natural resources according to the type of market structure.

A study of the course the student should:

To know: the general laws governing the functioning of the national economy as a macroeconomic system, mechanisms to achieve balance in a nationwide product market, labor market, money market, the formation of the overall balance of the national economy and the causes and factors that violation of this balance, the economic functions of the state and the main instruments of fiscal and monetary and credit management; relationships internally and international economic processes, instruments of state regulation of foreign economic activity, social problems in the functioning of the national economy and how to provide citizens with social security.

be able to: general economic laws apply to the analysis of problems of dynamics and balance of the national economy; investigate the causes of violations of macroeconomic proportions and predict the dynamics of macroeconomic indicators,
calculated on the basis of publicly available statistics inflation, employment, unemployment, basic indicators of national accounts and to explain their dynamics; assess the impact of macro environment on the functioning of businesses and make economically sound solutions that take into account this effect.

The program of the course

Content module 1. Fundamentals of macroeconomic science and basic indications of State

Theme Lectures 1. Subject, method and function macroeconomics

Macroeconomics - part of economic theory. The economic system as an object of macroeconomic analysis. Macro-economic actors and their interaction. Key macroeconomic problems and contradictions.


Formation and development of macroeconomics. Modern macroeconomic theory: postkeynsianska macroeconomics, neoclassical macroeconomics, monetarism. Key macroeconomic problems and contradictions of the economy of Ukraine.

Theme Lectures 2. Macroeconomic indicators in the national accounts


Calculate the actual volume: nominal and real GDP. The growth rate and the growth rate of real GDP. Net economic welfare (NEW).

**Theme Lectures 3. The model of aggregate demand and aggregate supply**

The essence of aggregate demand, it differs from individual demand. Aggregate demand and its model. The structure of aggregate demand. Consumer demand. Investment demand. Demand state. Demand abroad. Pricing factors that affect aggregate demand: changes in interest rates, the wealth effect, the amount and structure of imports. The aggregate demand (AD). Non-price factors that affect aggregate demand. Changes in consumer spending, investment spending, government spending and spending on net exports. Planned and actual costs.


**Theme Lectures 4. Consumption, savings and investment**


Theme Lectures 5. The classical model of macroeconomic equilibrium


Work as a primary resource classical macromodel. Equilibrium condition of the labor market by the classical model. Relationship graphics equilibrium labor market with a production function. Determination of equilibrium output.

Money Market and its equilibrium. Money market equilibrium schedule according to the classical model.

Market goods. Terms and goods market equilibrium schedule according to the classical model.

Real savings. Effect of interest rate on savings market. Graph the market equilibrium savings.

General equilibrium classical macromodel: system of interconnected graphs.

Theme Lectures 6. The equilibrium of the national market in the model IS-LM

Market goods and paid services. Model "input-output" - Keynesian model of commodity market. Closed economy.

Overall expenditures. Planned costs, actual costs. Schedule "Keynesian Cross". The formation of equilibrium in the commodity market without state interference with it. Inflationary and deflationary (recessive) breaks. Model 'disqualification - injection. " Spending multiplier. Figure Hicks-Hansen for the goods and paid services - curve IS. Factors affecting the transfer curve IS.

And money market securities. Money supply. The demand for money. The motives of money demand: operational, speculative due diligence. Liquidity trap. Investment trap. Terms of equilibrium in the money markets and securities. Figure Hicks-Hansen for money market securities and commodities - curve LM. Factors affecting the transfer curve LM.

Labor market. Labor supply. The demand for labor. Terms equilibrium in the labor market. Real and nominal wages.

General equilibrium in the markets for goods and services, money and securities. Model IS-LM - as an analytical tool of macroeconomic policy. Analysis of the curve and displacement curves in the model IS-LM. The influence of the state on general equilibrium means monetary and fiscal policy. Application of IS-LM model to analyze the economy of Ukraine.

Content module 2. National and World Economy

Theme Lectures 7. Fiscal policy

Fiscal Policy: Objectives and instruments. Tax revenues as the main source of state revenue. Direct and indirect taxes and their role in the budget. Principles of effective taxation.

Theme Lectures 8. Monetary policy

Money market. Money supply and how to measure. Money supply and monetary base. Monetization. The demand for money and the factors that define it. Demand model Baumollya-Tobin (Baumol-Tobin). The mechanism of functioning of the money market.

Central (national) bank as the subject of monetary policy. Transactions of the central (national) bank and monetary base. Tools of the central bank: the interest rate policy, the policy of bank reserves, open market operations. The mechanism of money creation by banks. The influence of monetary policy on the economy: the policy of "expensive" and "cheap" money. Transmitted (transmission) mechanism of monetary policy. Cash and deposit multiplier.


Measures to stabilize the monetary system in transition economies. The problem of confidence in money and monetary policy.

Theme Lectures 9. Cyclical fluctuations and economic growth


State countercyclical regulation. Features of the economic cycle in Ukraine. Macroeconomic dynamics.


**Theme Lectures 10. Inflation and anti-inflation policy**

Inflation as a macroeconomic phenomenon. The calculation of the rate of inflation. Classification inflation criterion level, in the form of manifestation, for the possibility of prediction and for reasons of occurrence.


Theoretical approaches to the explanation of inflation. Keynesian and classical views on inflation.


Features anti-inflationary adjustment in transition economies. Inflation Dynamics in Ukraine: Causes, consequences and deterrence.

**Theme Lectures 11. Unemployment and employment policy**

The mechanism of functioning of the labor market. Factors that influence the supply and demand in the labor market. Unemployment as a deviation from equilibrium. The employment and unemployment. Types of unemployment: frictional, structural and cyclical. Actual and natural unemployment rate and the
factors that define it. Calculation of changes in the volume of GDP under the influence of deviations from the natural rate of unemployment.


Social protection for the unemployed. Macroeconomic Principles of Employment Policy. Features of the labor market and the state of unemployment in Ukraine.

Theme Lectures 12. Macroeconomic policy in an open economy


Work Program

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- Methods of state budget and tax regulations;
- Tools of the state of monetary policy;
- Mastering the universal tools of rational economic decision-making;
- Knowledge of the laws of functioning micro (individuals, households, businesses, and organizations) in different market situations.
- Disclosure of the functioning of factor markets and pricing services of labor, capital, natural resources according to the type of market structure.

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be able to: general economic laws apply to the analysis of problems of dynamics and balance of the national economy; investigate the causes of violations of macroeconomic proportions and predict the dynamics of macroeconomic indicators,
calculated on the basis of publicly available statistics inflation, employment, unemployment, basic indicators of national accounts and to explain their dynamics; assess the impact of macro environment on the functioning of businesses and make economically sound solutions that take into account this effect.

**The program of the course**

**Content module 1. Fundamentals of macroeconomic science and basic indications of State**

**Theme Lectures 1. Subject, method and function macroeconomics**

Entering is into macroeconomics. A place of macroeconomics is in the system of economic sciences. Contradiction between public necessities and economic resources is a main problem of society. Efficiency of economy and main task of macroeconomics.


Method of macroeconomics. Design as basic method of macroeconomic analysis. Suppositions, exogenous and endogenous variables of macroeconomic models. Supplies and streams as two types of quantitative variables.

**Theme Lectures 2. Macroeconomic indicators in the national accounts**


Theme Lectures 3. Labour market


Public policy of employment. Stimulant policy of politician as a method of diminishing of unemployment and it inflationary consequences. Fillips curve of about connection between inflation and unemployment in short-term and long-term periods. Conclusions of Fillips curve of are for the policy of employment. Government programs of assistance employment of population.

Economic inequality and policy of social defence of population. Loren’s curve of as graphic model of actual allocation of profits. Factors whichpredetermine inequality in primary profits. Poverty and living wage. State system of social defence of population: social guarantees, social help, social security.

Theme Lectures 4. Commodity market


Theme Lectures 5. Money market

Mechanism of functioning of money-market. Money suggestion and money aggregates. Graph of money suggestion. Demand on a money for agreements, demand on a money as assets and them graphic interpretation. Model of money-market. Violation and proceeding in an equilibrium is at the money market.

Banking system and money suggestion. Basic functions of commercial banks. Banking reserves. A bank mechanism of expansion of money suggestion is on the basis of deposit cartoonist. Money suggestion is taking into account a deposit and available money. Monetary base, money Multiplier and money suggestion.

Monetary accommodation of economy. Monetarists theory as theoretical base of monetary policy. Quantitative equalization as conceptual basis of monetary theory. Transmission mechanism of monetary policy. Basic methods of monetary policy.
Influence of monetary policy is on an economy: policy of dear and cheap money; anti-inflationary function.


**Theme Lectures 6. Inflationary mechanism**

Inflation as a macroeconomic phenomenon. The calculation of the rate of inflation. Classification inflation criterion level, in the form of manifestation, for the possibility of prediction and for reasons of occurrence.


Theoretical approaches to the explanation of inflation. Keynesian and classical views on inflation.


Features anti-inflationary adjustment in transition economies. Inflation Dynamics in Ukraine: Causes, consequences and deterrence.

**Content module 2. National and World Economy**

**Theme Lectures 7. Household consumption**

Function consumption. Consumption as a function of after tax income. The average propensity to consume and save. Marginal propensity to consume and save. Self-consumption and factors affecting it. Figure consumption.

Investment function. The role of investment in the economy. The interest rate as a factor in investment demand. Nominal and real interest rate. The interest rate and the net return on investment. The aggregate demand for investment. Factors autonomous investment and their impact on investment demand curve.

Investment multiplier. The essence of the multiplier. Tabular model multiplicative process. Model a simple multiplier. Multiplicative change in real GDP. Effect of inflation on multiplier effect.

**Theme Lectures 8. Private investment**


Theme Lectures 9. Aggregate expenditures and GDP


Aggregate expenditures and potential GDP. Recession gap as a result of deficiency of aggregate expenditure. Graphical and mathematical interpretation recession gap. Inflationary gap as a result of excessive aggregate spending. Graphical and mathematical interpretation of the inflation gap.

Theme Lectures 10. Economic dynamics


Theme Lectures 11. The state system of macroeconomic regulation


The influence of the state on the economic balance. Net expenditure and consumption transformation function. The model of economic equilibrium by "spending-output". State and national savings. The model of economic equilibrium by "removal - injection."

Theme Lectures 12. Foreign trade


The influence of foreign trade on GDP. Economic equilibrium in an open economy. Net exports as a component of total costs. Marginal propensity to import and a complex multiplier. Effect of net exports to GDP.
Tests, tasks for determining the level of learning students

Tests for independent verification of knowledge

1. Macroeconomics probes economic processes at level:
   1. enterprises;
   2. industries of production;
   3. separate market;
   4. national economy.

2. The objects of macroeconomic analysis characterize:
   1. aggregate sizes;
   2. credible sizes;
   3. comparative sizes;
   4. relative sizes.

3. Comes forward the object of macroeconomic analysis:
   1. economic law;
   2. economic process;
   3. economic system;
   4. economic relations.

4. The basic method of macroeconomic researches is:
   1. comparative analysis;
   2. sociological;
   3. method of abstraction;
   4. economic-mathematic design.

5. Whatever sector does behave to the macroeconomic subjects?
   1. enterprise sector;
   2. sector of households;
   3. state sector;
   4. agricultural sector.

6. Macromodels show:
   1. objective growth of index;
   2. intercommunication is between macro indexes;
   3. connection is between state subjects;
   4. connection is between exogenous sizes.

7. What from the resulted answers represents the technical functional copulas of endogenous parameters of macromodel?
   1. $C = C(Y)$;
   2. $Q = f(X_1, X_2, ..., X_n)$;
   3. $T = f(T(Y) \cdot Y)$;
4. \( Y = C + I + G + NE \).

8. What from the resulted answers represents the conductional functional copulas of endogenous parameters of macromodel?
   1. \( C = C(Y) \);
   2. \( Q = f(X_1, X_2, ..., X_n) \);
   3. \( T = f(T(Y) \cdot Y) \);
   4. \( Y = C + I + G + NE \).

9. What from the resulted answers represents the institutional copulas of endogenous parameters of macromodel?
   1. \( C = C(Y) \);
   2. \( Q = f(X_1, X_2, ..., X_n) \);
   3. \( T = f(T(Y) \cdot Y) \);
   4. \( Y = C + I + G + NE \).

10. What from the resulted answers represents definitions functional copulas of endogenous parameters of macromodel?
    1. \( C = C(Y) \);
    2. \( Q = f(X_1, X_2, ..., X_n) \);
    3. \( T = f(T(Y) \cdot Y) \);
    4. \( Y = C + I + G + NE \).

11. It is necessary for expansion of production potential of country, that:
    1. NNP exceeded NI;
    2. clean investments exceeded the size of depreciation;
    3. NI exceeded the volume of consumer charges of population and state;
    4. GNP exceeded NNP on the size of depreciation.

12. NI differs from the profit of the eventual use of households on a size:
    1. profits of population, got from a foreign country;
    2. depreciations;
    3. profits from individual labor activity;
    4. transfer payments of the state a population.

13. The preliminary created cost must not be taken into account at determination of the combined made cost in a national economy, for that:
    1. to avoid inflationary processes;
    2. to eliminate the unproductive charges of previous cycle;
    3. to avoid a double account;
    4. all answers are correct.

14. Aggregate volume of commodities and services, made in a country for a year, - it:
    1. national riches;
2. gross domestic product;
3. national income;
4. clean economic welfare.

15. To transfer payments belong:
1. school building;
2. payment of civil servants;
3. taxes;
4. a help is on unemployment.

16. A clean export is positive, when:
1. an export anymore than import;
2. an export diminishes, and an import grows;
3. an export and import diminish;
4. an import anymore than export.

17. Enterprise economies - it:
1. income which is outlaid on the personal consumption of businessman;
2. share of profits which remains on an enterprise for expansion of production;
3. share of profits which a businessman saves on the personal necessities: income which is outlaid on the real estate;
4. income which is outlaid on the real estate.

18. Direct tax - it:
1. a tax is on beer;
2. a tax is from an appeal;
3. a tax is on oil;
4. income-tax.

19. A profit from a property contains a receipt from:
1. to the redistribution of income of stock associations;
2. to engage;
3. gross receipt of individual households;
4. statutory and voluntarily social charges of businessmen.

20. Will nominal GNP be determined?
1. on prices previous a year;
2. on the costs of current year;
3. on prices next year;
4. on prices by a base a year.

21. Profit of the eventual use - it:
1. an wage is plus current economies;
2. the personal income is minus individual taxes and untaxed payments;
3. pay-envelope basic and additional;
4. amount of monies, which consists of payment, rent and profit, in form percent for a capital.

22. **Gross private investments are taken into account at a calculation:**
   1. to the profit of the eventual use;
   2. personal income;
   3. GNP by the method of charges;
   4. GNP by the method of profits.

23. **What from the transferred aggregation sizes are not used for determination of national income?**
   1. percents which pay businessmen for a capital;
   2. income of corporations;
   3. wage;
   4. state transfer payments.

24. **Personal income - it:**
   1. sum of economies of private individuals;
   2. all profit, appointed on the personal consumer charges after payment of taxes;
   3. profit, got households during this year;
   4. all answers are wrong.

25. **If from a national income to deduct income taxes, not distributed incomes and payments, corporations on social security, and then to add clean transfer payments, got sum - it:**
   1. national income;
   2. personal income;
   3. profit of the eventual use;
   4. net national product.

26. **Transfer payments - it:**
   1. payment households which are not conditioned participation in the process of production;
   2. part of profit, which joins in a national income;
   3. only payments a government to the individuals;
   4. all answers are wrong.

27. **What from the offered measures did consider most acceptable to stimulation of economies supporters of classic theory?**
   1. a decline of taxes is on profits;
   2. increase of interest rate;
   3. an increase of help is on children;
   4. increase of bonuses on an economy, which go to building.
28. What from the offered measures, on your opinion, most full does expose essence of concept „marginal propensity to the consumption“?
   1. a maximum size of consumer charges is at this level of profit;
   2. change in consumer charges, caused the change of profits;
   3. a relation of increase of consumer charges is on unit of increase of profit of the eventual use;
   4. attitude of the combined consumption is toward the combined demand.

29. Using the resulted variants of answers, rotin connection between marginal propensity to the consumption and marginal propensity to the economy:
   1. the sum of indexes of marginal propensity to the consumption and marginal propensity to the economy equals the profit of the eventual use;
   2. a relation between these indexes characterizes middle propensity to the consumption;
   3. the sum of these indexes is evened 1;
   4. a point on a curve, which they are counterbalanced in, answers the threshold level of profit.

30. On the Keynes theory the volume of consumer charges depends in a country, foremost, from:
   1. level of development of country;
   2. rates of growth of suggestion of money;
   3. level of profit of the eventual use;
   4. amounts of residents.

31. The line of IS will not change the position, if:
   1. at any level of the real income economies will go down on the size of increase of clean export;
   2. households change marginal propensity to the economies at the that volume of economies;
   3. growth of the government spending is carried out due to additional charges;
   4. at any rate of percent investments will be abbreviated on the size of the additional government spending.

32. At the financial market takes a place:
   1. providing of enterprises the mediums of exchange;
   2. transformation of economies is in an investment;
   3. a redistribution of NI is with the purpose of decline of differentiation of individual profits;
   4. diminishing of velocity of circulation of money.

33. The effect of employment at the change of standard of prices is determined a change:
   1. suggestions of labor force;
2. demand prices are on labor force;
3. to demand on labor force;
4. points of equilibrium are at the market of labor force.

34. **Financial basis of large cycle is:**
   1. necessity of update of the fixed assets;
   2. necessity of change of base technologies and generations of machines and update of objects of infrastructure;
   3. processes which take a place at the money market;
   4. all of answers are correct.

35. **The measures of anticrisis policy do not include:**
   1. adjusting of external activity;
   2. manipulation the state Budget;
   3. wage control;
   4. adjusting of tax rates.

36. **A national debt is a sum of previous:**
   1. budgetary deficits;
   2. government spending;
   3. budgetary surpluses after deduction of budgetary deficits;
   4. budgetary deficits after deduction of budgetary surpluses.

37. **The effect of expulsing provides for:**
   1. the consumption of commodities and services grows, and the volume of investments is abbreviated;
   2. an import is ousted domestic commodities;
   3. growth of the government spending results in diminishing of private investments;
   4. growth of private investments results in diminishing of the government spending.

38. **A governmental policy in industry of charges and taxation is named:**
   1. by a monetary policy;
   2. by the policy of allocation of profits;
   3. by a policy, founded on the amount of theory of money;
   4. by a fiscal policy.

39. **The general amount of money grows each time commercial jars:**
   1. increase the deposits at a National bank;
   2. withdraw part of the money in the National bank;
   3. diminish the obligations after current accounts, paying an available or cashless money on payments;
   4. increase the volumes of loans which get a population.
40. If a norm of obligatory backlogs is 100%, the size of money multipliers evened:
   1. 0;
   2. 100;
   3. 1;
   4. -1.

41. Inflation of demand arises up in terms:
   1. underemployment;
   2. what approach full employment;
   3. full employment;
   4. growth of marginal propensity is to the consumption.

42. Inflation which is caused surplus demand can be illustrated:
   1. by the change of the crooked aggregate supply to the left;
   2. by the change of combined demand curve to the left;
   3. by the change of combined demand curve to the right;
   4. by the change of the crooked aggregate supply to the right.

43. In a period speed-up inflation interest rate:
   1. grows, because the cost of money goes down;
   2. goes down, because the cost of money goes down;
   3. does not change;
   4. grows, because the level of employment goes down.

44. If a man is sick and can not work, it:
   1. belongs to the digit of unoccupied in a production;
   2. belongs to the unemployed persons;
   3. not taken into account in composition labor force;
   4. examined however fully busy.

45. By Oukens law the 2% increase of actual unemployment rate means above his natural level, that lag of actual volume of GNP makes from the real:
   1. 4%;
   2. 5%
   3. 2%;
   4. considerably anymore after 5%.

46. Country A can make a 1 t wheat or 4 ton metal, utilizing one unit of resources. A country B would make a 2 ton wheat or 5 ton metal, utilizing one unit of resources also. At these terms:
   1. country A will export a wheat and import a metal;
   2. country B not will export and import a wheat;
   3. a country B would export a wheat and import a metal;
   4. a country B would not export and import a metal.
47. What from the resulted forms of trade barriers is not a substantial obstacle for free trade?
1. imported quota;
2. are there licenses to an export and import?
3. voluntarily export limitations;
4. there is not a right answer.

48. The system of gold standard operates. Country A substantially increased the export of commodity in a country. In this situation:
1. standard of prices in a country A will go down, and in a country will grow;
2. standard of prices in a country A will grow, and in a country will go down;
3. standard of prices in a country A will go down, and it is possible in a country, will change, possibly - no;
4. standard of prices in a country A will go down, possibly, will change, possibly - no, and in a country will go down.

49. For basis of growth in the R.Solou model accepted:
1. growth of the labor productivity;
2. growth of product;
3. growth of standard of prices;
4. growth of employment.

50. Economy growing it can be illustrated:
1. by motion of point on possibilities of productions;
2. by a change to the left of possibilities of productions;
3. by a change to the right of possibilities of productions;
4. by motion from one point to other outside possibilities of productions.

51. After the model of IS-LM of pond of percent determined as a result of co-operation:
1. to demand and supply at the money market;
2. to demand and supply at the market of commodities and services;
3. to the market of commodities and services at the financial market;
4. money-market with the market of equities.

52. After the theory of multiplier the increase of NI anymore than increase of investments because:
1. maximum efficiency of capital investments exceeds the rate of percent;
2. investments increase production potential of economies;
3. investments anymore than economy;
4. growth of investments increases other component parts of demand.

53. At the market of commodities and requiring payment services, money and securities an equilibrium is not arrived at, if:
1. $C = S$;
2. $S = I$;
3. a value of $NI$ is a that rate of percent does not answer an intersection lines of $IS$ and $LM$;
4. all of answers are wrong.

54. **A supply of labor force price is determined:**
1. by a maximal payment;
2. by a minimum wage;
3. by a nominal payment;
4. by the standard of prices.

55. **Financial basis of periodicity of middle cycles is:**
1. necessity of update of the fixed assets;
2. a necessity of proceeding in an equilibrium is at the user market;
3. processes which take a place at the money market;
4. necessity of update of objects of infrastructure.

56. **The basic instrument of neoclassical analysis of the economy growing is:**
1. price index;
2. production function;
3. ex post analysis;
4. economic system.

57. **Inflation is a tax on:**
1. government, it increases the sizes of budgetary deficit;
2. proprietors of national debt, it increases the sizes of budgetary deficit;
3. proprietors of national debt, it abbreviates the sizes of budgetary deficit;
4. government, it abbreviates the sizes of budgetary deficit.

58. **A considerable budgetary deficit allows:**
1. to increase the rate of percent, promote the international value of national currency and increase the volume of clean export;
2. to decrease the rate of percent, reduce the international value of national currency and increase the volume of clean export;
3. to increase the rate of percent, reduce the international value of national currency and increase the volume of clean export;
4. to increase the rate of percent, promote the international value of national currency and decrease the volume of clean export.

59. **If a government provides for to promote the level of real GNP, he can:**
1. to reduce the public purchasing of commodities and services;
2. to reduce the level of budgetary deficit;
3. to reduce taxes;
4. to decrease transfer payments.

60. The increase of sum of permanent payments is maximally possible evened:

1. to surplus backlogs, to part on the size of money cartoonist;
2. differences between active and obligatory plus a property asset;
3. differences are between actual backlogs and surplus;
4. to surplus backlogs, to increased on the size of money cartoonist.
Tasks are for independent work of students

**Task 1.** Using the data of the table find: GNP, consumption, NNP, net private investments.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>1st year</th>
<th>2nd year</th>
</tr>
</thead>
<tbody>
<tr>
<td>The value of new building</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The value of produced equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The value produced consumption goods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The value of goods, that have been consumed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amortization of building</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amortization of equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stock of consumption goods at the beginning of year</td>
<td>42</td>
<td>70</td>
</tr>
<tr>
<td>Stock of consumption goods in the end of year</td>
<td>70</td>
<td>42</td>
</tr>
</tbody>
</table>

**Task 2.** Using the data of the table find: the builders’ contribution in the creation of GNP. How to avoid double accounting while measuring GNP? Determine “add value” and explain ways of its calculation.

<table>
<thead>
<tr>
<th>Production</th>
<th>Final sum of sale (n.m.u.)</th>
<th>Buying of commodities that are necessary for productions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building</td>
<td>20000</td>
<td>–</td>
</tr>
<tr>
<td>Glass</td>
<td>500</td>
<td>200</td>
</tr>
<tr>
<td>Bricks</td>
<td>12000</td>
<td>4000</td>
</tr>
<tr>
<td>Paints</td>
<td>420</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>3080</td>
<td>4300</td>
</tr>
</tbody>
</table>

**Task 3.** What should the equilibrium amount of production of goods be to cause demand on autonomous investment in the dimension of 120 n.m.u., if autonomous consumption is 30 n.m.u. and marginal propensity to consumption is 0,4?

**Task 4.** Using the data of the table find: GNP (by the incomes and by the costs), personal income, ended communion profit, the quantity of net export.

<table>
<thead>
<tr>
<th>№</th>
<th>Indicators</th>
<th>n.m.u.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Export</td>
<td>550,5</td>
</tr>
<tr>
<td>2</td>
<td>Dividends</td>
<td>90</td>
</tr>
<tr>
<td>3</td>
<td>Amortization</td>
<td>460,5</td>
</tr>
<tr>
<td>4</td>
<td>Wage</td>
<td>2163</td>
</tr>
<tr>
<td>5</td>
<td>State purchasing of goods &amp; services</td>
<td>1865,5</td>
</tr>
<tr>
<td>6</td>
<td>Rent</td>
<td>49,5</td>
</tr>
<tr>
<td>7</td>
<td>Indirected taxes</td>
<td>385,5</td>
</tr>
<tr>
<td>8</td>
<td>Additional payments to wage</td>
<td>420</td>
</tr>
<tr>
<td>9</td>
<td>Gross private investments</td>
<td>1113,5</td>
</tr>
<tr>
<td>10</td>
<td>Taxes &amp; incomes of the corporation</td>
<td>132</td>
</tr>
<tr>
<td>11</td>
<td>Transfer payments</td>
<td>480</td>
</tr>
<tr>
<td>12</td>
<td>Interest rate</td>
<td>301,5</td>
</tr>
</tbody>
</table>
Task 5. Using the following data (in n.m.u.) calculate macroeconomic indicators write them down into the table. Find the investment multiplier.

\[ C = 200 + 0.75Y_{DL}, \ I = 200, \ E = 125, \ Z = 25, \ T = G = 200 \]

<table>
<thead>
<tr>
<th>National income</th>
<th>Taxes</th>
<th>Derive income</th>
<th>Consumption</th>
<th>Investments</th>
<th>State expenditure</th>
<th>Net export</th>
<th>AD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1800</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2400</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2600</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Task 6. The data in the table characterize close economy that function at constant price level and absence of the state intervention. Calculate: marginal propensity to consumption, marginal propensity to savings and investment multiplier.

<table>
<thead>
<tr>
<th>Real NNP</th>
<th>Consumption costs</th>
<th>Savings</th>
<th>Planned investments</th>
<th>Total costs</th>
<th>Deflection of real investments from scheduled</th>
</tr>
</thead>
<tbody>
<tr>
<td>1300</td>
<td>1290</td>
<td>10</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1310</td>
<td>1298</td>
<td>12</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1320</td>
<td>1306</td>
<td>14</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1330</td>
<td>1314</td>
<td>16</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1340</td>
<td>1322</td>
<td>18</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1350</td>
<td>1330</td>
<td>20</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1360</td>
<td>1338</td>
<td>22</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1370</td>
<td>1346</td>
<td>24</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1380</td>
<td>1354</td>
<td>26</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1390</td>
<td>1362</td>
<td>28</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1400</td>
<td>1370</td>
<td>30</td>
<td>22</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Task 7. The consumption function is \( C = 200 + 0.6Y; \ I = 500 \). Find the equilibrium NI and its variation while investments increase on 100 n.m.u.

Task 8. The savings function is \( S = -20 + 0.4Y; \ I = 20 \) n.m.u. Find: the equilibrium NI multiplier and the quantity of savings.

Task 9. The behavior of macroeconomical subjects is characterized with the following data: \( C = 0.8Y^V + 90; \ I = 0.225Y + 30; \ G = T; \ E = 180; \ T(Y) = 0.375; \ Z(Y) = 0.2 \). Find the equilibrium NI.
**Task 10.** Using the data of the table calculate average and marginal tax rates. What is the form of the tax: progressive; proportional, regressive?

<table>
<thead>
<tr>
<th>Income</th>
<th>Tax</th>
<th>Average tax rates</th>
<th>Marginal tax rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>200</td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>250</td>
<td>75</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Task 11.** The national economy is characterized with the following data: real income is 4000 n.m.u., marginal propensity to consumption is 0.8; equilibrium income is 4200 n.m.u. How should governmental costs and the amount of tax incomes change, so that economy achieves equilibrium if other data are stable?

**Task 12.** The economy of Ukraine is in equilibrium if consumption of households is determined by the function $C = 100 + 0.8Y^V$, the investments 100, state expenditures on buying of goods are 200, transfer payments from the budget are 62,5, rate of profit tax is 0,25. Find the equilibrium NI and multiplier.

**Task 13.** The leading economists forecast that in a year economic situation in country will be characterized with the following data: $C = 100 + 0.7Y$; $I = 100$ n.m.u.; $G = 200$ n.m.u.; $Z(Y) = 0.2$. Calculate a forecasted level of GNP.

**Task 14.** Using the data of the table find the quantity of currency aggregate $M_1$, $M_2$, $M_3$.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>n.m.u.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short term payments</td>
<td>1630</td>
</tr>
<tr>
<td>Long term payments</td>
<td>645</td>
</tr>
<tr>
<td>Check payments</td>
<td>448</td>
</tr>
<tr>
<td>Non-check saving payments</td>
<td>300</td>
</tr>
<tr>
<td>Cash</td>
<td>170</td>
</tr>
</tbody>
</table>

**Task 15.** Liabilities of the commercial bank’s balance include (in mln. n.m.u.): payments poste restate – 1000; term payments – 500. standard of reserve reimburse of payments poste restate – 30%, and standard of reserve reimburse of term payments – 20%. On what sum can the bank increase credits if a half of payments poste restate will be re-legalize into term payments?

**Task 16.** The level of real unemployment is 10%, of nature is 6%. Real GNP is 200 mln. grn. Find losses of GNP because of the cyclic unemployment.

**Task 17.** Find deflation rate if price index of 2006 is 98%, 2005 is a basic year.
**Task 18.** Find price increment if price indexes of 2007 are 128%, 2005 is a basic year.

**Task 19.** Find inflation rate during 2000-2007 if 2005 is a basic year and price index of 2000 is 25%.

**Task 20.** Deposits of commercial banks are 4 mln. grn. The norm of obligatory stocks is 25%. On what quantity may currency supply increase if the Central Bank decides to decrease the norm of obligatory stocks?

**Task 21.** The norm of obligatory stocks is 12%, accessed stocks are 3% of the sum of deposits. What is the quantity of deposits if the total sum of stocks is 45 bln. grn., and cash is 150 bln. grn.?

**Task 22.** In closed economic system without state intervention the amount of savings of the \( n^{th} \) year is determined with the formula \( S_n = Y_{n-1} - 160 \), annual autonomous investments are 400 n.m.u. At such circumstances the dynamic equilibrium is fixed at \( Y_{n-2} = 1600 \) n.m.u. Find: the equilibrium NI in the \((n-1)^{th}\) year; an increasing rate of NI; NI of the \( n^{th} \) year if an increasing rate is constant.

**Task 23.** In the economy of a certain country it is considered reasonable to have production stocks of 2.5 n.m.u. per each n.m.u. of the quantity of sale in the end of every year. Using the data of the table calculate unknown indicators and write them down.

<table>
<thead>
<tr>
<th>Year</th>
<th>The quantity of sale</th>
<th>Stocks at the beginning of the year</th>
<th>Expected stocks in the end of the year</th>
<th>The quantity of production of the year</th>
</tr>
</thead>
<tbody>
<tr>
<td>n+1</td>
<td>40</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n+2</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n+3</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n+4</td>
<td>55</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n+5</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Task 24.** In the state A an inflation rate is 9%, and in the country B it is 5%. In A interest rate is 12%. What should interest rate be in B to avoid pouring of the capital among these countries.
Basic symbol

A – amortization
AD – aggregate supply
AS – aggregate demand
a, – manufacture factors (workforce, capital, ground, enterprise abilities)
B – cycle budget
BA – actual budget
BC – cycle budget
BS – structure budget
b – accelerator
C – consumption expenditure
CB – currency backlogs (gold and foreign currency)
CC – cashes are in circulation
CCB – credits of commercial banks
CG – credits of government
CRCB – credit resources of commercial bank
Ca – a sum of costs of commodities which are sold on an account
Cr – a sum of costs of commodities, that realization is subject
C0 – autonomous consumption
c – average propensity to consume
c’ – marginal propensity to consume
D – dividends
DCB – deposits of commercial banks
DG – deposits of government
DI – derive income
d – population deposits
E – export
ES – economic system
G – public expenditure
GDP – gross domestic product
GIP – gross internal product
GNP – gross national product
GPC – gross product of capital
g – rate of increasing of a manufacture efficiency under the influence of technological progress
H – monetary base
I – investments
Ig – gross private investments
In – net investments
IDL – international division of labour
IT – inflationary tax
i – percent (interest rate)
i’ – liquid trap
IL – inflation level
Inf – inflation
k – capital capacity
L – quantity engage in production
LA – liquidity of assets
LD – labour demand
LS – labour supply
M – monetary supply (stock)
M1 – operating monetary demand
M2 – speculative demand
MD(i) – demand on money as realty ore speculative
MS – monetary supply
m – multiplier
md – deposit multiplier
mg – multiplier of the government spending
mm – money multiplier
mt – tax multiplier
MHE – money of high efficiency
NCE – net capital export
NE – net export
NEW – net economical wealth
NI – national income
NIR – nominal interest rate
NNP – net national product
P – price level
Pc – payments, the term of payment of which came
PI – personal income
p – payments which are paid
Q – produce volume
Qf – potential GNP
q – limit propensity to export
R – rent
Rb – nominal income rate on bonds
Re – market income value on stocks
RIR – real interest rate
RI – level of labour resources
\( \Delta R \) – saldo of currency funds account
r – delay between reception and usage of money resources
rb – minimum bank backlogs
S – saving
SE – seniorage
SR – stock rate
s – saving rate
s' – marginal propensity to saving
T – tax incoming
T(Y) – tax rate
T(Y) – marginal tax rate
T(Ŷ) – average tax rate
Tind – individual taxes
Tn – indirect taxes
Tr – transfers
T.P. – technological progress (or aggregate productivity of manufacture factors)
tL – rate of population increasing
UR – unemployment rate
Up – unemployed persons
V – velocity of circulation of one monetary item
W – wage
Y – income
YV – real quantity national income what goes to the eventual use
YF – income in conditions of full employment
y – labor productivity
Z – import
ZB – balance of payments
ΔZB – foreign trade saldo
γ – Okun’s parameter
ν – acceleration coefficient
n.m.u. – nominal monetary units
Forms of control

Forms of knowledge control system evaluation - control knowledge is made by the students' practical work, presentations of reports, compiling module tests for the module-rating system.

Current control of student learning is at the workshops and is a preliminary control of knowledge and skills of students posing of the problem the teacher and discussing it with students solving problems with their discussion, solving control tasks, their inspection, evaluation.

Final control is conducted to assess learning outcomes at a certain education (qualification) level or some of its completed stage.

Final control includes a modular form of final control after logically completed part of lectures and practical classes and the results included in the billing summary assessment.

Semester control is carried out in the form of semester examination in the amount of training material defined guidelines, and deadlines set by the curriculum.

Students enrolled in the correspondence, carried out according to the curriculum independent tests, tasks which cover topics course "Macroeconomics", provided methodological guidelines.

Distribution points that get students.

Criteria for assessment of learning tasks is one of the main ways to test knowledge and skills of students with discipline "Macroeconomics". In assessing the objectives as a basis should take the completeness and correctness of their implementation. Please note the following competencies and skills of students:

- differentiate, integrate and unify knowledge;
- teaching material logically and sequentially;
- use additional literature.

Calculations rating of discipline "Macroeconomics" The study of the history of economic doctrines in your curriculum include one academic semester: lectures – 30 hours., practical training - 30 hours and independent work - 30 hours., for a total of 90 hours. (3 credits ECTS). After the study subjects scheduled exam. Duration academic semester - 16 weeks. Current rating of subjects is 100 points. Top of the study - 70 points, ranking of certification - 30 points

Rating evaluation of semantic modules

<table>
<thead>
<tr>
<th>Duration of training, weeks</th>
<th>Most meaningful module</th>
<th>Workload, hours</th>
<th>Credit and ECTS</th>
<th>Rating score semantic module scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>min</td>
</tr>
<tr>
<td>1-8</td>
<td>1</td>
<td>45</td>
<td>1,5</td>
<td>60</td>
</tr>
<tr>
<td>9-16</td>
<td>2</td>
<td>45</td>
<td>1,5</td>
<td>60</td>
</tr>
<tr>
<td>Всього</td>
<td>2</td>
<td>90</td>
<td>3</td>
<td>42</td>
</tr>
</tbody>
</table>

Top with additional work Raw is 10 points. Rating the penalties Rp is 5 points. Top student for educational work Rew is expressed by:
\[ R_{cw} = \frac{0.7 \times (R^{1bm} \times K^{1m} + R^{2bm} + K^{2m}) + R_{aw} - Rp}{K_D} \]  \hspace{1cm} (1) \\

where \( R^{1bm} \) … \( R^{2bm} \) – the ratings given to the content modules on a 100-point scale;

\( n \) - number of content modules;

\( K^{1m} \) \( K^{2m} \) - the number of ECTS credits under official curriculum for the relevant contents of the module;

\( K_D = K^{1m} + K^{2m} \) - number of credits ECTS, provided a working curriculum for discipline in the current semester;

Raw, Rp - in accordance with additional work and penalties work.

\[ R_{cw} = \frac{0.7 \times (R^{1bm} + R^{2bm}) + R_{aw} - Rp}{4} \]

Students who had taken out educational work 60 or more points may not be an exam, and get test scores "automatically," according to the typed number of points transferred to the national evaluation of ECTS in accordance with Table 1. in this case the top student in the discipline equal to his rating on education.

\[ Rd = Raw \]

A student wants to improve your rating and improve the assessment of discipline, it must pass certification semester. The latter will definitely pass students who for academic work took less than 60 points. For admission to the certification a student must score at least 60 points from each module contents and in general - not less than 42 points for academic works.

Top student certification Rat is determined on a 100-point scale. If the certification of courses a student took less than 60 points, they will not count against him - not added to the collected points for academic work and student remains rating (score) defined by formula (1).

Otherwise, the top student in the discipline determined Rd calculated formula:

\[ Rd = Raw + 0.3 \times RAT \]  \hspace{1cm} (2) \\

Rate of student discipline is translated into the national assessment and evaluation of ECTS in accordance with Table 2.
Table 2. The relationship between national and ECTS grades and rated student

<table>
<thead>
<tr>
<th>National assessment</th>
<th>Assessment ECTS</th>
<th>Percentage of students who reach the appropriate assessment at the European University</th>
<th>Definition of assessment ECTS</th>
<th>Students' scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Fine&quot;</td>
<td>A</td>
<td>10</td>
<td>EXCELLENT - only minor errors</td>
<td>90-100</td>
</tr>
<tr>
<td>&quot;Well&quot;</td>
<td>B</td>
<td>25</td>
<td>VERY GOOD - above the average of several errors</td>
<td>82-89</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>30</td>
<td>GOOD - generally work with a number of blunders</td>
<td>75-81</td>
</tr>
<tr>
<td>&quot;Satisfactorily&quot;</td>
<td>D</td>
<td>25</td>
<td>SATISFACTORY - not bad, but with significant shortcomings</td>
<td>66-74</td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>10</td>
<td>SUFFICIENT - performance meets the minimum criteria</td>
<td>60-65</td>
</tr>
<tr>
<td>&quot;Unsatisfactorily&quot;</td>
<td>FX</td>
<td>-</td>
<td>POOR - need to work before you get credit (positive assessment)</td>
<td>35-59</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>-</td>
<td>POOR - thorough and elaborate</td>
<td>01-34</td>
</tr>
</tbody>
</table>

Educational methodical literature is from discipline

Methodological Support

6. G. Ackley, Macroeconomic Theory, Macmillian, 1961, pp. 5-8

Methodological Support

3. Талавиря М.П. Лакішік О.В. Власенко Ю.Г. Гуща І.О. Макроекономіка: Практикум-тренінг для студентів економічних


**Information Resources**

1. Національна бібліотека України ім. В.І.Вернадського // http://www.nbuv.gov.ua

2. Офіційна Інтернет-сторінка Верховної Ради України // http://www.portal.rada.gov.ua

3. Офіційна Інтернет-сторінка Кабінету міністрів України // http://www.kmu.gov.ua

4. Офіційна Інтернет-сторінка Міністерства економіки України // http://www.me.gov.ua

5. Офіційна Інтернет-сторінка Міністерства фінансів України // http://www.minfin.gov.ua

6. Офіційна Інтернет-сторінка Національного банку України // http://www.bank.gov.ua

7. Офіційна Інтернет-сторінка Державного комітету статистики України // http://www.ukrstat.gov.ua


9. Офіційна Інтернет-сторінка Міжнародного валютного фонду // http://www.imf.org

10. Офіційна Інтернет-сторінка Світової організації торгівлі // http://www.wto.org

Macroeconomics
Educational-scientific manual for students of economic specialties.

Authors: Gushcha Inna