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THE IMPACT OF FINANCIAL AND ECONOMIC FACTORS ON HOUSEHOLD INCOME IN THE PRE-WAR AND WAR PERIODS

ABSTRACT

The article analyzes the state of household income and consumption in Ukraine in peacetime and wartime. The role of financial resources of the population in the financial system of the state is substantiated. It is proved that income plays a crucial role in the formation of the financial potential of the population. The impact of the war on the financial resources of the population and the volume of its savings is investigated. Directions for optimizing the formation of household income are proposed. The influence of the NBU monetary policy on the financial activity of households is analyzed. It is found that the relationship between the interest rate and the level of income, expenses, deposits and cash investments is weak. This is confirmed by the correlation and dispersion coefficients. In particular, the value of the correlation coefficient between the growth rate of the NBU discount rate and the average wage in 2021-2023 did not exceed 0.09. Such a weak impact of the NBU's interest rate can be explained by price stickiness, wage stickiness and the basic principles of the HANK model.

Keywords: monetary policy, households, income, expenses, wartime, interest rate, sticky prices, sticky wages

JEL Classification: E47, E58, D19

INTRODUCTION

The complex and unpredictable external environment that we can observe today significantly changes the principles and instruments of monetary policy formation by central banks, which affect the distribution of income in Ukrainian households. In the process of implementing monetary policy, not only do the composition and structure of income change, but their sources and uses are also significantly transformed. The topic of household income is extremely relevant for several reasons. First, it concerns every person, since each of us is part of a certain household. Secondly, household income determines such important indicators as the level of savings, property or housing, socio-demographic indicators, etc. In addition, from the point of view of the systemic approach, households can be considered as the smallest unit or element in the country's economic system. The war in the country has had a significant impact on the financial situation of most households. There has been a decline in purchasing power, an increase in the number of unemployed, and a decline in real wages. Thus, the effectiveness of central banks' monetary policy and households' living standards are and will be relevant for a long time to come.

LITERATURE REVIEW

Scientists in Ukraine and around the world are engaged in analyzing the state of household finances and the effectiveness of monetary policy. Thus, the analysis of incomes and the essence of finance, households as a set of economic relations arising from the formation, distribution and use of monetary income, savings and funds of citizens and their families to meet the personal needs of citizens was carried out by a team of authors led by Yuriy S. (Yuriy 2008), D. Loiko considers household finances from the economic and legal point of view as the flow of funds through a micro-level system of money funds regulated in a certain legal field with the help of special methods, techniques and

tools that ensure the functioning and development of people as individuals, their economic activities in order to purchase housing, maintain health, obtain education, receive pensions, and support other aspects of human activity (Lojko 2018). Analyzing the structure of household incomes, Shvayko compares them with certain indicators of social guarantees and concludes that the level of household investment activity is low. We share the author's opinion, but consider it expedient to take into account the role of savings as a resource for increasing the investment activity of the population (Shvayko 2020). O. Bondarenko uses a New Keynesian model with an intergenerational cross-section to study the channels of monetary transmission that affect the distribution of income and wealth (O. Bondarenko 2018). The model proposed by the author reproduces the total level of aggregate assets and the labour income curve of several types of economic agents of different ages, taking into account their attitude to savings and the degree of wealth. E. Libanova, identifies the factors of household income formation: the number of working-age workers with the appropriate level of knowledge, education and qualifications; economic and political situation in the country and, accordingly, the degree of its instability; inflation rate in the country; number of unemployed and the degree of unemployment in the country; number of pensioners, non-working persons and the number of dependents of households; amount of wage arrears, etc (Libanova 2010). D. Eissrich (Eissrich 2007) substantiates the theory of impulses that arise due to the impact of central banks on the economy and, ultimately, on household incomes, J. B. Taylor (Taylor 1979), M. Iacoviello (Iacoviello 2005) and S. Fischer (Fischer 1977) studied the impact of "sticky prices", "sticky wages" and "sticky information" on the effectiveness of central banks' monetary policy, Greg Kaplan and Benjamin Moll studied the monetary policy of central banks on financial activity and household welfare through the prism of income inequality (Kaplan et al. 2008). However, these scholars did not study the state of income and the effectiveness of monetary policy in wartime. This is the starting point for our study.

AIMS AND OBJECTIVES

The main objective of the study is to examine and analyze the state of household income and expenditures. Identification of the impact of the NBU's monetary policy on the living standards of the population and assessment of the effectiveness of monetary instruments.

METHODS

For a deep and comprehensive analysis of the state of households' income and expenditures, we used a wide range of scientific and methodological tools offered by economic science. For example, to determine the economic nature of household financial resources, their theoretical essence and peculiarities of formation, we used the abstract and logical method; to study the structure and dynamics of household income and expenditures, we used the method of comparative characteristics, as well as methods of analysis and synthesis. The method of sociological surveys was used to analyze household incomes and expenditures.

Economic and statistical methods were used to analyze the impact of the NBU's monetary policy on households' financial activity, namely correlation analysis, analysis of variance, and standard deviation. The basic principles and tools of the HANK model, as well as the concepts of sticky prices, sticky wages, and sticky information, were used to explain the weak impact of the key policy rate on household income, deposits, cash savings, and securities savings.

In order to take into account, the strength of the time lag effect, the adaptive expectations model was used to determine the impact of the NBU discount rate on the average wage and the consumer price index.

RESULTS

Income and consumption of households in Ukraine in peacetime and wartime.

Personal finance is one of the most important elements of the financial system. The formation and use of households' financial resources are directly related to the development of other elements of the financial system: public finance, finance of enterprises and institutions, development of the banking system, insurance, etc. Personal finance plays a leading role in such a system since the development of the system as a whole is usually subordinated to the interests of citizens, their groups and associations.

At the present stage, households interact primarily through the formation and use of their finances, which implies the regulation of household income, expenditures and savings, and the latter, in turn, serve as the financial basis for the development of almost all elements of the state financial system.

Modern economic conditions allow households to engage in financial interaction with other market participants. However, when a household becomes a full-fledged participant in market relations, a number of problems arise that are associated with the formation and use of financial resources in various economic processes. These problems are imperfect state policy towards financial market participants, the inability to ensure a stable or high level of household income, and insufficient development of plans and conditions for involving households in the country's economic processes. In such circumstances, there is a need to study the structure of the financial potential of the population and the peculiarities of its current formation.

Households in Ukraine are an important integral part of its financial system. The crisis affecting our country's economy has a significant impact on all aspects of households' lives: the level of income and, accordingly, the structure of expenditures, opportunities for accumulation, opportunities for self-production, etc.

We will analyze the incomes of Ukrainian households in two time periods: before and after the war. This is quite important since with the outbreak of hostilities in our country, household incomes and expenditures, their structure, principles of formation, etc. have changed dramatically.

Before the outbreak of full-scale war in Ukraine, households' financial situation was much better than in mid-2023. Some indicators even showed positive dynamics.

Surveys conducted in 2021 showed that most households (60.2%) considered their income in 2020 to be sufficient, but only 11.8% made savings. 36.6% of respondents said they had to deny themselves the most basic necessities, except for food (State Statistics Service 2021).

In general, 43.6% of respondents said that their financial situation did not change in 2020. The answer "rather deteriorated" was chosen by 29.2% of the survey participants, and "worsened" by 21.2%. Furthermore, 1.6% of Ukrainian households believed that it had "improved" and 4.4% that it had "rather improved".

Almost half of the participants (47.4%) predicted that their financial situation would remain unchanged in 2021, while 44.3% of respondents expected it to deteriorate (in 2020, 23.9% of Ukrainians expected it to deteriorate).

According to official statistics, in 2021, cash household income accounted for 93.5%, while non-cash income accounted for 6.5%. The structure of household cash income in Ukraine in 2021 is shown in Figure 1.

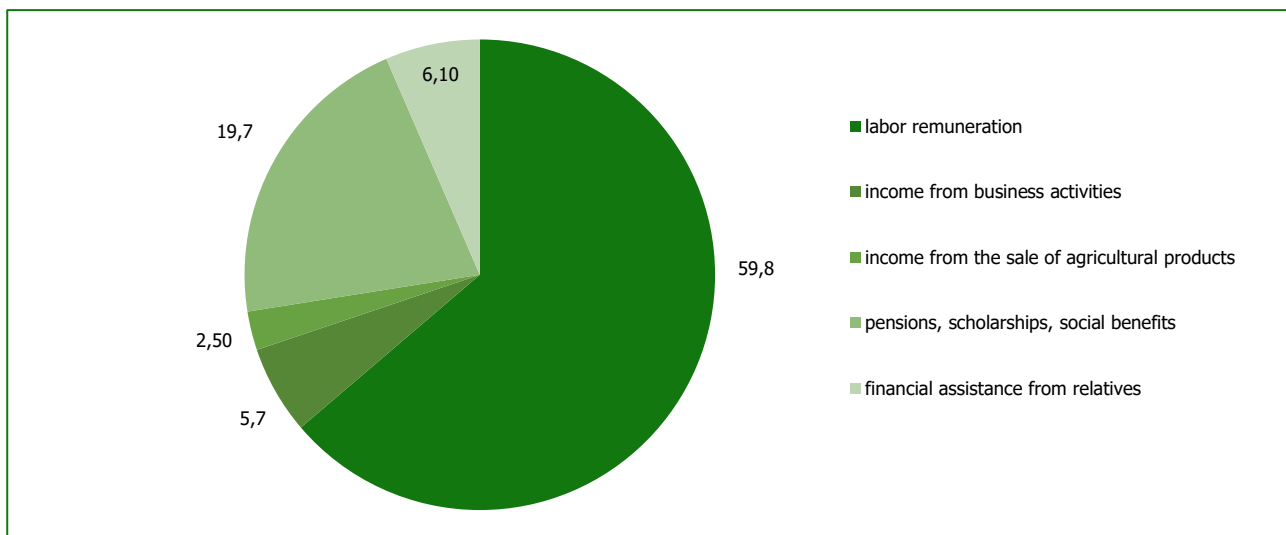


Figure 1. Structure of household incomes in Ukraine in 2021, %. (Source: systematised based on the data from State Statistics Service, 2021)

As can be seen from Figure 1, the vast majority of household income in Ukraine came from wages and salaries. In second place were government payments in the form of pensions, subsidies, scholarships, etc.

In general, we can say that the structure of income was not optimal from the point of view of public finances. However, the expectations of household members for the future were quite optimistic, but then the war broke out.

After the outbreak of full-scale war, most Ukrainians stopped making impulse purchases and started planning their spending based on their needs.

One of the main changes that occurred in the lives of Ukrainians during the war was the deterioration of the economic situation in the country. Rising inflation and the devaluation of the national currency led to a sharp decline in household incomes and an increase in prices for products and services. As a result, many Ukrainians were forced to change their consumption habits and look for cheaper alternatives more often.

One of the main types of expenditures affected by the war is food. For example, according to a study by Gradus Research, in April 2022, brands virtually ceased to exist for consumers in Ukraine. At the same time, the main selection criterion was the assortment on the shelves - 63% of Ukrainians bought what was available.

The drop in Ukrainians' incomes during the war had virtually no impact on how they assessed their financial situation. According to a survey conducted by the Kyiv International Institute of Sociology, 64% of Ukrainians have experienced a decrease in income, and 27% have lost their jobs as a result of the invasion, with a significant number losing their property and housing (State Statistics Service 2022).

Currently, most Ukrainians are dissatisfied with their income, as they receive less than UAH 20.000 per month.

The results of another study by Rakuten Viber show a slightly different situation. In particular, they say that since the beginning of the war, 40% of Ukrainians have experienced a decrease in income, 15% have not changed their salaries, and another 5% have even increased (since the beginning of the war).

The results of the survey showed that 40% of employed Ukrainians have seen their incomes decrease during the war:

- 31% of respondents have seen their salaries decrease significantly;
- 9% have seen their income decrease, but not significantly.

Another 15% of respondents said that their income remained unchanged, and 5% saw their salaries increase.

More than 70 thousand users from Ukraine who are members of certain households took part in this survey on the official Viber Ukraine channel. The results of the survey showed that the most vulnerable household members in our country are elderly women living in the eastern part of our country. This is not surprising, as it is the east of Ukraine that has suffered the most and continues to suffer from the hostilities. People with higher education have also become less vulnerable, most likely because they have more opportunities to work remotely.

In general, the situation with household income generation has changed dramatically in 2021-2023. Every resident of Ukraine has felt it for themselves.

The use of income by Ukrainian households will also be analyzed in the context of two time periods: before and after the war.

In 2020-2021, Ukrainians spent most of their income on food and utilities. Thus, in the third quarter of 2020, 50.1% of all expenditures were on food. Ukrainians spent another 23.4% on non-food items, 16% on various services, 1.9% on personal subsidiary farming, and 8.6% on other expenses.

It is interesting to note that the structure of expenditures differed between urban and rural areas. While in urban areas households spent 52.3% of their total expenditures on food and eating out, in rural areas this figure was 44.3%. As for non-food items, rural households spent 28.3% on them, while urban households spent 21.3%. In addition, rural households spent much more on personal subsidiary plots - 5.4% compared to 0.5% in urban areas.

According to the survey, 48.4% of respondents said that in 2020 they fully used their income for consumption and did not make any savings. In addition, a significant portion of households (36.3%) even denied themselves the most basic necessities, except for food. Only 11.8% of households were able to make savings (Consumer Life).

For a better understanding of the issues under study, let's analyze the structure of household expenditures in 2021. According to official statistics, in the structure of household expenditures in Ukraine in 2021, 91.4% were consumer total expenditures and 8.7% were non-consumer expenditures. Let's take a closer look at the structure of households' total consumption expenditures (Figure 2).

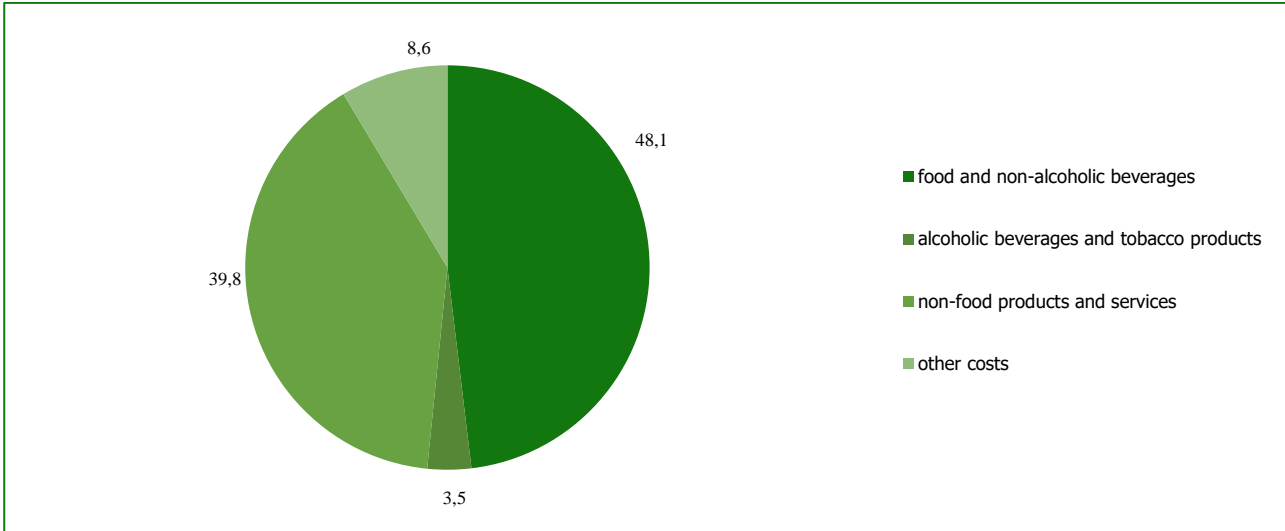


Figure 2. Structure of expenditures of Ukrainian households in 2021, %. (Source: systematised based on the data from State Statistics Service, 2022)

The figure shows that the vast majority of household income was spent on food. Savings are included in the "Other Expenses" category in the chart. Their share is quite low. The structure of household expenditures is somewhat different in terms of cities and villages (Figure 3).

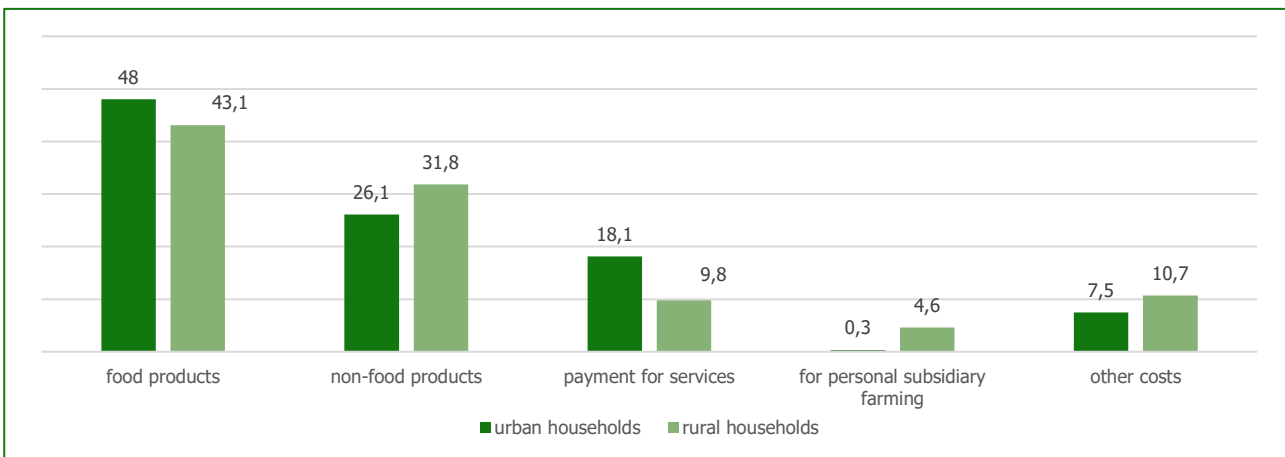


Figure 3. Structure of expenditures of rural and urban households in Ukraine in 2021, %. (Source: systematised based on the data from State Statistics Service, 2022)

As can be seen from the figure, urban households spent much more of their income on food and services. At the same time, rural households spent more on non-food items and on subsidiary farming.

Thus, the situation with households' income use was not optimal before the war. It deteriorated even further with the outbreak of hostilities in Ukraine.

Also, since the beginning of the war, citizens have expectedly started saving more and making fewer purchases. Depending on the category of goods, 47-86% of Ukrainians currently save money. Consumers save less on medicines, children's goods and dual-purpose goods. At the same time, 33% of Ukrainians began to spend less on food, and more than half said they were ready to save money on food (Consumer Life).

In addition, as the consulting company Deloitte found out, in 2022, citizens tried to save as much as possible on some types of goods that they considered not critical. The level of savings was estimated as follows:

1. Leisure and entertainment outside the home – 86%.
2. Alcoholic beverages – 83%.
3. Cosmetics and perfumes – 82%.

4. Ready meals (in cafes and restaurants) – 80%.
5. Clothing and footwear – 79%.

All of these consumption groups do not belong to the category of essential goods. Therefore, it is clear that with the onset of the economic crisis, most households began to save on these groups.

Ukrainians spend almost 42% of their income on food and non-alcoholic beverages eaten at home. This is stated in the publication of the Polish discount service Picodi.com, which refers to the data of the British company Euromonitor International and national statistical services.

Analysts compared statistics on how much money residents of 105 countries spend on food. Ukraine was ranked 93rd.

Food and non-alcoholic beverages account for 48.1% of all expenditures on consumer goods and services in Ukraine. Moldova (41.1%), Ethiopia (41.3%), and Cambodia (42.7%) have similar results.

Thus, the dynamics of indicators characterizing household income and expenditures in Ukraine are currently not encouraging. It is unlikely that the financial situation of households will improve by the end of the war and, consequently, the overall financial situation in the country will improve.

By “bottlenecks” we mean the most problematic issues that hinder the development of a particular system. So, our task is to find out what problems affect the development of households in Ukraine in terms of income generation.

Of course, we can say that there is only one major problem in this period of time – the military actions on the territory of our country. It affects the overall financial and economic situation and, consequently, the current state of households. Of course, the financial system of Ukraine cannot influence this factor; it cannot completely eliminate it, but it can somewhat reduce the negative impact. However, in the whole set of bottlenecks, it is still possible to identify factors that relate to the internal problems of the financial system in Ukraine.

First and foremost, there is a low proportion of middle-class representatives (in terms of household income) and a high proportion of poor-class representatives.

According to the State Statistics Service's annual survey “Self-assessment of households of their income level in 2021,” 1% of Ukrainians consider themselves middle class, 31.9% consider themselves not poor but not yet middle class and 67.1% consider themselves poor (Sologub 2020).

This is a very unpleasant statistic, but it allows the state to define certain target principles when developing strategic program documents. These documents include both the strategy for Ukraine's socio-economic development and the state budget. First of all, in terms of the absolute indicators that Ukrainians are guided by when assessing their property status and attitude to the poor, not quite poor, or middle class. Thus, answering the question about the income that allows one to consider oneself a middle-class representative, 71.3% of respondents named the amount of more than UAH 22 thousand per month per person. The average size of a household in Ukraine does not exceed three people, of whom only one is employed.

Another important problem in the formation of household incomes in Ukraine is the possible existence of “shadow wages or incomes”.

There is an opinion that “shadow salaries/income” account for either 40% or 50% of the income structure of Ukrainians, and therefore our citizens “only complain about poverty”.

The truth of this statement can be easily verified using the State Statistics Service of Ukraine's data on total household income and expenditures and the difference between them.

A significant excess of household expenditures over income would show the truthfulness of the information about “unaccounted” income.

However, according to official data from the State Statistics Service, total household income in 2021 amounted to UAH 3,972.4 billion, and total expenditures amounted to UAH 3,989.4 billion. The difference of UAH 17 billion is covered by a decrease in household savings.

Annual income per capita in 2021 amounted to UAH 73.355, or UAH 6.113 per month. At the same time, more than a third of this amount is money that Ukrainians received in the form of current government payments, the largest of which are subsidies.

The analysis of household expenditures in the previous section showed that they have declined in the purchase of goods and services and in savings over the past two years.

If the level of unaccounted income was at least 10% instead of 40%, the composition of expenditures would at least remain unchanged with respect to savings because no one takes money from deposits and spends it on living expenses if their current income allows them to live without it. Therefore, the shadow market in our country has little overlap with the labour market and is located in other areas and planes.

Another problematic issue in the formation of domestic households' incomes is the presence of so-called "risky" income items, i.e., those that are most affected by factors of the general financial environment. Such income items include income from entrepreneurship and self-employment, as well as income from the sale of agricultural products.

Income from the sale of agricultural products is estimated to account for 9% of all households and 12% of rural households.

In 8% of households (approximately 1.2 million), income from self-employment or entrepreneurship accounts for more than half of total cash income (data as of the end of 2021).

The first tangible impact on business income was the quarantine imposed due to the coronavirus pandemic.

Households with only one worker and no pensioners are most at risk of losing all their livelihoods due to quarantine. Such households account for 19% of the total number in the country. Of these, almost 25% are households in which the working person provided only for himself or herself. In other households, the working person provides for one or more other people. And this, of course, is a rather big problem in terms of providing such households with at least the most necessary food.

Such households are in the greatest need of assistance. This is especially true for households with children.

In the event of a loss of a breadwinner's job, which has been widespread since the beginning of the war in Ukraine, such families often find themselves in the most difficult situation. Therefore, when developing support measures, special attention should be paid to them (various countries that have already announced assistance packages for the population include households with children as a separate category of recipients).

In households with two working people, this scenario is much less likely to occur. But this does not mean that they do not need support, as it is likely that both working persons are employed in the sectors most affected by the war.

Another sensitive group of households are those that do not have working people or pensioners in their composition (i.e., they do not have a stable permanent source of income). There are more than 800 thousand such households in Ukraine or 5.6% of the total. In this situation, during the hostilities, households are "saved" by receiving various payments from international organizations, humanitarian aid, etc.

In general, the share of people in Ukraine with average total incomes per month that are less than the current subsistence level is about 26%. Accordingly, more than a quarter of the population is in a very difficult economic situation even under normal economic conditions. It is even more complicated during the war, which destroys all previously established mechanisms of the financial system within the country.

For a short period of time, after the outbreak of hostilities, most households lived off the savings they had made in previous periods. However, over time, savings are exhausted, and in the future, we can predict an even greater deterioration in the situation with household incomes in Ukraine.

In the current situation with household incomes, of course, there is little they can do. First of all, household members are looking for alternative sources of income in the form of new (often remote) jobs, IDP assistance and payments from international organizations, etc.

However, this situation can be changed for the better only through state regulation and the development and implementation of wartime household support programs.

In the area of state regulation, Ukraine is most likely to follow the example of the EU because of the prospects for integration into this community in the future.

With regard to the example of the European economic system, the most common myth is that "in the West, the market regulates everything, and the state does not interfere in this process or interferes minimally". In fact, the level of government regulation of business processes in the EU is very high. Typically, the rules and regulations governing the forms, types, and quality of production in the EU are set out in the form of Directives of the European Parliament and the Council of the EU. These documents serve as the basis for the creation of national legislation in EU member states.

As part of the process of harmonizing domestic legislation with European legislation, our country has been adapting the norms of these directives into national legislation for a long time. However, our country has many more negative factors that affect household incomes.

Against the background of the above, a quite understandable question arises: why does Ukraine not have the same level of average salaries as the EU countries? The answer, unfortunately, is quite simple and obvious: given that the level of tax regulation in our country is average compared to the EU countries, the main problem arises from the presence of informal payments made by domestic businesses for the normal implementation of investment activities.

In fact, this is where the "shadow" and "shadow flows" of payments for conducting legal as well as illegal activities lie. The latter disrupts healthy competition.

In times of war, our government pays great attention to supporting households whose members belong to various "vulnerable" categories.

Financial support of the country's population in the context of a full-scale war is one of the main tasks of the Cabinet of Ministers. During the hundred days of war in our country, the Ukrainian government has adopted many legislative acts that regulate the provision of social benefits to citizens who have lost their sources of income or become internally displaced, as well as to the military. The military and their families are offered a system of benefits, as well as opportunities for treatment and rehabilitation.

A broad program of the Ministry of Defense has been implemented to provide free medical services in hospitals to the military and other categories of personnel belonging to the security forces.

The Cabinet of Ministers of Ukraine introduced a system of payments to military families. In particular, the one-time payment to the families of fallen soldiers currently amounts to UAH 15 million. This payment is distributed among all family members who are entitled to it in accordance with the requirements of the current legislation.

A large number of governmental legislative acts relate to the social security of our citizens, especially those categories who have become internally displaced as a result of the war and Russian occupation. First of all, the government has defined the categories of people entitled to the status of internally displaced persons (IDPs) and the corresponding income and benefits.

Household members in difficult financial situations due to the war can also receive some payments from the government and international organizations, as well as use available social benefits.

Our government has also introduced other changes to social benefits during martial law. This includes the automatic extension of social cash payments, subsidies and benefits. In addition, the centralized calculation of cash payments is applied in cases where local social security authorities are unable to do so. There is also a simplified procedure for granting financial assistance under the Baby Package program.

During the war, the financial situation of most Ukrainians was difficult, so the government introduced a system of benefits in the field of public utilities. Electricity tariffs were also frozen until the end of October. The relevant utility companies were advised not to increase the cost of payments during martial law and a ban was imposed on disconnecting consumers from utilities due to their existing debts.

Regarding the payment of pensions during the war, the Cabinet of Ministers introduced an innovation, according to which, if the recipient moves to a new dangerous place of residence, he or she can receive money by transfer without opening a new bank account. However, if it is not possible to deliver pensions or other cash payments to the territory where active hostilities are taking place, they will be paid in the following periods.

All these actions are, of course, aimed at supporting households. It is not about raising incomes or any positive dynamics. All actions are now aimed at supporting households and their survival in wartime.

Our country has been at war for more than a year and a half and, despite this, continues to provide a relatively stable life for its citizens. Last year, Ukraine's GDP declined by 30%, inflation jumped over 20%, many logistics links were disrupted, real incomes fell, etc. However, in mid-2023, Ukraine is facing the middle of 2013 with an increase in overall business activity and a slower pace of inflationary processes. In addition, the country is beginning to slowly restore its destroyed infrastructure. With this in mind, foreign and domestic experts are slightly improving their forecasts for the country's economic situation by the end of 2023. Undoubtedly, the war is ongoing and difficulties will still arise, but our country is gradually adapting to life in such conditions. Households are also adapting.

A significant portion of our country's state budget expenditures is currently spent on security and defence. Therefore, funds provided by international organizations and other countries are used to ensure more or less stable social payments.

Financial instruments to support business are being used in Ukraine, albeit at a very slow pace. Some of them have been in place since the beginning of the war, while others are being implemented now, again with the support of our country's international partners.

A grant program aimed at supporting small businesses is becoming more and more popular and in demand. It can be easily applied for through the "Diia" program. After reviewing the application and analyzing the proposed business plan, entrepreneurs can receive funds of up to USD 6.5 thousand to start their own business. Using this program, the government plans to review approximately 10 thousand applications for such funds by the end of the year. Around 6 thousand applications for grants have already been reviewed and approved.

A number of sectoral programs are also being introduced for small businesses. Most of these programs relate to agriculture. Ukraine receives significant funds from international organizations to support this sector. In particular, this applies to horticulture, land reclamation systems, greenhouse development, etc.

All of these actions, although not to the fullest extent, still contribute to maintaining the incomes of domestic households and their survival in difficult wartime.

Analysis of the effectiveness of monetary policy.

The National Bank of Ukraine (NBU) pursued a diverse monetary policy in 2017-2023, taking into account the state of finances of all participants in economic relations. Before the COVID-19 pandemic hit, the central bank was gradually reducing its key policy rate (Figure 4). In February 2022, it raised it to 10%. In 2022, the key policy rate rose to 25%, and in 2023 it began to decline gradually. This is a natural reaction of the central bank to the panic of the population and the need to issue money for the needs of the army. After all, monetary multiplication through the banking system could have caused a very high jump in inflation. As you know, changes in the interest rate at the first stage led to direct changes in short-term market rates. This affects money market conditions and market interest rates on short-term debt securities. This is followed by adjustments to banks' deposit and lending policies and long-term market rates.

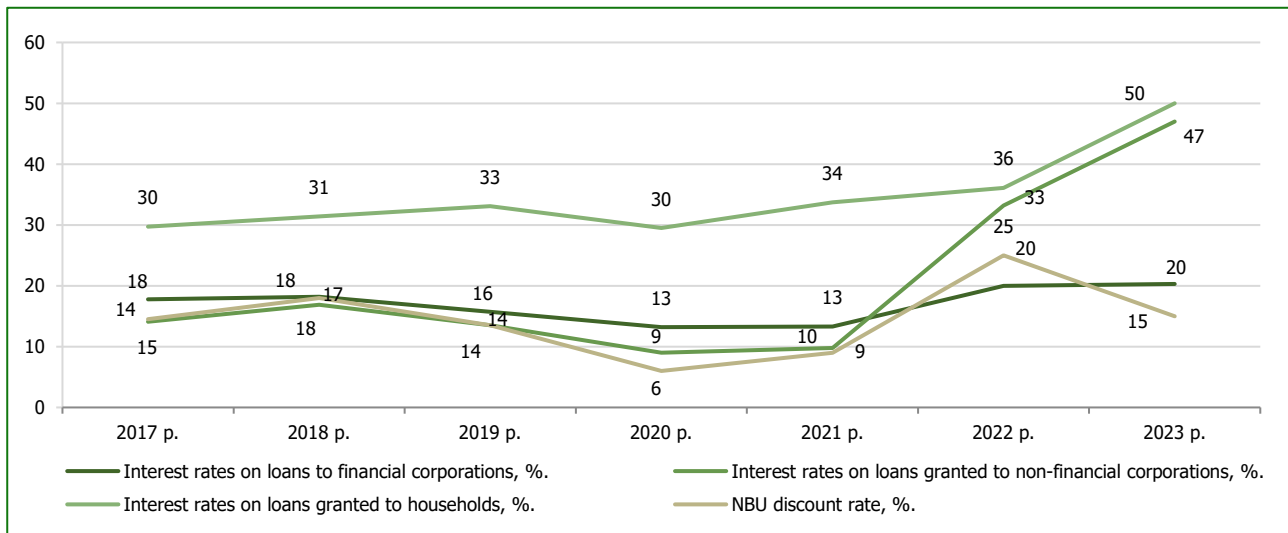


Figure 4. Dynamics of the discount rate on loan interest in 2017-2023.

Figure 1 confirms the pattern of the key policy rate's influence on loan interest, but before the war, it was insufficient for Ukraine. The reason for this is that the amount of credit resources available to the NBU is quite small (approximately 6% of credit resources (NBU inflation report 2023) and setting the key policy rate only indicated the central bank's intentions regarding interest rate policy. As can be seen in the graph, the reduction of the key policy rate from 14.5% in 2017 to 6% in 2020 (by 8.5%) led to a decrease in interest on loans to financial and non-financial institutions by 4.2% and 5.1%, respectively, but interest on loans to households decreased by only 0.2%. The 2.5% increase in the key policy rate in 2021 reversed the process, and interest rates rose by 1.3% on average. In 2022, the increase in interest rates on loans to legal entities to 47% and to households to 55% was not only the result of the key policy rate being set at 25% but also the banks' desire to maintain their stability and liquidity.

According to theories about the expectations of economic agents, the real sector of the economy reacts first to changes in economic, political, or natural processes, to the NBU's monetary policy in particular, and then to the population. As our survey shows, households change their decisions about current and future consumption and savings levels, while businesses make investment decisions based on current and expected price levels and determine the level of future profits.

As shown in Figure 2, the impact of monetary policy on households' financial activity cannot be traced. In 2020, the key policy rate cuts did not increase the amount of cash deposits and savings in securities held by households. On the contrary, they decreased, and their growth decreased by 23% compared to 2017. Unfortunately, there is no data for 2022-2023. However, an unstable correlation between changes in the key policy rate and the growth of household deposits can be clearly seen. In 2017-2021, it was 0.75, and in 2017-2023, it was 0.66. The natural decline in deposit growth in 2022 compared to 2021, from 8.7% to 5.9%, was followed by an increase to 18% in 2023. This can be explained by the halt in the advance of Russian troops, the stabilization of the economy and public sentiment, the reliability of the banking system, and the ability of certain categories of citizens to invest the funds they previously withdrew from deposits and did not use to meet their needs.

It is well known that changes in market interest rates lead to an increase/decrease in the prices of financial and real assets, such as stocks, bonds and real estate. Interest rates directly affect a company's future cash flows, financial expenses, and turnover. This, in turn, changes the profits of companies, which is ultimately reflected in the market value of shares. At the second stage, the level of interest rates affects the cost of capital, and interest rates on loans or debt securities, and will mean that investments become more or less expensive for companies. The same applies to inventories. In addition to affecting investment, an increase in interest rates causes economic agents to lose incentives to consume in the current period and save. As a result, domestic lending, nominal cash balances, and real aggregate demand decline. It is well known that the higher the income of the population and the higher the interest on deposits, the more people will be willing to save in order to obtain more goods and services in the future. Therefore, the interest rate determines the impact on aggregate demand and the desire to save. This is confirmed by the intertemporal substitution effect. However, in practice, this view of the channels through which interest rates affect consumption is poorly supported by the data (Figure 5).

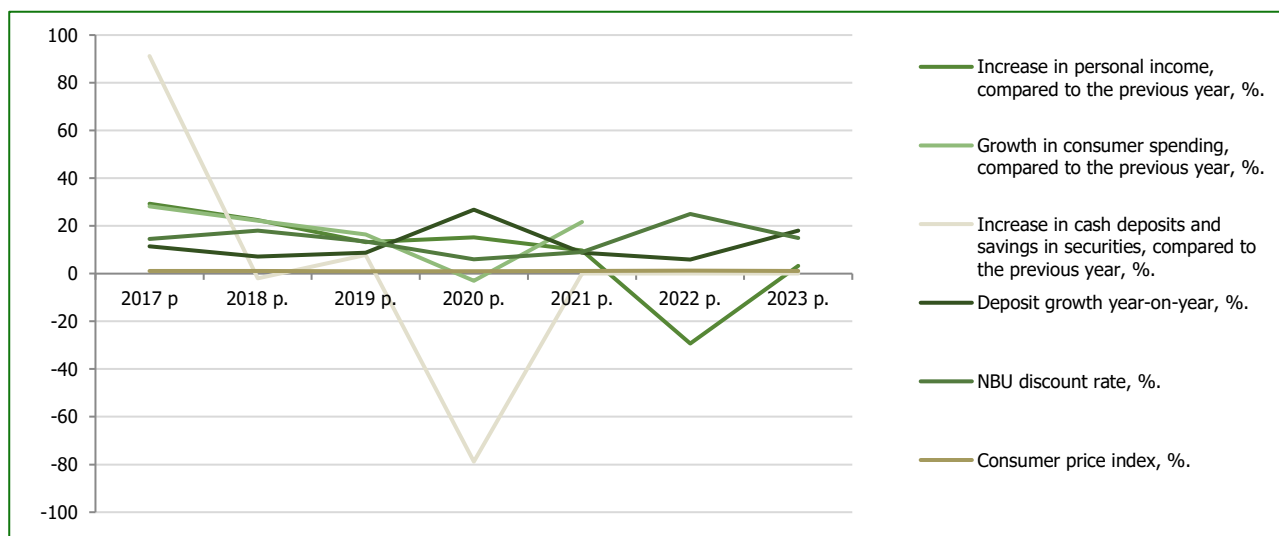


Figure 5. Reaction of households to the NBU discount rate. (Source: compiled by the authors from open sources)

As can be seen from Figure 5, in the period 2017-2021, households' income, cash deposits, and savings in securities decreased along with the key policy rate and price index. An increase in the key policy rate, according to theory, should have increased households' investments in financial assets or deposits. But this did not happen. Money invested in securities fell from 91.2% in 2017 to -78.8% in 2021. As for deposits, a decrease in the key policy rate led to an increase in deposits, and a decrease in the key policy rate led to a decrease in deposits.

The failure of the aforementioned theory can be explained by the research of scholars who propose to supplement the classical Keynesian theory of interest with the HANK model, which takes into account "sticky prices", "sticky wages", and "sticky information".

"Sticky prices" are (rigid) prices that have not changed over the past 10-12 months. Although prices in the market are always flexible and tend to change constantly, prices for a certain group of goods remain virtually unchanged for a long

time. For example, in France and the UK, on average, 19% of prices change every month (81% remain unchanged), and as a result, the average price does not change for about 5.3 months, in Germany prices are stable for 10 months on average, and in the US and Italy – 11 months. In Ukraine, this figure is three months (NBU inflation 2021). The fact that the average duration of price stability in Ukraine is three months does not mean that prices are not sticky. This is because many changes in prices are temporary (e.g., seasonal sales, promotions, Black Fridays, etc.) and then prices return to their normal levels. “Sticky prices” are divided into “self-imposed” and “response to changes”. Self-imposed prices are set by firms depending on the period of their establishment and are their personal choice. And change-responsive prices occur when firms react to changes in the external environment. In other words, firms first decide to change their prices on their own, and then react to changes in government policy or market conditions.

This statement is confirmed in Table 1. As can be seen, the correlation coefficient between the growth rate of the NBU key policy rate and the growth rate of the price index for the period 2021-2023 was only -0.12, which indicates a weak link between key policy rate fluctuations and price changes in the economy. In addition, the variance is 0.52 and the standard deviation is 0.72, which indicates insignificant deviations from the mean, and thus the validity of the HANK model. Since “sticky prices” are slow to respond to changes in monetary policy, inflation rates are also adjusted. Based on this data, the NBU may have excessive expectations regarding inflation targeting, and it may become a problem when it turns into stagflation. As output declines and unemployment rises, living standards fall faster and existing sticky prices may prolong or shorten the economic lag. Inflation will not respond to monetary policy in the short term in the form of monetary expansion by the central bank or contraction.

It should be noted that when determining the impact of the NBU discount rate on household financial activity, the median time lags of 10 months were taken into account using correlation coefficients, variance, and standard deviation.

Table 1: Relationship between the NBU discount rate, average wages, and the consumer price index.				
	2021	2022	2023	2021-2023
Average growth rate of the NBU discount rate, %	0.04	0.13	-0.04	0.04
The average growth rate of the average salary, %	5.51	-0.78	1.26	2.00
The average growth rate of the price index, %	-0.02	0.02	0.004	-0.001
The correlation coefficient between the growth rate of the NBU discount rate and the average wage	-0.04	0.36	0.05	0.09
The correlation coefficient between the growth rate of the NBU discount rate and the consumer price index	-0.04	0.09	-0.12	-0.12
Dispersion between the growth rate of the NBU discount rate and the average wage	54.41	42.37	36.11	44.76
Dispersion between the growth rate of the NBU discount rate and the consumer price index	0.24	0.98	0.39	0.52
The dispersion between the growth rate of the NBU discount rate, the consumer price index, and the average wage	37.70	28.25	24.07	30.26
Standard deviation between the growth rate of the NBU discount rate and the average wage	7.34	6.51	6.01	6.69
Standard deviation between the growth rate of the NBU discount rate and the consumer price index	0.49	0.99	0.63	0.72
Standard deviation between the growth rate of the NBU discount rate, average wage, and consumer price index	6.12	5.33	4.91	5.50

Similarly, to “sticky prices”, wages also remain unchanged for a long period of time and are characterized by stickiness. For example, in Ukraine, the nominal wage growth rate for the period 2017-2023 averaged 13%, and if we exclude 2019 when wage growth was almost 34%, this figure was only 4.8% for the year (NBU inflation 2021).

Based on the “sticky wage” model, employers can independently revise wage levels for future periods and also respond to changes in the labour market or government policy. The effect of sticky wages on the effectiveness of monetary policy in terms of financial activity and household welfare is manifested in the fact that if nominal wages were perfectly flexible, they would always change so that the economy would be in equilibrium and the impact of monetary policy on the economic activity of households or firms would be significant. In a perfectly flexible economy, changes in the money supply would lead to immediate changes in the level of nominal wages, leaving output or employment unchanged. Since wages do not change instantly, but have a certain lag, they may not change in the future or the degree of change may be impossible to predict. The “stickiness” of wages in Ukraine is also confirmed by our analytical data (Table 1). The correlation between

the discount rate over three years is very weak at 0.09 (in 2023, only 0.05), and the variance is quite high at 44.76, with an average standard deviation of 6.69.

The effectiveness of monetary policy can also be reduced by the presence of "sticky information". That is, not all market participants have information about the latest changes in the economy and use outdated data when planning prices or wages. For example, in an industry where changes in wages are planned, the most recent trends in the economy will be taken into account, while in an industry with five-year contracts, the information used will be the information during which these contracts were concluded. As a result, the response to monetary policy in these industries will be different. Those industries that are planning new changes are more likely to take into account changes in monetary policy, which will offset its impact, while those industries that use "sticky information" will react to it the most (this will have both positive and negative consequences). If, in Ukraine, the share of the population with incomes up to UAH 10.000 per month in 2022-2023 averages 93.2%, and the share of the population with incomes up to UAH 8.000 This makes the share of consumer expenditures in the total structure of expenditures 91% on average in 2019-2023, and households respond not to monetary policy but to the growth of their incomes. That is, monetary policy no longer has a direct impact on the aggregate response of all households, but only an indirect one. This is manifested in zero growth of cash deposits in securities and low-income growth, and in 2022 they fell by 29.3% and in 2023 did not reach the pre-war level (NBU inflation 2023).

Thus, the direct effect of intertemporal substitution will be decisively influenced not by monetary policy instruments, but by changes in disposable income. In other words, consumer spending by poor households reacts not to interest rates but to changes in labour income. These peculiarities in household behaviour should be taken into account by the NBU and our government when formulating and implementing monetary policy.

DISCUSSION

The effectiveness of the central bank's monetary policy on household income and consumption requires the use of more sophisticated methodological approaches and tools. After all, the monetary policy of central banks has a significant impact on inflation, unemployment, GDP growth, and the welfare of all participants in economic relations and households in particular. Using the main monetary policy instruments, the national bank can revive and suspend the development of the economy and households' welfare by reducing or increasing the money supply. In other words, it creates impulses in the money market.

Eissrich D. considers the propagation of monetary impulses in two stages. In the first stage, the central bank uses monetary policy instruments. In the second stage, the implemented monetary policy leads to changes in nominal consumption of goods and services by households and firms and changes in business activity in the short run, and in the long run, it will cause a shift in the price level. This article proves that the statement of D. Eissrich regarding the impact of the discount rate on the business activity of legal entities is correct and reveals a directly proportional relationship between an increase in the discount rate and a decrease in the volume of loans taken by Ukrainian enterprises.

However, his conclusion regarding changes in household business activity was not confirmed. We found that households did not react at all to changes in the key policy rate and that the increase in deposits was the result of the stabilization of the war and confidence in the banking system. In addition, household financial activity was more dependent on sticky prices and sticky wages. This is mentioned in J.B. Taylor and G. Calvo, H. Dixon and K. Hansen, S. Fisher.

As we have found, the low efficiency of the NBU's key policy rate is the result of the fact that Ukrainian households are predominantly poor and live from paycheck to paycheck. They are focused on meeting their basic needs and have very little money available to save or invest. Our survey shows that regardless of whether households are urban or rural, their income and expenditures are roughly the same. This is mentioned in the works of American scientists (Kaplan G., Moll B., and Violante G. L.), who studied the financial activity of the fairly wealthy population of the United States. It is well known that American households have much more free money at their disposal than Ukrainian households.

In Ukraine, the effect of the interest rate is weak, but the indirect effects mentioned in the HANK model are significant. While Kaplan and Violante argue that wealthier households increase consumption when interest rates fall, we did not observe this effect in the context of the war in Ukraine.

CONCLUSIONS

Thus, our research has led to the following conclusions and recommendations.

Firstly, the issue of household functioning in Ukraine is extremely important and relevant, especially given the difficult external environment. Since the beginning of 2022, the share of wages and business income in the income structure of Ukrainians has decreased. Instead, the share of government payments increased. This was due to the state's introduction of a system of support for the most vulnerable categories of Ukrainians affected by the war. Thus, the main vulnerability in household income generation at present is the inability to maintain an optimal income structure due to the difficult situation of the entire political and financial system of Ukraine.

Secondly, the NBU cannot accurately predict the results and processes that arise when implementing monetary policy. While changes in the key policy rate partially increase the number of loans and deposits and change interest rates in the debt capital market, households' decisions about current and future consumption, intensification or, conversely, reduction of financial and investment activities are significantly influenced by household income, consumption, sticky information, sticky prices, and sticky wages.

Thirdly, households are active participants in financial relations, their activities affect all socio-economic processes in the country, which necessitates further research on household finances in view of the importance of this area for the effective and stable development of the national economy.

Fourthly, the results of this study can be used when the NBU plans its monetary policy, which will be aimed at improving financial activity and the welfare of citizens. In addition, the statements and conclusions expressed in this article can be a source of further scientific discussions on the effectiveness of classical Keynesian models and the prospects of the new Keynesian school.

ADDITIONAL INFORMATION

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CONFLICT OF INTEREST

The Authors declare that there is no conflict of interest.

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ВПЛИВ ФІНАНСОВО-ЕКОНОМІЧНИХ ЧИННИКІВ НА ДОХОДИ ДОМОГОСПОДАРСТВ У ДОВОЄННИЙ ТА ВОЄННИЙ ПЕРІОДИ

У статті проаналізовано стан доходів і споживання домогосподарств в Україні в мирний та воєнний час. Обґрунтовано роль фінансових ресурсів населення у фінансовій системі держави. Доведено, що доходи відіграють вирішальну роль у формуванні фінансового потенціалу населення. Досліджено вплив війни на фінансові ресурси населення та обсяги його заощаджень. Запропоновано напрями оптимізації формування доходів домогосподарств. Проаналізовано вплив грошової політики НБУ на фінансову активність домогосподарств. Установлено, що зв'язок між величиною процентної ставки та рівнем доходів, витрат, величиною депозитів і грошових вкладень є слабким. Це підтверджується коефіцієнтами кореляції та дисперсії. Зокрема значення коефіцієнта кореляції між темпом зростання облікової ставки НБУ та середньої заробітної плати за період 2021-2023 рр. не перевищував 0,09. Такий слабкий вплив процентної ставки НБУ можна пояснити «липкістю цін» та «липкістю зарплати» й базовими принципами моделі HANK.

Ключові слова: монетарна політика, домогосподарства, доходи, витрати, воєнний час, облікова ставка, «липкі ціни», «липкі зарплати»

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