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THE RATE OF GROSS SAVING: THEORY AND PRACTICE

Scientific justification of the rate of gross savings is one of the key issues in the models of economic growth and a fundamental parameter of economic architectonics in the context of long-term dynamics of growth and structure of total demand. The article aims at demonstrating the genesis of the theory of the rate of gross savings beginning from the classics of political economy to theoretical justifications of the endogenization of the rate of savings in the models of economic growth as well as a detailed consideration of the components of gross savings with the analysis of the factors affecting its level (based on statistical data).

It is exactly the empirical analysis that allows testing the validity of theoretical concepts and determining the correctness of the theorists' conclusions. The author shows a great gap between the classical view of the savings rate as a result of the action of natural law, which leads to self-regulation of the parameters of production reproduction, on the one hand, and the purely rational views shaped during the formation and development of the theory and models of economic growth, on the other.

Empirical studies have shown that the rate of savings and the rate of capital accumulation are different in the economies of different countries and depend on: the degree of government intervention in the distribution of gross disposable income between institutional sectors and in the structure of households by income level, the level of public social transfers, the depth of income misbalances and expenditure of the institutional sectors and, accordingly, their net borrowing and accumulated debt, as well as on the current phase of the economic cycle and quality of the investment environment.

The practical relevance of the study is important to substantiate fiscal policy, especially regarding its impact on the level of gross savings in the non-financial corporations and government sectors, as well as the level of public social and capital expenditures.

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The justification for gross saving rate began long time ago. The followers of the classic vision believe that the economic system is self-regulating and self-reproducing. Such structural features of the economy as wage, profit, saving rates are governed by natural law, and the level of capital saving should be consistent

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with the level of savings. Adam Smith, Jean-Baptiste Say, Henry Charles Carey, John Stuart Mill and other followers of the classic vision of economic development held to this opinion. F. Quesnay, the founder of the underlying principles of "input-output" tables, also expressed the idea of optimizing the action of the natural order in the processes of reproduction of a country's social product.

The theoretical concepts of savings subordination to the natural law that were proclaimed by classics of political economy, required empirical confirmation, but the statistical base at that time did not allow to find any relevant laws. Further development of the theory of gross savings rate that took place within the framework of the theory of economic growth, and the search for ways to endogenize its parameters in growth models occurred at the same time with the development of statistics and application of mathematical methods in economic research. In the first models built according to a real statistical basis, the level of savings was introduced at a fixed, in other words exogenous level. On the one hand, the attempts to endogenize, and therefore to calculate the rate of savings focused on the attempt to rationalize the behavior of market participants in choosing the size of savings, taking into account their choice. On the other hand, they focused on the need to maintain both macroeconomic balances and the balance of interests of different generations, and the desire to maximize household consumption in the long-term prospects. The proposed "rationalist" behavioral models made many assumptions that detached them from real economic processes and therefore lacked the necessary depth of validation based on real multifaceted components and changes in the economy, which made their conclusions rather doubtful. The purpose of the article is a step-by-step analysis of the development of gross saving theory, starting with the classical vision of its fluctuations in the process of economic self-regulation under the influence of natural law; analysis of ideas that arose in the process of formation of economic growth theory, which solved the problem of endogenization of the parameters of the indicator of gross saving, as well as methods of its calculation in macroeconomic models that were widely used in government agencies of many countries for analytical and forecasting purposes. It is also important to find empirical evidence of theoretical concepts based on factual statistics.

In the XVIII century François Quesnay, the founder of Physiocratic school, claimed that all processes in society and in economy are under natural laws that are "universal and indisputable, unique, eternal, unchanging, established by God for the happiness of men" [1]. The most crucial was his idea about the law as "the most beneficial" for people, which many years later transformed into "optimal". Quesnay's achievement was the development of methodological bases for the statistical analysis of the basic proportions at the stages of manufacturing and sales of public product, as well as the exchange of money and goods. He discovered that the process of reproduction and realization is continuous only if certain proportions are observed. Therefore, F. Quesnay can be called the ideological father of structuralism and "input-output" tables, as well as founder of the idea of optimizing the action of natural order in the processes of reproduction of a country's social product.

Adam Smith, in his main work, An Inquiry Into the Nature and Causes of the Wealth of Nations, was the first to see that natural order influences not only the emergence, location, improvement and development of production, but also the distribution and accumulation of wealth among different classes of people. He also

revealed factors that influence pricing and the rate of profit. He structured population into classes, providing a basis for future distribution of the market (according to modern System of National Accounting (SNA) methodology), and pointed to the link between natural order and income distribution between different classes and various wages. Among the other important structural factors of development, he emphasized the rate of labor and capital, which depends on the particular nature of labor and capital. Smith claimed that normal or average rates could be called natural rates of wages, profits and rents for the time and place when and where they usually prevail. Analyzing the sources of capital growth, Adam Smith concluded that capital would not grow if it was not for citizens' prudence, which leads to a country-wide increase in savings and becomes a source of growth in productive assets. On the other hand, it contributes to attracting more labor and increasing output and income in general. And the natural norms of incomes affect the natural norms of their use, and therefore – the rate of savings [2].

Jean-Baptiste Say claimed that three factors of production such as: labor, capital and land define the value of goods and determine the income of wage earners (bearers of labor), profits of entrepreneurs (owners of capital), and rent of landowners. At the same time, objective economic laws harmonize interests between owners of production factors and affect the structure of incomes and expenditures because they interact and complement each other in the production process, so everybody is interested in its expansion, which is the most beneficial to society as a whole [3].

At the end of the industrial revolution and intensification of class disputes, the well-known English economist and philosopher John Stuart Mill put a theoretical basis into the social reform agenda connected with the prospects of institutional development of capitalism. Like many of his predecessors, he believed that the laws of production are eternal, immutable, physical, and independent of the people's will. Looking for ways to economic growth, Mill examined the tendency of the rate of profit to fall, and, unlike A. Smith, who believed that the rate of profit falls due to competition of capital, he claimed that *it falls when the capital approaches to the limit when it becomes impossible to profit the use of capital in a certain limited area*. At the same time, Stuart emphasized that new investments make it possible not only to expand production but also to increase employment [4].

Although Marx criticized the classics of political economy, he also believed that society should be considered as a coherent organism that functions according to its objective laws that promote its internal self-organization. However, Marx considered the development of capitalist production only through the prism of the productive forces development and class relations. In his work "A Contribution to the Critique of Political Economy", after examining the sources of capital and the process of reproduction, K. Marx concluded that an ordinary laborer could not become a capitalist, saving some of his wages, so the sources of most savings were profits or borrowings taken from other people or at the bank. Therefore, he divided the added value received by the capitalists into two parts, so that the first one goes to consumption; and the second one is used for capital or is saved. This division is made by the capitalist himself in view of his interests and desire for constant enrichment. If the constant share of income is capitalized, the growth of capital accumulation depends on the amount of value added, in other words, it depends on all the factors that affect it. At the same time, Marx claimed that the biggest influence

on the formation of resources for the capital accumulation is the direct robbery of the wage bill required for laborer's necessary consumption. Savings, in his opinion, are formed by suppression of laborers' income. It is from here that Marx derived the so-called general law of capitalist accumulation. According to this law, the process of capital accumulation goes hand in hand with the reproduction of poverty of the unemployed proletarians, which in turn affects negatively the position of employed laborers [5].

But in his schemes of extended reproduction, K. Marx shows that it is exactly the reduction of capitalist consumption that leads to increased investment and expansion of production. On the basis of F. Quesnay's economic table, he developed a two-sector model (F. Quesnay divided his economy into three sectors) and showed how, for the sake of reproduction, there is an exchange between the first and second sectors of production that produce capital goods and consumer goods. His expanded reproduction scheme assumes that it is the owners of capital who reduce their consumption and, by saving part of their income (profit), capitalize it. But Marx left it beyond his attention what the rate of savings should be, though he explained the pattern of economic growth.

In the second half of the XIX century, the economic theory received support from the school of mathematics and expanded the use of mathematical methods in economic research. That was facilitated by the development of statistics and new opportunities for analyzing economic growth factors were provided. This applies primarily to justifying the optimal parameters of saving and capital accumulation. W.Jevons, L. Walras, and V. Pareto made a significant contribution to the initiation of this guideline of economic theory.

William Stanley Jevons conducted a statistical analysis of economic equilibrium, taking into account the interdependence of all elements of the economic system and the principle of optimality, and also substantiated his own version of the marginal utility theory. He proposed the theory of the "most profitable" result: "Our aim is to obtain as much wealth as possible by spending as little labor as possible" [6, p. 14]. His study of the ultimate usefulness of goods allowed, independently of other researchers, to introduce the idea that the amount of good increases, its usefulness decreases, and the optimal consumption depends on its distribution between different periods. In other words, the scientist formulated his law of diminishing marginal utility, adding the factor of time. This idea was subsequently used to justify the optimal rate of savings, which should not exceed the utility limit in view of maximizing long-term consumer spending.

A Swiss economist, the author of the General equilibrium theory and founder of the Lausanne Mathematical School of Political Economy Leon Walras in his treatise "Elements of pure economics or the theory of social wealth" made a careful study of the preconditions for achieving a stable economic equilibrium, including the process of generating savings and capital accumulation with the use of credit. Walras emphasized that there is a direct link between the distribution of national wealth and its balance. The proposed scheme for the exchange between market participants is similar to the subsequent "input-output" tables. On the one hand, there is a market of production factors and consumer goods as a supply of goods and services for intermediate and final use, and, on the other hand, there are income and expenditure of households and firms. According to Walras, the level of savings should correspond

to the level of capital accumulation, including credit resources [7]. In other words, the accumulation of capital is covered by national savings and borrowing, which is in line with the current system of national accounts, where capital transfers and some other, less significant, components are still taken into account.

As a follower of the Lausanne School tradition, Wilfredo Pareto introduced a close to the classical, purely theoretical understanding of the best notion in the distribution of wealth concepts – the notion of optimality. It indicates a distribution where the situation of at least one participant in the economic process could not improve without deteriorating the situation of others. Imposing this principle to understanding ***the optimal level of gross saving*** means that there is a limit to increase the level of savings and its excess would overbalance other important economic indicators or the well-being of at least one person. If we talk only about the distribution of GDP *growth* into saving and consumption, the increase in savings should not worsen the existing level of consumer spending of at least one member of society. Then, even if all GDP growth goes to savings without reducing (without worsening) people's consumption, it will be in line with the Pareto principle. In addition, temporary slowdowns with increased consumption caused by rising savings rates would cumulatively lead to increased consumption in the long run.

Following Walras, Pareto also insisted that the distribution of income affects all components of the economic system, such as the formation of expenditure and savings. The actual statistics allowed him to identify long-lasting patterns in this distribution, which in a condensed form showed that 20% of the population received 80% of income. On this basis, he derived the generalized principle that in the economy 20% of the invested funds give 80% of the return [8, 9].

Economic theory continued to develop with an emphasis on the marginal and optimal structural parameters in an economy, where the best result is achieved. New opportunities for statistical analysis to determine marginal values (marginal utility, marginal cost, marginal productivity, marginal savings rate, etc.) led to the so-called "marginal revolution" at the end of XIX century. The focus of research by the scientific community shifted to justifying optimal economic parameters, given their marginal effectiveness, which brought science closer to discovering endogenous interrelated phenomena and processes of the economic system. The founder of the Austrian school of economics, C. Menger, wrote: "We have tried to reduce the complex phenomena of the human economy to their simplest elements, which are accessible for accurate observation, to bring to the latter a measure appropriate to their nature, and to show again how complex economic phenomena naturally develop from their elements. The result was the research method, which was applied in the natural sciences, but due to misunderstanding, was called scientific. This method is used in all sciences based on experience, and it is more accurate to say that it is empirical" [10, p. 62].

The recognition by marginalists of certain limits for the effective realization of each of the factors of economic growth meant that the parameters of their interaction were regulated. Every parameter has its upper limit, and the excess of this limit will result in unproductive costs. The proponents of the marginal approach to the value of goods, due to their marginal utility, made the main focus on the study of the rational behavior of economic entities, their motivation in choosing options to use scarce resources, while achieving their goals, which was later formalized in behavioral equations of economic model. According to marginalists, the rational behavior of

every market participants leads to the most efficient use of resources. This is in line with Adam Smith's famous conclusion, who wrote: "every individual endeavors … its produce may be of the greatest value … and he is in this … led by an invisible hand to promote an end which was no part of his intention" [2].

C. Menger's scientific writings showed an interest in the study of multilevel macrostructural indices. He claimed that the empirical method allows, on the basis of static observations, to study changes in the structural components of the economic system and their relation to economic growth. The introduction of new methodological tools helped to update the methodology of economic research. Subsequently, it contributed to the introduction of mathematical modeling of economic processes as a means of implementing the concept of economic equilibrium at the micro level. The focus of research has shifted from macroeconomic processes to the analysis of microeconomic problems.

Marginal principles of the systemic analysis of equilibrium at the microeconomic level contributed to the development of neoclassical economic theory, which focused on the revealing the patterns and corresponding behavioral parameters of optimal management. Among the subjects of its research were: the development patterns of development in free competition; discovery of laws underlying the pricing of goods, profits and wages; as well as the distribution of incomes in society, which made it possible to determine the conditions for achieving macroeconomic equilibrium. Accordingly, the use of marginal measures and quantitative research methods expanded, and later in economic science, with the development of mathematical modeling, the theory of economic growth became a separate area. It became a "golden vein" for the followers of the creation numerous variations of production functions.

In 1928, for the first time on a factual statistical basis, the dependence of production on labor and capital was formalized using mathematical modeling[2]. As a result, a production function emerged. Later, Keynes's followers, the English scientist R. Harrod [11] and an American scholar of Polish origin E. Domar [12], independently developed a model of economic growth. This model due to the similar methodology and similar conclusions was called the Harrod-Domar model. The models demonstrated the dependence of economic growth on the level of capital accumulation, which equals the savings rate. But in the Domar model, the rate of savings was exogenously modeled, and in the Harrod model an acceleration factor was introduced, which showed the dependence of capital gains on national income growth in the previous year. The accelerator meant that the higher is the savings rate, the greater is the increase in national income and the greater the share of savings could be allocated to provide investment and economic growth.

The theoretical concept behind the Harrod model was the idea that there is a certain level of savings (investment) where the optimum rate of growth is achieved under the conditions of certain dynamics of labor force growth. In order to maintain equilibrium, the state should regulate the level of saving and ensure that the system is brought closer to guaranteed economic growth. It ensures a dynamic equilibrium

2 Paul Douglas collected statistics for the period 1899-1922 on the manufacturing industry in the United States and in 1927 asked the mathematician Charles Cobb to formalize using the mathematical model revealed patterns of labor and capital influence on production, which was successfully done.

of the rate of return with full utilization of production capacity. At the same time, he introduced a so-called concept of "natural rate of economic growth" in the sense of the growth of labor force and the growth of labor productivity. If labor force is scarce, the guaranteed rate of economic growth will exceed the natural one, and the actual rate will decrease below the guaranteed one. If the guaranteed rate is lower than the natural rate, the actual rate will also decrease and then there will be surplus labor and underemployment. In fact, there is a certain balance between labor and capital, but in these models the parameters of the saving rate have never been explained.

In the same 1928, when the Cobb-Douglas model was created and tested, mathematician Ramsay, in the article " A Mathematical Theory of Savings" [13], based on optimizing the behavior of households, gave his explanation for the rate of saving. In his schematic model, all households are represented by a single household in the form of an infinite lifetime individual who makes savings decisions, taking into account both his current and future welfare. To simplify the task, the scientist made a number of assumptions: the economy is closed and in a state of perfect competition, people's income consists of wages and income from profitable assets, all assets are capital, consumption standards stay constant in their composition, technical progress is neutral, conditions of production and foreign trade are stable and so on. The discount rate and the return on capital both change, which affects the individual's choice to increase or decrease his overall consumption. In other words, consumption rises when capital income per family member becomes higher than the discount rate, and falls when, it is lower and remains unchanged when they coincide.

Households then decide whether to abandon the share of consumption now for the sake of increasing it in the future at the expense of additional income from assets (purchased after increasing the share of savings). Ramsay's dynamic model makes it simple to explain the motives of households in resolving their level of savings, and thereby establishes the limit for savings.

In the early 30's of XX century, another contriution was made to the development of the theory of savings by Michal Kalecki. He determined the optimal proportion between consumption and savings on the assumption that workers spend their income on consumption completely and entrepreneurs save part of their income (as in Marx's scheme of expanded reproduction). The scientist proceeds from the fact that if capitalists excessively increase the rate of profit by lowering workers' wages, it will lead to a fall in output. He concludes that there is a direct link between the distribution of income between workers and employers and the level of saving. This, in turn, means that in order to achieve the optimum level of saving, it is necessary to achieve optimal proportions in the distribution of income. However, no justification was given as to what those proportions should be.

The members of the Stockholm School of Economics explained not only the basic macro-proportions but also possible government measures to regulate them. Thus, G. Myrdal (1939), analyzing the inequality of welfare in different countries and flows of investment, concluded that primitive social and living conditions, low productivity, poor organization of production and mass poverty scare off foreign investors. Therefore, the lack of investment causes stagnation and increased poverty. In such circumstances, according to him, the only means of exiting Sweden's economy from the poverty funnel is to increase government intervention in economic processes by expanding public investment and social transfers.

The scientist defined the natural rate of interest on loan as an amount determined by the profitability expected from investing in loans; and the equilibrium of supply and he justified the demand for savings by the need to support investments with an adequate amount of free cash. He also proved that the state of market equilibrium might deviate from the state of full utilization of resources under the influence of fluctuations in the level of savings. Before Keynes, he theoretically substantiated the need for a government counter-cyclical fiscal policy. Concerning credit conditions, he wrote: "The whole central monetary analysis is developed under the assumption of a free currency (freie Valuta) which means, in this connection, primarily that the banking system can handle any kind of credit conditions; which itself requires that the banking system be able to satisfy all demands for credit" [14, p. 109].

J. M. Keynes, examining how the ratio of investment and savings affects economic instability, assessed the rate of savings and government intervention in economic processes. In contrast to the then prevailing confidence in the ability of market mechanisms to balance supply and demand and to balance the basic macro aggregates, he concludes that in a market economy there is no automatic mechanism for savings and investments equality. The excess of savings over investments leads to economic decline, whereas, *macroeconomic equilibrium maintains their equality*. Keynes fundamentally rejects the provisions of classical and neoclassical economic theories of saving, where it was believed that a steady increase in savings would automatically lead to increased investment and overall output. The scientist puts forward his theory of savings and proves that the excessive level of savings generates excess supply of goods over demand for them, leading to the crisis of overproduction. In his opinion, there is a certain level of "effective savings" that must match the volume of new investments. The savings, according to Keynes, *means the excess of income over expenditure on consumption, in other words, they depend on Consumer Sentiment Index (CSI)*.

Keynes claims that "capital is generated not by a propensity to save but by demand driven by current and future consumption". That is, in contrast to the dominant view of the classical school that the rate of saving depends on the propensity of market entities to save for the purpose of obtaining income from property, the scientist introduces a new term – "propensity to consume". It is the proportion of income, which individuals spend on consumption. It follows from here that Keynes derives the notion of "marginal propensity to consume" as the ratio of consumption growth to income growth. The propensity to consumption decreases as income increases, and the propensity to save increases [15].

Keynes established his relationship between national income, consumption and investment, and through it defined the mechanism for transforming savings into investment and, using the multiplier principle, showed the dependence of national income on investment growth. The marginal efficiency of capital, the rate of interest and their ratio affect the level of capitalization of savings. On the other hand, under uncertainty for investors, marginal efficiency of capital is only expected.

According to Keynes, investment processes are largely dependent on the rate of loan interest, below which the marginal efficiency of investment should not fall. It follows from here that changes to this rule can affect the interests of investors. Describing investor behavior, Keynes did not answer the question what is the level of

gross savings and gross accumulation that is optimal for balanced economic growth in general.

Subsequently, the Hicks-Hansen IS-LM model schematically endogenized the investment function and combined real-sector research with money market analysis. In 1937, Hicks publishes the article "Mr. Keynes and the "Classics"; A Suggested Interpretation" [16], where he provided a graphic interpretation of Keynes' ideas. In the graph, where the abscissa axis is national income and the ordinate axis is the level of interest rate, the curve shows equilibrium in the market for goods and services (IS), due to the equality of savings (S) and investment (I). The second curve (LM) reflects the equilibrium in the money market. The amount of investment is functionally dependent on the loan interest rate. In other words, the higher the savings interest rate, the lower the investment and national income. The LM curve has the opposite behavior, as speculative demand is a declining function of the bank interest rate. In this case, the money supply (M) is considered a given value, and its equalization with the demand for money is a result of equilibrium in the money market.

The intersection point of the IS and LM curves (E) is the ratio between the level of national income and the rate of interest at which savings are equal to investment and the demand for money equals its supply, meaning that both sectors – commodity and monetary – are in equilibrium. The Hicks-Hansen model demonstrates the conditions of general market equilibrium, the idea of which was formed in neoclassical theory and, at the same time, reflects the Keynesian theory (although Keynes rejected the neoclassical thesis about the ability of a market economy to self-regulation).

In 1956, R. Solow's article "A Contribution to the Theory of Economic Growth" [17] was published in which he proposed a neoclassical model of economic growth. This model was created on the basis of the Cobb–Douglas production function and, for simplicity, contained a number of assumptions, among which the fact that the rates of savings and depreciation are fixed quantities, in other words, they are set in the model exogenously. The same year, T. Swan's article "Economic Growth and Capital Accumulation" [18] presented a neoclassical version of the production function, where the rate of savings remained constant. In 1957, in his new article, Solow proposed a model [19], hereinafter referred to as the "Solow model", which attempted to optimize the saving rate on the conditions that its level should ensure maximum consumption in the long run.

At that time, the research of savings rates was taking place on the ground discussions about a very low level of US saving. Edmund S. Phelps, in his article "The Golden Rule of Accumulation: A Fable for Growthmen" [20], on the one hand, explained and on the other hand, ridiculed the search for the golden rule of capital accumulation. He humorously describes how, in the fictional kingdom of Solowia, the king (meaning Solow) set the task to explain the factors behind the growth of the kingdom's economy and then the golden rule of accumulation. At the same time, Phelps explained the parameters of the savings rate as a temporary choice between consumption and investment. The scientist proceeded from the need to maintain fairness between the interests of generations and substantiated the optimal level of gross accumulation and gross saving, contributing to the endogenization of savings rates. His version envisaged the need to uphold equity between the interests

of generations and hence to ensure a better level of capital accumulation. Later he further developed that idea in his book "Economic Justice" [21].

In his opinion, the optimal level of gross savings should correspond to the optimal level of capital accumulation. In addition, the economy must adhere to the "golden rule" of gross accumulation in a dynamic aspect. According to this aspect, the level is optimal if it ensures sustainable economic development in the long run with the greatest increase in per capita consumption. That is, the optimal mode of investing the economy provides support for the optimal capital stock, which, in turn, is the optimum increase in consumer consumption in the long run[3]. Therefore, the rate of accumulation determines the rate of saving that should maintain this level. It follows from here that the key criterion for the distribution of income into savings and consumption is the need for resource provision of an optimal level of gross fixed capital formation. At the same time, capital growth per worker should ensure maximum growth of per capita consumption.

Later, the scientists who independently explained the accumulation / saving rate were D. Cass [22] and T. Koopmans [23], who incorporated the Ramsay model into the Solow model. The new model went down in history as the Ramsey-Cass-Koopmans model. While the Solow model sets the golden rule of maximizing long-term consumption savings, then in that model, the level of savings depends on the choice of the individual who gives up some of current consumer spending for future benefits if the savings interest is high and yields an increase. This approach, though determining dependence of savings on the benefits of increasing them, ignores the fact that only a fraction of households can reduce their consumption and only to certain reasonable limits. In addition, in a growing economy, it is unacceptable to actually reduce household consumption, as it reduces aggregate demand and adversely affects the dynamics of production.

The most extensively and comprehensively based on empirical data was the analysis of the structural (level) factors of economic growth provided by Simon S. Kuznets. On the basis of collected statistical base[4], he made a comparative analysis of levels and growth dynamics of national income and gross capital accumulation of different countries, and revealed dependencies between levels of savings and capital formation, structural shifts, distribution of income and growth of gross national product. It turned out that the rate of accumulation does not change synchronously with the dynamics of national income and depends on cyclical processes in the economy. The rate of accumulation is influenced by building cycles (the so-called Kuznets cycles with a period of 18–25 years), due to the fact that the next generation is carrying out a large-scale renovation and development of housing stock. Accordingly, in such periods the rate of savings, and even more so - the rate of accumulation both increase. At the same time, based on US economic statistics, the scientist refuted the Keynesian doctrine of the consumption dependence on the dynamics of national income (NI), since the example of the USA showed that for many years, despite the increase in NI, the share of consumer spending in it does not tend to significantly

3 A number of economic growth models (models by R. Lucas, H. Minsky, D. Romer, and D. Whale) use the same Phelps principle as a key condition for optimality.

4 He collected and analyzed statistical indicators characterizing the economic dynamics of 14 countries in Europe, USA and Japan over a 60-year period.

change. Consequently, the propensity to consume is more stable than previously thought [24].

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Based on the research, the scientist hypothesized (which was not subsequently confirmed) about the relationship between the indicators of society's "wealth" and indicators that characterize social inequality, which should decline as wealth increases, but did not show how changes in inequality affect the rate of savings. An important result of S. Kuznets' research was the conclusion that long-term structural shifts are at the heart of economic growth and that the inequality in income distribution at different stages of cycles is changing.

Further development of the theory of gross saving rate and modeling of its level occurred under the influence of empirical research and introduction of macroeconomic modeling at the state level. Supporters of Keynes (J. Robinson, P. Sraffa, A. Hansen, N. Kaldor, R. Lucas, etc.) continued to insist on active government intervention in macrostructural processes, primarily through countercyclical regulation of economic development, due to the influence on the propensity to consume / save and implementation of appropriate fiscal and credit policies. In practice, these ideas were embodied in the methodology of diverse analytical and forecast applied macroeconomic models, for which especially characteristic was the neo-Keynesian approach to the definition of GDP and its main macroaggregates. The purpose of macroeconomic modeling was to justify public policy on the basis of assessing its impact on the economy of external and internal factors (including political ones).

In the USA, the use of macroeconomic models began before the war, and in the postwar years was further developed and became widely used in public and non-governmental institutions[5]. The main purpose of the simulation was to: study the US economy through the exogenous variables that characterize public policy; forecasting economic development; forecasting fluctuations in business activity; quarterly impact assessments of different monetary policy options, factors, budget forecasting, etc. Gross saving and net investment in these models acted as endogenous indicators. The most extensive econometric model of the An Econometric Dynamic Equilibrium Growth Model: The DRI-WEFA [25] was developed on the basis of the Wharton model with a combination of Keynesian, classical and monetary theories, as well as ideas of long-term prediction by James Tobin, Robert Solomon, Edmund Phelps, etc. In this model, technological progress and capital stock depend on current capital investment, which must keep balance with gross saving, whose level should be influenced by fiscal policy in the short and long run. The private sector makes investment decisions, taking into account the comparison of potential investment returns with deposit income on the basis of inflation. Deposit yields are set by banks and other financial institutions in view of the need to expand reserves to meet legal requirements. The difference between supply and demand for reserve money sets a critical short-term interest rate for interbank operations. In other words, the level of investment is determined on the basis of forecasts of gross saving and rational

5 Models of Klein, Klein-Goldbergen, Wharton, Mark-9, MPS, DRI

expectations of market players regarding the future income options, which depend on the choice between investing in production and investment of savings in banks.

One example of the use of macroeconomic modeling in public administration is France, where in the 1960s the first macroeconomic model called FIFI was developed. That model had 2000 equations, including those characterizing the behavior of economic entities and elements of fiscal modeling. Then there were other, more versatile statistical models that solved various problems: diagnostics of individual problems, imitation of the consequences of changes in economic policy, analysis and forecast of domestic and international environment, modeling of financial flows of budgetary planning and control, etc[6].

The core of the models consists of the functions of the economic agents' behavior in order to predict their income and expenditure. The calculation of income begins with the forecast of the division of value added into wages and gross operating surplus, where wages depend on the link "wage – price". At the stage of modeling the use of GDP, household consumption varies depending on changes in income and prices, and production investment (capital investment) and capital accumulation vary depending on change in income. In other words, the French models, unlike the American models, do not detail the whole range of factors determining the transition from primary income to final income, but, despite such simplicity, the undeniable advantage of both groups of models is the fact that they allow econometric analysis of a wide range of economic policy measures, formalizing theoretical concepts of government intervention in economic processes.

Similar to the American and French models, macroeconomic models have been introduced into public administration in many countries, and consequently in Ukraine. The main purpose of structural modeling is to forecast macro aggregates, budget revenues and expenditures. The Ministry for Development of Economy, Trade and Agriculture is currently using an integrated macroeconomic model developed in 2009 (with the support of Micromacro Consultants experts) using the methodology of the Dutch Macroabc Structural Macroeconomic Model [26]. The model involves comprehensive structural cross-sections and economic sectors, so it is based on a wide range of indicators, including: the System of National Accounting (SNA), balance of payments, state budget, prices, exchange rate, foreign trade, labor market, etc. Consumer spending and private investment are included in 10 behavioral equations. Estimated consumption amounts depend on income (in the model, incomes do not include gross disposable income, but include wages and other income), and private investment – on investment income, minus the real interest rate.

In other words, this model also formalizes the Keynesian idea of the influence on the level of investment from the investors' choice between incomes from investments and incomes from other uses of capital and return on deposited savings. This approach may be appropriate for economies with advanced financial markets and lesser crowding out of real economy investors by the government. But in the Ukrainian economy with its permanent economic and political turmoil and high interest rates on loans, it is necessary to take into account the residents' propensity to

6 In the late 1990s, five macroeconomic models were used in French institutions, namely: two models of the French Ministry of Economy and Finance – AMADEUS and METRIC; the French banking model – BDF; two OFCE models and the Paris Chamber of Commerce and Industry, respectively, MOSAIQUE and HERMES.

"export" capital to offshore zones and the attractiveness of buying highly profitable domestic government loan bonds (OVDPs) for both residents, including banking institutions and non-residents.

In addition, when modeling the level of consumption / savings of the population, it is necessary to take into account the distribution of income, since the vast majority of Ukraine's population generally does not cover their expenses with current income. Therefore, they do not only fail to save money, but even spend their previously accumulated savings. In other words, such models need to take into account both income inequality and factors affecting the level of savings among the most well-off social groups.

Contemporary followers of the neoclassical theory of savings rate have explored from different perspectives how changes in income inequality affect major macro aggregates. Earlier in the works by N. Kaldor (1955) [27] as well as those by Alan S. Blinder (1975) [28] and other scholars this problem was addressed with a regard to the consumption function. Stanford University researchers A. Auclert and M. Rognlie (2017) [29], after examining how inequality changes affect the economy, concluded that marginal propensity to consume is negatively correlated with increased income inequality, which in turn negatively affects the dynamics of output and the decline in real interest rates. However, such model calculations show only the dependencies between the existing trends and do not indicate which income distribution is optimal, given that absolute deviations from it negatively affect the macroaggregates and GDP dynamics.

Ludwig Straub (2018) [30], examining the macroeconomic consumption / saving models that supported the Keynesian conclusions regarding the dependence of linear consumption on current income (Friedman, 1957; Aiyagari, 1994; Carroll, 1997; Gourinchas and Parker, 2002, etc.), decided to test them on US statistics. According to the results of his research, it was concluded that shocking fluctuations in Americans' incomes do not create corresponding fluctuations in consumption (which already indicates that there is no linear dependence between them), and the increase in inequality from 1980 to 2014 led to a relative decrease in consumption and a significant increase in aggregate wealth. Similar findings about increased wealth relative to GDP in the face of rapid inequality were also made by other scholars.

In this context, an interesting research was done by Japanese scholars A. Shunay and M. Nirei (2016), who, within the framework of a dynamic model of general equilibrium, attempted to explain the causes and effects of concentration and dispersion of income. Their model calculations, on the example of Japan and the OECD countries, showed that changes in taxation influenced the increase in the dispersion in the group of high-net-worth individuals, as well as the fact that household income and consumption are distributed according to their distribution by wealth level. Therefore, based on how the Pareto exponent changes[7] (and it decreased from 2,5 to 1,6 from 1970 to 2010), one can predict the level of household savings [31].

The Ukrainian school of empirical studies on savings formation was based on the statistics of the Ukrainian economy and other countries. B. Kwasniuk was one of the Ukrainian scientists who investigated basic structural proportions that provide

7 A parameter called the Pareto exponent measures the degree of equality between the rich.

extended reproduction of GDP. One of the results of his work was the scientific substantiation of the necessary level of national savings to ensure stable investment of economic growth in Ukraine.

According to the scientist and with his participation, a monograph entitled "National savings and economic growth" [32] was written, outlining theoretical and methodological bases of national savings formation, their specificity for different sectors of Ukrainian economy, influence of the government's social policy on consumer sentiments of the households and the level of consumer spending in GDP, and the importance of maintaining an adequate level of gross fixed capital formation as a major prerequisite for economic growth. The research resulted in a thorough analysis of the reasons for the fluctuation in the level of gross savings in Ukraine and revealed its high dependence on the "changing circumstances of external financing", as well as substantiated the necessary levels of consumption and savings. The book came to light in a year when Ukraine was just starting to emerge from the transformation crisis, but even then, it contained warnings and caveats about this country's vulnerable fragile position in the future.

With the development of the System of National Accounts (SNA), unique opportunities emerged to carry out in-depth profound analysis and study of the factors that shape the level of gross saving across institutional sectors (and sub-sectors) of economies around the world. Macro proportions that combine the two most important tasks, namely maintaining internal macroeconomic balance and optimizing gross saving, are the proportions in the distribution of gross disposable income between institutional sectors of the economy, which affect consumption and consumer spending, and accumulation of fixed capital. Therefore, in our opinion, this structural analysis is the most significant one to support of institutionally balanced and steadily expanding GDP reproduction.

The economic history of transformation and crisis processes in Ukraine has shown a devastating impact on the economy of distortions in the proportions of the distribution of gross disposable income among the main market participants, which in fact led to a deep decline in the level of gross saving during the entry of the economy into investment crisis [33, p. 105–127].

In developed countries, as a result of long and sometimes difficult institutional transformations, institutional mechanisms have been developed to harmonize the interests of key market players, which helps maintain a balance of income and expenditure in each of the institutional sectors, and in the economy as a whole. On the one hand, the modern information base, particularly the SNA, allows to see all the factors that influence the formation of gross disposable income and gross saving in every institutional sector (and sub-sector). On the other hand, it is necessary to find out the causes of the imbalances. And thirdly, there is a need to determine what structural parameters allow achieving sectoral and general economic balances and are best to maintain a sufficient level of gross saving for the financial support of the gross fixed capital formation (GFCF).

In our opinion, it is the distribution of Gross Disposable Income (GDI) between the institutional sectors of the economy that is the most important factor in shaping the level of gross saving. Our comparison of the structural sectoral components of gross disposable income in Ukraine and in some OECD countries shows that, despite differences in taxation systems, size of social transfers, degree of the institutional

environment development, cultural traditions and the development of financial markets, in most institutionally developed European countries one can observe related tendencies in the formation of sectoral structures of gross disposable income [34]. Moreover, some countries demonstrate, in particular sectors, a certain approximation to the GDI distribution that does provide sectoral balances [read more 35, 36].

Changes arise due to differences in fiscal and social policies, which are manifested by the level of taxation and the level of state social support for the population. The Scandinavian countries that are successfully developing according to the most socially oriented models have the highest levels of taxes, but also the largest components of social transfers in the household gross adjusted disposable income. At the same time, other countries that demonstrate the practical implementation of the liberal model, notably the United States, have the smallest public segment of GDI and the least social support. In China there are generally no natural social transfers in the general government sector, and the received social transfers (for the households) are less than 1% of GDP. Lack of retirement benefits causes the population to save current incomes for their future expenses, so savings far outweigh the households' capital expenditures. In 2016, China's net household savings were 22,4%, capital formation – 7%, and net lending – 18% of GDP [37].

When forecasting the level of gross savings, it is important to take into account the fact that, in the two institutional sectors of the economy, all sectoral GDI is used for gross savings and, together with the capital transfers balance, is a resource for capitalization of other investment options, as well as for debt repayment. In other words, corporations do not have a choice between consumption and savings. Therefore, the expected level of GDI of corporations actually corresponds to the level of their gross saving.

According to the empirical analysis, recently in a number of European countries, particularly in Norway, Sweden, Finland, Belgium, Germany, there is an increase in the level of gross savings of non-financial corporations to 13–16% of the total GDI, and in the EU countries to 11,5% (annual average for 2002–2017). This is partly explained by the increase in their expenditures on infrastructure and social projects within the framework of enhancing corporate social responsibility, as well as in partnership with the state, which is evidenced by the increase in the share of non-financial corporations in the GFCF. Under the conditions of stable tax and social policies, fluctuations in the level of saving of non-financial corporations are affected by changes in their gross margin under the influence of price fluctuations. According to data from survey of 2002–2017, 28 EU member states evidenced the share of gross operating surplus margin in relation to gross disposable income (GDI) fluctuated within 1 percentage point around the annual average of 20,9%, and therefore this figure is quite predictable. For 17 years, the average annual share of NC saving in the total gross savings was 53,5%, and together with financial corporations – 60,8% [37].

Therefore, in European countries, more than 60% of total gross savings depends directly on the gross disposable income of corporations. The level of this gross disposable income fluctuates within 1%, so under other stable conditions (government fiscal policy, net income from property) it can be forecasted taking into account the expected changes in the world commodity markets and the agreement with the trade unions to increase wages.

Regarding the capitalization of gross saving by non-financial corporations in EU countries, net lending (+) and net borrowing (-) indicate that on average over the given period net borrowing was 0,2% in relation to GDI. For the period 2009 –2017, the sector of non-financial corporations had a steady surplus in its balance sheet, and net lending was 0,5% of GDI. Hence for European countries, the 11,5% GDI support for non-financial corporations allows the sector to secure its capital expenditures without debt accumulation. Therefore, the forecast of gross capital formation can be calculated based on the level of sectoral GDI, which is equal to the level of sectoral gross saving.

Ukrainian level of GDI of the non-financial corporations sector, in contrast to European countries, has undergone considerable fluctuations, which negatively affects their level of gross savings and loan volumes. In 2000–2017, the sector's net borrowing averaged 5,6% of GDI [37], which means a chronic shortage of resources and, accordingly, a regular large-scale accumulation of debt. Therefore, the Keynesian approach to endogenous GFCF norms, taking into account the investor's choice between the potential return on investment and the yield on government and other securities, can be used to a limited extent, because one must borne in mind the debt repayment plan and the sector's crowding out by the public sector on the financial market.

In three other institutional sectors, particularly households, general government and the non-profit institutions serving the households (NPISH), gross disposable income is allocated to consumer spending and gross savings.

The level of savings in the general government sector is influenced by budgetary policy, which regulates the levels of current individual and collective as well as capital expenditures. In the period before the 2008 crisis, in 28 EU member states, the average annual (for 2002–2008) share of gross savings in the general government of GDI was 1,8%, in 2009–2011 – (-1,1%), and in 2012 -2017 - 1,3%. In most OECD countries, the public sector resorts to borrowing to finance its investments, as the level of sector savings does not cover the sector's capital formation. Gross fixed capital formation in the general government is around 4% of GDP in the Scandinavian countries, and 3,6% of GDP in France, Poland, Hungary and the OECD member countries over the period 2003–2015 (with the sector's consumption at 19%). The EU countries are characterized by the fact that, when the GDI of the general government rises to 23,2% of GDI, net borrowing is reduced to 0,8%. [37]. In other words, if the sector's GDI is maintained at the level of 24%, the sector will become debt-neutral with current expenditures at 20,5% and capital expenditures at 3,5% of GDI.

As to the households sector, here, according to statistical monitoring under the rising income without changes in income distribution for the benefit of the wealthy, consumer sentiment remains relatively stable. On the contrary, under the influence of advertising and the desire to improve the living conditions, households are more inclined to purchase durable goods not only at the expense of current income but also at the expense of future income via borrowing. So the growth of household incomes although changing the purpose pattern of consumption expenditures, still has little effect on their overall level relative to the sector's GDI. An example is the United States, where, despite the 1,8% increase in household gross disposable income (1996–2017), the share of consumer spending relative to the sector's GDI

averaged 89%. Only after the financial crisis in 2010–2017 this level dropped to 87% (Fig. 1), but the reason for this decrease was the increase in inequality.

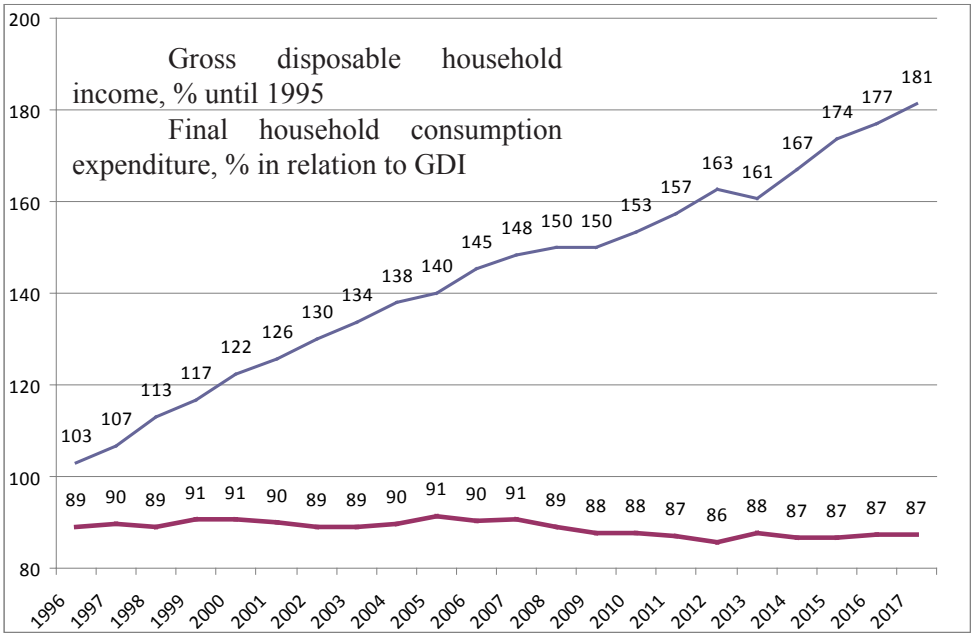

Fig. 1. US Household Sector Indicators

Source: author's calculations based on OECD database [37].

We can conclude that the consumer sentiment is influenced not so much by the growth of income as by the change in its distribution.

In Ukraine, despite the fact that the household incomes are much lower than in the USA, (PPP adjusted per capita GDP is 6,8 times lower), the annual share of household consumption relative to the sectoral GDI in 2004–2018 was only slightly different from the same indicator in the USA before the financial crisis and amounted to 90% [37]. In other words, Keynes' proposed scheme to determine the level of saving based on consumer sentiment, which should decline in the process of income growth, is in conflict with real processes in the economies of different countries and does not take into account changes in the distribution of income.

Despite the fact that de facto increase in household income does not automatically lead to a decline in their consumption share in GDI, this does not mean that its gross saving will be the same in the different developed European countries. Indeed, there are countries, such as Germany and France, where traditionally the share of saving in the sectoral GDI of households has maintained at 16–17%, while in most OECD countries, regardless of the GDI per capita, gross saving rate of households fluctuate within 10–12% [37]. From 2010 to 2017, 28 EU countries experienced a decline in household gross saving due to the influence of public policies aimed at reducing income inequality.

Thus, if there are no shocking effects of public policy on the distribution of GDI across institutional sectors of the economy, then only one third of the total gross savings, particularly those of the households, need detailed factor analysis, especially

in terms of growth / reduction of inequality. Ukraine's experience has shown that, in the event of a significant real fall in GDI of households, consumer spending decreases slowly as the population begins to spend previously accumulated savings. And vice versa, if household GDI rises, the level of savings is rebuilt and then stabilized within certain limits, which are affected by changes in income inequality. In other words, the level of sectoral gross savings is due not so much to the consumer sentiment of the population, but to changes in the volume and level of sectoral GDI in the overall GDI and changes in income inequality. Historically, populist government policy has led to an increase in the GDI of the household sector in Ukraine, causing a fall in the level of gross savings and GFCF in other sectors [38].

In Ukraine, the level of households savings is affected by the distribution of income within the households sector itself. A retrospective analysis of changes in the components of sectoral saving showed that they concentrate in the subsectors of employers and own-account workers, while employees have scant savings and recipients of income from property and transfer income have negative savings because they generally spend on consumption not their revenue, but accumulated savings.

For example, in 2017 in the employer subsector, where consumption accounted for less than 1% of that in the household sector, gross savings accounted for over 38% of the sector's total savings. Accordingly, in the subsector of own-account workers the figures were 8 and 163% respectively. One of the reasons for such distortions was the earnings of Ukrainians abroad, which in 2017 amounted to more than $ 9 billion. In addition, government decisions to reduce UST rate also redistributed GDI for the benefit of the own-account workers and influenced the decrease in revenues to the pension fund. This slowed the increase in the minimum pension to the actual subsistence level and reduced the real income of the pensioners[8]. Therefore, in the subsector of recipients from property and transfer incomes since 2014, there has been a lack of own current incomes for consumer spending. On the whole, for the last five years the representatives of this household subsector have been spending their previously accumulated savings, or living with the help of relatives. In other words, new opportunities for Ukrainians to earn money in European countries and poor government fiscal decisions have created distortions in the structuring of income and gross savings in the Ukrainian household sector, which led to an unfair loss of resources for consumption in some subsectors and to growth in other sectors of the economy (with their incomplete capitalization), and hence to increased poverty and slower economic growth.

Thus, analysis shows that the formation of the level of gross saving is directly dependent on the distribution of GDI between the institutional sectors and the subsectors of households. In other words, the formation of the level of gross saving depends on the government policies, which influences these processes. In Ukraine, unlike EU countries with predictable fiscal policies, there are sharp transitions from social populism to severe restrictions on raising social standards, which leads to significant fluctuations both in the sectoral structure of the GDI and in the sectoral structure of gross saving. At this stage of post-crisis recovery, it is especially important

8 According to the Ministry of Social Policy of Ukraine, as of July 1, 2019, the real subsistence level for the unemployed was UAH 3109,8, while the minimum pension was UAH 1564 (https://www.msp.gov.ua/news/12286.html).

to maintain the gross saving rate of the non-financial corporations sector at the level of 13–15% [39]. As for the general government, it is essential to raise its share from 1,7% in 2018 to 3–4% in 2025, which will accelerate the investment component of development without raising debt levels.

At the same time, for every country taking into consideration its cultural traditions, climate, degree of support for social justice, etc., there is an optimal variant of GDI distribution that takes into account both the interests of all market participants and the stage of the economic cycle. The optimal rate of gross saving can be justified on the basis of criteria such as minimizing sectoral imbalances, preventing the deterioration of the welfare of the most vulnerable population, and maximizing the long-term growth of household well-being. Then it is important to properly assess the results of changes in government policy (fiscal, social, tariff, etc.) in terms of volume and distribution of GNI across economic sectors; inequalities in income distribution; changes in levels of current and capital budget expenditures, debt repayments, and the population's propensity to save, which declines in times of crises and increases in times of growth.

Conclusions

The purpose of the article was to show the genesis of the economic theory of the saving rate prior to the introduction of the theory in macroeconomic models to substantiate public policy, as well as to carry out an empirical analysis of the factors affecting the level of gross saving on the basis of statistical information of different countries and Ukraine. With the development of statistics and mathematical methods, there were opportunities to test different theoretical concepts, which were usually based on assumptions that did not take into account the specifics of the gross saving of each market participant, as well as differences in their relationships in different countries.

The classic view of the rate of saving was based on the concept that economy under the effect of natural law is capable of self-regulation and self-renewal, and therefore the distribution of income and the rate of savings are governed by natural law. At the same time, it was emphasized that the natural law shapes both the best level of gross saving and the combined interaction of economic components towards achieving the maximum result at the lowest cost and provides for the economy a balance and the greatest dynamism of development. It was also emphasized that state intervention in violation of this law by artificially limiting certain components or over-supporting one segment at the expense of others leads to losses in dynamics and resources.

The development of the theory of marginal utility of the factors of production introduced a close to the classical, purely theoretical understanding of the term "best" in the distribution of wealth, that is, the concept of optimality. This meant a distribution that could not improve the position of at least one participant in the economic process without worsening the position of others. Combining this principle with the understanding of the optimal level of gross saving means that there is a limit to saving that would exacerbate other important economic indicators or the welfare of at least one person.

The classical school proceeds from a concept that the rate of savings depends on the market participants' propensity to save. However, another opinion emerged that the rate of saving depends on the people's propensity to consume, which in turn depends on the level of income and the share of income to be spent on consumption and, accordingly, should decrease as income grows. However, statistical observations

show that, despite the difference between countries in consumer spending level, this level is influenced not so much by population growth but by changes in distribution inequality. In other words, the higher the level of inequality, the lower the level of consumption and the higher the level of savings.

A significant contribution to the theory of gross saving was made during the endogenization of savings rates in economic growth models. The first attempts were based on optimizing the behavior of households, who make their own decisions about the benefit of increasing current saving in order to be able to increase it in the future at the expense of additional income from purchased savings assets. In the future, the parameters of the saving rate were linked to a timely choice between consumption and investment in order to maintain equity between generations. Therefore, the "golden rule" of gross accumulation means that a level is optimal if it ensures economic development in the long run with the greatest increase in per capita consumption. But it remains unclear who, where and how will maintain this optimal regime in a market economy.

Further development of the theory of gross saving rate was based on the findings of empirical analysis, because the development of statistics allowed to investigate income and expenditure formation in all institutional sectors of the economy and to find out all the factors that influence them. Empirical analysis showed that in institutionally developed EU countries, two-thirds (and the corresponding level) of gross saving directly depends on the gross disposable income of corporations, a small proportion depends on the general government sector (its GDI, legislation and government decisions) and just over a third depends on the GDI of the household sector, where the level of saving varies little during periods of steady growth and fluctuates greatly in times of crises.

Therefore, the best level of gross saving, as the classical school insisted depends on the best distribution of gross disposable income of market participants, which harmonizes their interests and provides each of them with the greatest balance of income and expenses, and therefore the macroeconomic balance of the economy as a whole. An example of such harmonization is most EU countries, where the institutional development has led to a certain balance between the GDI levels of the institutional sectors, which helps to maintain an adequate level of saving, and also assists to quickly overcome financial crises, and to restore the level of capital accumulation in order to support a stable growth rate.

Taking into account the current stage of Ukraine's economic development, it remains open to justify the optimal level of gross savings and, accordingly, the optimal distribution of GDI and gross saving between economic sectors. In other words, the optimal (over the period of exit from the crisis) GDI distribution between the institutional sectors should provide an optimal level of gross saving and, accordingly, an optimal level of gross fixed capital formation, which in turn stabilizes at a higher level of GDP growth.

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НОРМА ВАЛОВОГО ЗАОЩАДЖЕННЯ: ТЕОРІЯ ТА ПРАКТИКА

Наукове обґрунтування норми заощадження є одним із ключових питань у моделях економічного зростання та фундаментальним параметром економічної архітектоніки з огляду на довгострокову динаміку зростання і структури сукупного попиту. Метою статті є демонстрація генезису теорії норми валового заощадження, починаючи з класиків політичної економіки, до теоретичних обґрунтувань ендогенізації норми заощаджень у моделях економічного зростання і далі – детальний розгляд складових валового заощадження з аналізом чинників, що впливають на його рівень на базі статистичних даних. Саме емпіричний аналіз дає можливість перевірити достовірність теоретичних концепцій та з'ясувати справедливість висновків теоретиків. Показано велику прірву між класичним баченням норми заощадження як результату дії природного закону, що веде до саморегуляції параметрів відтворення ВВП, з одного боку, та суто раціональних поглядів, що сформувалися в період становлення і розвитку теорії та моделей економічного зростання – з іншого. На базі емпіричних досліджень доведено, що норма заощадження та норма нагромадження капіталу відрізняються в економіках різних країн і залежать від: ступеня втручання держави в розподіл валового наявного доходу між інституційними секторами економіки та у структурування домашніх господарств за рівнем доходів, рівня державних соціальних трансфертів, глибини дисбалансів доходів та витрат інституційних секторів економіки і, відповідно, – їх чистих запозичень і накопичених боргів, а також фази економічного циклу, в якому перебуває економіка країни, та якості інвестиційного середовища. Практичне значення дослідження важливе для обґрунтування фіскальної політики, особливо щодо її впливу на рівень валового заощадження сектора нефінансових корпорацій і сектора державного управління, а також рівня державних соціальних і капітальних витрат.

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Ключові слова: норма валового заощадження, оптимальний рівень валового заощадження, ендогенізація норми заощадження, рівень нагромадження капіталу, інституційні сектори економіки, складові валового заощадження, розподіл доходів, макроекономічне моделювання, нерівність

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НОРМА ВАЛОВОГО СБЕРЕЖЕНИЯ: ТЕОРИЯ И ПРАКТИКА

Научное обоснование нормы сбережения является одним из ключевых вопросов в моделях экономического роста и фундаментальным параметром экономической архитектоники, учитывая долгосрочную динамику роста и структуры совокупного спроса. Цель статьи – продемонстрировать генезис теории нормы валового сбережения, начиная с классиков политической экономики, к теоретическим обоснованиям эндогенизации нормы сбережений в моделях экономического роста и далее – детальное рассмотрение составляющих валового сбережения с анализом факторов, влияющих на его уровень на базе статистических данных. Именно эмпирический анализ дает возможность проверить достоверность теоретических концепций и выяснить справедливость выводов теоретиков. Показано большую пропасть между классическим видением нормы сбережения как результата действия естественного закона, который ведет к саморегуляции параметров воспроизведства ВВП, с одной стороны, и чисто рациональных взглядов, сформировавшихся в период становления и развития теории и моделей экономического роста – с другой. На базе эмпирических исследований доказано, что норма сбережения и норма накопления капитала отличаются в экономиках разных стран и зависят от: степени вмешательства государства в распределение валового располагаемого дохода между институциональными секторами экономики и в структурирование домашних хозяйств по уровню доходов, уровня государственных социальных трансфертов, глубины дисбалансов доходов и расходов институциональных секторов экономики и, соответственно, – их чистых заимствований и накопленных долгов, а также фазы экономического цикла, в котором пребывает экономика страны, и качества инвестиционной среды. Практическое значение исследования играет важную роль в обосновании фискальной политики, особенно в отношении ее влияния на уровень валового сбережения сектора нефинансовых корпораций и сектора государственного управления, а также уровня государственных социальных и капитальных затрат.

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Ключевые слова: норма валового сбережения, оптимальный уровень валового сбережения, эндогенизация нормы сбережения, уровень накопления капитала, институциональные секторы экономики, составляющие валового сбережения, распределение доходов, макроэкономическое моделирование, неравенство