THE SUFFICIENCY OF HOUSEHOLD INCOMES: ESTIMATION AND ECONOMIC INTERPRETATION FOR THEIR FINANCIAL STABILITY

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Abstract

The household financial activities prove that their incomes determine the levels of livelihood (Skrynkovsky & Leskiv, 2015; Israr et al., 2014) and stability (Mohr & Wagner, 2013). In this paper, we will take the view that the financial stability of households is the ability to ensure an appropriate level of livelihood by the available level of income in the face of influence factors. As a result, the study on the sufficiency of household incomes is relevant when estimating their financial stability. The purpose of the research is to develop indicators for estimating the sufficiency of household incomes and economic interpretation obtained results for their financial stability. According to the purpose, indicators for estimating the sufficiency of household incomes are proposed and made economic interpretations ones. In the work process analysis is used as a general scientific method of theoretical knowledge, and comparison and measurement are used as data research methods. The analysis was conducted to conclude the different trends of income sufficiency by Ukrainian households at the macroeconomic and microeconomic levels in 2001–2020. Moreover, future research needs to use the elements of correlation-regression analysis to rank the studied factors by the power of influence.

Keywords: Finances, Stability, Household, Incomes, Macroeconomic, Microeconomic, Sufficiency, Indicators

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1. INTRODUCTION

According to the Slovnyk ukrains'koi movy (n.d.) meaning of "*sufficiency*" is a concept that satisfies something or meets some needs. Thus, the scientific idea of "*sufficiency of income*" represents the degree of compliance volume to the needs of households.

In 2001–2020, analytical data on household income formation by the State Statistics Service of Ukraine (2021, 2023c) and National Bank of Ukraine (2023) can be characterized as unstable. The war with the Russian Federation (from 2014), and problems in the economic, social and other spheres (during the years of independence) restrain domestic household development (Grushko & Shuldyakov, 2021; Kachula et al., 2023) and as a consequence, it will be difficult to achieve financial stability in this sphere of the financial system (Mulska, 2023). It is confirmed by Zamora and Yarema (2016) that the income level does not satisfy the household's needs provoking their general poverty. Also, Ukrainian households are forced to attract external income to ensure their livelihood, which creates the problem of estimating the sufficiency of one (Skrynkovsky & Leskiv, 2015).

This paper aims to research the influence of household incomes on their financial stability, taking into account the lack of developed indicators of such impact. Our conclusion is based on the fact that both — incomes and needs of households — are estimated differently at the macroeconomic and microeconomic levels of the study.

In this case, at the macroeconomic level, the amount of household income depends on the volume of gross domestic product (GDP) and, therefore, on the rate of economic growth in the state over a certain period (State Statistics Service of Ukraine, 2018, 2022a, 2022b, 2022c). As a result, the shares of household wages in GDP indicated of the well-being of society, determining the level of both its solvent demand (satisfaction of consumer needs). According to this methodological approach, the specific weight of wages or borrowed funds in the structure of household income characterizes the possibilities for ensuring the livelihood activities of households with their resources. Therefore, measurement and comparison were used as a data research method.

However, at the microeconomic level, a living minimum is a value sufficient to ensure the normal functioning of the human body, the preservation of its health, a set of food products, as well as a minimum set of non-food goods and a minimum set of services necessary to meet the basic social and cultural needs of an individual (Verkhovna Rada of Ukraine, 1999). This indicator is calculated per month per person. According to this methodological approach, the income sufficiency at this level of the research has to be the comparison of indicators of average monthly values of income to the subsistence minimum per household per month. In a similar way, comparison was used as a data research method.

The presence of a separate methodology for estimating household incomes at the macro- and microeconomic levels determines the relevance and significance of developing and researching separate indicators of the "sufficiency" of their incomes. The lack of proper methodological support for estimating the sufficiency of household income makes it impossible to develop a long-term state financial policy in the field of household finances as a whole. Hence, the objective of this study is a development of indicators for estimating the sufficiency of household income separately at the macroeconomic and microeconomic levels. Accordingly, the study expects to make a theoretical contribution to solving this problem. The practical contribution is: 1) the proposed macroeconomic indicators of income sufficiency can be used for state executive departments to decide on the possibility of financing social benefits or payments to households or to develop the state's financial policy in the social sphere in the future, and 2) the proposed microeconomic indicator of income sufficiency can be used for a household when they develop financial plans at a particular stage of the life cycle.

The structure of this paper is as follows. Section 2 reviews the relevant literature. Section 3 analyses the methodology that has been used to conduct empirical research. Section 4 presents the research results, and Section 5 concludes and discusses the results obtained.

2. LITERATURE REVIEW

In theory, the amount of income is a determinant for many inside and outside processes in a household, including the quality of their livelihood (Mohr & Wagner, 2013), living standard (Dubyna et al., 2022; Kizyma, 2011; Mulska, 2023), etc. It should be noted, that the study of estimating household incomes is actual, so foreign and domestic scientists do not stop researching this problem (Jungell-Michelsson & Heikkurinen, 2022). In the scientific literature, there are three approaches to estimating income sufficiency: 1) absolute indicators, 2) quantitative indicators, and 3) relative indicators.

Most research directions showed theoretical approaches to income estimation households due to their formation's composition, structure or volume dynamics. In direct measurement, researchers often use indicators of household income in absolute terms (first approach). It should be noted, that the Organisation for Economic Co-operation and Development (OECD) uses the concept of "*disposable income*" that "measures the capacity of households (or individuals) to provide themselves with consumable goods or services" (OECD, 2016, p. 24). OECD (2016) derived a disposable income from "the balance of primary income by adding all current transfers from the government, except social transfers in kind, and subtracting current transfers from the households such as income taxes, regular taxes on wealth, regular inter-household cash transfers and social contributions" (p. 24).

Within this approach, Kizyma and Gaynatska (2022) in their work analyzed the structure, dynamics and key trends of income as important indicators of living standards in Ukraine in the context of a full-scale war; special attention was paid to the impact of state policies on social norms, especially living wage and minimum wage. Israr et al. (2014) in their thesis "recommended that further improvements in both the farm and nonfarm sources of income is required for sustainable livelihood" (p. 194). In his article, Stankevich (2008) considered different approaches to the concept of

"household income"; the basic sources of receiving income of household analyzed and the features of the financial situation of Ukrainian families household determined. Based on statistical data Grushko and Shuldyakov (2021) showed an increase in the cash incomes of households and a decrease in the share of in-kind incomes and transfers in the form of benefits and subsidies and concluded that the formation of household incomes directly depends on the economic growth of the state. Also, Mulska (2023) concludes that "the financial stability of households has a causal relationship with determinants of macroeconomic development; investment and financial potential of households determines the development of the domestic consumer market, aggregate demand in the economy of the region, economic progress of the territory in general" (p. 157). Close position by Skrynkovsky (2015), and Skrynkovsky and Leskiv (2015), about household incomes, showed the formation of ones and it demonstrated the dependence on the formation of ones from the GDP.

The second approach is to estimate household incomes using appropriate indices based on the number of assets (not only in physical or money form) the household owns. In the paper, the multidimensional poverty index (MPI) was characterized as "an index of acute multidimensional poverty" (Alkire & Santos, 2010, p. 7). Some researchers suggested that "component of the household's ownership of household physical assets is highly correlated with household expenditure and can be used as a reasonable proxy" (Po et al., 2012, p. 3). Thus, they develop "a theoretical approach to constructing a measure of household income using physical assets" (Po et al., 2012, p. 3). It allowed "to simulate household income from an asset index" (Harttgen & Vollmer, 2013, p. 261). It should be noted, that none of the proposed indices can answer the question of income sufficiency. In general, the measurement of income in absolute values (first approach) or by using indices (second approach) does not allow to answer the question about the level of their sufficiency. For that precise reason, the household income estimate using relative indicators is necessary.

The most studied and used relative indicator of household income is "disposable income per capita" (OECD, 2023). According to the OECD (2023) point of view, "household disposable income is income available to households such as wages and salaries, income from self-employment and unincorporated enterprises, income from pensions and other social benefits, and income from financial investments (less any payments of tax, social insurance contributions and interest on financial liabilities)". But, in this case, there is no answer to the question of income sufficiency. According to Kotsiurubenko (2015), the relative indicator of minimum income sufficiency has become one of the components of the system of indicators for assessing the financial condition of households. Ramskiy (2013) highlighted two types of household incomes: owned and attracted, relation between them and examining the chain growth rates of their values for the relevant period. Actually, this area of research on relative indicators — comparing household incomes and expenditures with each other — needs further development.

However, the approaches considered for reviewing and estimating household incomes (in absolute terms (OECD, 2016; Kizyma, 2011; Stankevich, 2008; Grushko & Shuldyakov, 2011; Skrynkovsky, 2015), relative terms (OECD, 2023; Kotsiurubenko, 2015; Ramskiy, 2013) or through indices (Alkire & Santos, 2010; Po et al., 2012) do not take into account their different composition at the macroeconomic and microeconomic levels and their impact on many inside and outside processes in a household (Israr et al., 2014; Skrynkovsky & Leskiv, 2015; Dubyna et al., 2022; Mulska, 2023), but not on own financial stability.

Therefore, the purpose of the study is the sufficiency of household income separately at the macroeconomic and microeconomic levels, developing relative indicators to achieve this aim. In this direction, our research hypothesis is:

H1: The level of household income sufficiency at the macroeconomic and microeconomic levels will differ.

The economic interpretation of the results will enhance the analytical component of the estimation for household financial stability.

3. RESEARCH METHODOLOGY

The research is based on general scientific methods of theoretical and empirical knowledge. Important attention is paid to the use of mathematical methods through the construction of income-sufficiency indicators (column 1 of Table 1) and formulas for their calculation (column 2 of Table 1) at the macroeconomic and microeconomic levels (Table 1). Abstraction as a special method of economic research was used with the economic interpretation of these indicators (column 3 of Table 1). This approach, despite the alternative methods, allowed us to analyze the level of household income sufficiency separately at the macroeconomic and microeconomic levels, developing relative indicators.

Within the scope of the research, comparison and compilation through the analysis of relative indicators of household income sufficiency were used (Figures 1–4). It allows the determination of trends in household income formation during 2001–2020. For the economic interpretation of obtained results on the financial stability of households at the macroeconomic (Figures 1–3) and microeconomic (Figure 4) levels, analysis and synthesis were used. Special attention is paid to methods of scientific support (measurement, comparative analysis) since large amounts of economic information about economic indicators (GDP, the amount of wages of employees, the amount of household income, the amount of borrowed funds by households, the amount of household income per household per month and the amount of living minimum per household per month) were used. It allows the summary of obtained results and the formulation of discussions and conclusions.

The results of the study were obtained according to the data of the State Statistics Service of Ukraine and the National Bank of Ukraine regarding the composition, structure of household incomes and the amount of borrowed funds they used for the period 2001–2020.

Table 1. Indicators for estimating the sufficiency of household income at the macroeconomic and microeconomic levels

Indicators	Calculation formula	Economic interpretation
(1)	(2)	(3)
Indicators for estimating the sufficiency of household income at the macroeconomic level		
Indicator the share of wages in GDP (HW_{GDP})	$$HW_{GDP} = W/GDP \qquad (1)$$ where, W — the amount of wages of employees, billion hryvnia (UAH); GDP — gross domestic product, billion UAH.	They characterize the level of wages of hired workers to ensure the current livelihood of households. The higher the indicators, the better the household's financial stability and the more opportunities it has in conducting financial policy.
Indicator the share of wages in household incomes (HW_i)	$$HW_i = W/H_i \qquad (2)$$ where, W — the amount of wages of employees, billion UAH; H_i — the amount of household income, billion UAH.	
Indicator the ratio of borrowed funds of households to their incomes (HBF_i)	$$HBF_i = H_{bf}/H_i \qquad (3)$$ where, H_{bf} — the amount of borrowed funds by households, billion UAH; H_i — the amount of household income, billion UAH.	This indicator characterizes the amount of borrowed funds that households attract for each hryvnia of their income. A decrease in the ratio indicates a strengthening of the household's financial stability. The lower its values, the better the household's financial stability and the more options it has in conducting financial policy.
Indicator for estimating the sufficiency of household income at the microeconomic level		
Indicator of household income sufficiency (H_{is})	$$H_{is} = H_i/L_m \qquad (4)$$ where, H_i — the amount of household income per household per month, UAH; L_m — the amount of living minimum per household per month, UAH.	It characterizes the level of income sufficiency to ensure the minimum needs of the household. The higher the indicator, the better the household's financial stability and the more opportunities it has to conduct its financial policy.

4. RESULTS

4.1. Indicators for estimating the sufficiency of household incomes at the macroeconomic level: Reasoning, data and interpretation

4.1.1. Reasoning

It should be noticed, that researchers in the field of household finances classify their incomes depending on the sources of their formation. In particular, in the composition of household incomes, incomes from wages and entrepreneurial activities are allocated, social transfers, property and other income (Kizyma, 2011; Grushko & Shuldyakov, 2021; Skrynkovsky, 2015; Stankevich, 2008). This classification coincides with the methodology of the State Statistics Service of Ukraine (State Statistics Service of Ukraine, 2018) and the Organisation for Economic Co-operation and Development (OECD, 2023).

The peculiarities of the financial activity of households, which occurs at the stage of the fourth distribution and redistribution of GDP, prove that the volume of the one determines the scale of their income generation. In addition, the idea of an imbalance of financial resources (Kolodii et al., 2019; Korneyev, 2019) implies the involvement of borrowed funds to ensure the lives of households. Taking into account the influence of these factors, the assessment of household income estimating at the macroeconomic level is measured by the following indicators (Table 1).

The first letter of the indicator's name means it refers to households, and the following letters mean the phenomena it measures:

1. Indicator the share of wages in GDP (HW_{GDP}).
2. Indicator the share of wages in household incomes (HW_i).
3. Indicator the ratio of borrowed funds of households to their incomes (HBF_i).

As it is known, GDP, as an integrated indicator of the country's economic development, characterizes the result of the production activity of residents and is calculated by three methods: production, by categories of income and final use (State Statistics Service of Ukraine, 2022a). Calculation of GDP by income categories allows determining the degree of participation of the household in the process of its creation since the methodology involves the separation of such components of primary income as:

1. Wages of employees.
2. Taxes excluding other subsidies related to production.
3. Gross profit and mixed income.

Following the methodological provisions for the calculation of the GDP, remuneration of employees is remuneration in cash or kind, paid by the employer to the employee for the work performed during the reporting period; consists of wages (State Statistics Service of Ukraine, 2018); actual contributions of employers to social insurance and conditionally calculated contributions of employers to social insurance (Yurchyshena, 2014).

The indicator that, in our opinion, determines the degree of participation of households in the creation of GDP and, at the same time, characterizes their income level is the indicator of the share of wages of employees in GDP (HW_{GDP}).

The theoretically reasoned indicator value HW_{GDP} can hardly be determined. The higher it is,

the better the household's financial stability, the more it will be able to consume the produced product and the more opportunities they have to conduct their financial policy. The calculated rate of change of the indicator HW_{GDP} over a certain period will allow us to determine positive or negative trends in the formation of household incomes, the rate of change in wages of employees analyzed over the same period (W) and the volume of GDP will make it possible to conduct a factor analysis of the impact on the productive indicator HW_{GDP}.

The next factor that characterizes the sufficiency of household incomes at the macroeconomic level is the determination of the share of wages in the total amount of household income HW_i.

A necessity in calculating the indicator HW_i due to the fact of formation of household incomes both at the first stage of the distribution of GDP (wages of employees, gross profit and mixed-income) and at the second stage of the distribution of GDP (in the form of social benefits and other received current transfers). The methodological regulations of the state statistical observation "quarterly national accounts" determine the remuneration of employees according to the accounts of "primary distribution of income" and social benefits and current transfers according to the accounts of "secondary distribution of income" (Appendix 2 of the specified provisions) (State Statistics Service of Ukraine, 2022b).

Growth factor HW_i will indicate the dependence of household incomes on external sources of financing (funds from the State Budget of Ukraine, local budgets, state social insurance funds, etc.) and the deterioration of their financial stability. The reasons for the loss of financial stability and the need to finance the needs of households in the form of social transfers may be:

• decrease in the solvency (reduction in income) of households due to the general decline of the country's economy;

• high rates of inflation in the country's economy;

• an inefficient policy of managing funds on the part of households (increasing expenses with unchanged incomes, reducing incomes with unchanged expenses, etc.);

• non-fulfilment of the household income and expenditure plan.

Theoretically justified indicator value HW_i, as well as the indicator HW_{GDP} can hardly be determined. The higher it is, the higher the level of ensuring the current livelihood of households through wages and the more opportunities they have in conducting their financial policy, and, therefore, they are more financially stable (European Commission [EC], 2022).

Inequality in the formation of incomes and freedom in their distribution will cause different amounts for individual households. This creates the need to calculate the third indicator that assesses the financial stability of households at the macro level and is conditioned by the existence

of donor households and recipient households in the formation and use of funds. In particular, there will be differences when individual households accumulate more than their needs (expenses) and their financial condition is higher than the national one, and vice versa (Zamora & Yarema, 2016). For example, Dubyna et al. (2022) argue that "substantiated the expediency of conducting an analysis based on the volume of lending to the population by these financial institutions" (p. 2086). A problem arises in the study of these features, which is intended to be solved by the ratio of borrowed funds attracted by households to ensure their livelihoods to the total amount of household income — HBF_i.

Indicator HBF_i characterizes the amount of borrowed funds that households attract for each hryvnia of their income. A decrease in the indicator indicates a strengthening of the financial stability of households, in contrast to other indicators HW_{GDP} and HW_i, which characterize its growth by its increase. A theoretically possible value of the indicator HBF_i difficult to define. It is obvious that the higher it is, the higher the degree of financial dependence of the household on external sources of financing. The fact of attracting borrowed funds of households to ensure their livelihood does not have a negative or positive direction, but only indicates the trends in the construction of the country's financial system. The smaller the value of the indicator HBF_i, and the more donor households there are in the economy, the more financially stable the sphere of household finances. The purpose for which the value HBF_i at the macro level will be smaller and smaller, it considers one of the goals of building the state's financial system, as well as one of those indicators that can be used to measure the effectiveness of its construction. Namely, the smaller the value of the indicator HBF_i the more efficient the state's financial system is, and vice versa.

At the same time, the factor that affects the decision to attract borrowed funds by households is the level of the interest rate for their service. Therefore, the analysis of the proposed indicator HBF_i and the trends it describes are possible under conditions of unchanged interest rates in the economy. The structure of borrowed funds of households is also important, namely the specific weight of consumer and non-consumer lending, and mortgage loans. Attracting loans aimed at the consumption of goods and services may indicate an inability to provide for the household's current activities. In contrast, attracting loans for the construction or reconstruction of housing allows us to conclude the development of the country's households in the long term.

4.1.2. Data and interpretation

In Figure 1 dynamics of wages of employees (W), GDP, and the indicator the share of wages in GDP (HW_{GDP}) are presented for the period 2001–2020.

Figure 1. Dynamics of wages of employees (*W*), GDP and the indicator the share of wages in GDP (HW_{GDP}), 2001–2020
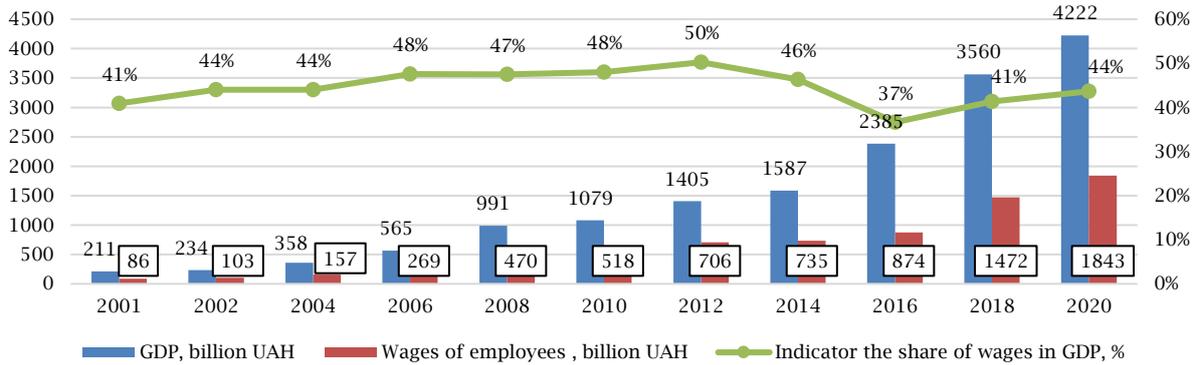
Note: Excluding temporarily occupied territories.
Source: Compiled on the data from the State Statistics Service of Ukraine (2022a).
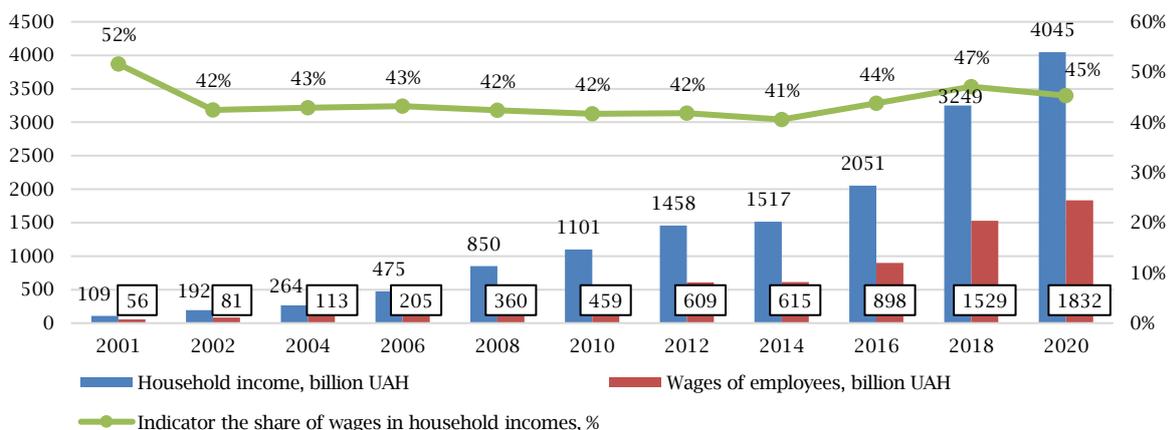
The data in Figure 1 testify to the unconditional growth in both wages of employees and GDP for the analyzed period. In particular, if the level of wages was 86 billion UAH in 2001, then it was 1.84 trillion UAH in 2020. GDP for the same period increased from 211 billion UAH up to 4.2 trillion UAH. At the same time, the rate of wage growth is almost similar to the tempo of GDP growth. As we calculated the indicator HW_{GDP}, remained practically unchanged — the specific weight of wages in GDP was 41% in 2001 and 44% in 2020.

Thus, the assessment of the sufficiency of the household's income to support their livelihoods indicates an improvement in the financial stability of households, albeit not significantly. For example, if in 2001, wages could ensure the consumption of 41% of the annual value added in the economy of Ukraine, then it was 44% in 2020. That is, the level of household income expressed through the indicator HW_{GDP} shows that the amount of tangible and intangible goods and services that can be purchased

for nominal incomes for 2001–2020 increased by 3% and amounted to 44% of the country's GDP in 2020. At the same time, the value of the indicator HW_{GDP} during 2010–2020 took place unevenly — there was a period of its growth (up to 2012, when it reached a maximum of 50%), a significant reduction (during the period of 2012–2016, when it reached a minimum value of 37%) and gradual growth (starting from 2016). The reduction of the studied Indicator was significantly influenced by the annexation of the Autonomous Republic of Crimea (in 2014) and the hostilities in the east of Ukraine, which began in 2014. An additional factor decrease in the share of wages in GDP was increased consumer prices during the studied period.

In Figure 2 dynamic of wages of employees (*W*), household incomes (H_i) and the indicator of the share of wages in household incomes (HW_i) are presented for the period 2001–2020.

Figure 2. Dynamics of wages of employees (*W*), household income (H_i) and the indicator the share of wages in household incomes (HW_i), 2001–2020

Note: Excluding temporarily occupied territories.
Source: Compiled on the data from the State Statistics Service of Ukraine (2023b).

The data in Figure 2 testify to the unconditional growth in both wages of employees and the total incomes of households during the period. In particular, if the level of wages was 56 billion UAH in 2001, then it was 1.83 trillion UAH in 2020.

Household incomes for the same period increased from 109 billion UAH to 4 trillion UAH. Calculated Indicator values HW_i, indicate a negative trend of reducing the specific weight of wages in the total

income of households from 52% in 2001 to 45% in 2020. Decrease HW_i during 2001–2020, it happened unevenly — there was a period of its invariance (2002–2015), followed by a gradual increase (starting from 2016). At the same time, its value does not reach the level of 2001 in 2020. It is obvious, that the reduction of the studied indicator HW_i the annexation of the Autonomous Republic of Crimea (in 2014) and hostilities in eastern Ukraine (starting in 2014) had a significant impact. Expressed through an indicator HW_i the level of

household incomes formed at the stage of the primary distribution of GDP in the form of wages of employees shows that the dependence on external sources of financing in the provision of current life activities in 2020 compared to 2001 is growing.

In Figure 3 dynamic of indicators of the amount of external financial resources attracted by households and the indicator of the ratio of borrowed funds of households to their incomes (HBF_i) are presented for the period 2001–2020.

Figure 3. Dynamics of social transfers, borrowed funds, the share of social transfers in household incomes, and the indicator the ratio of borrowed funds to household incomes, 2001–2020
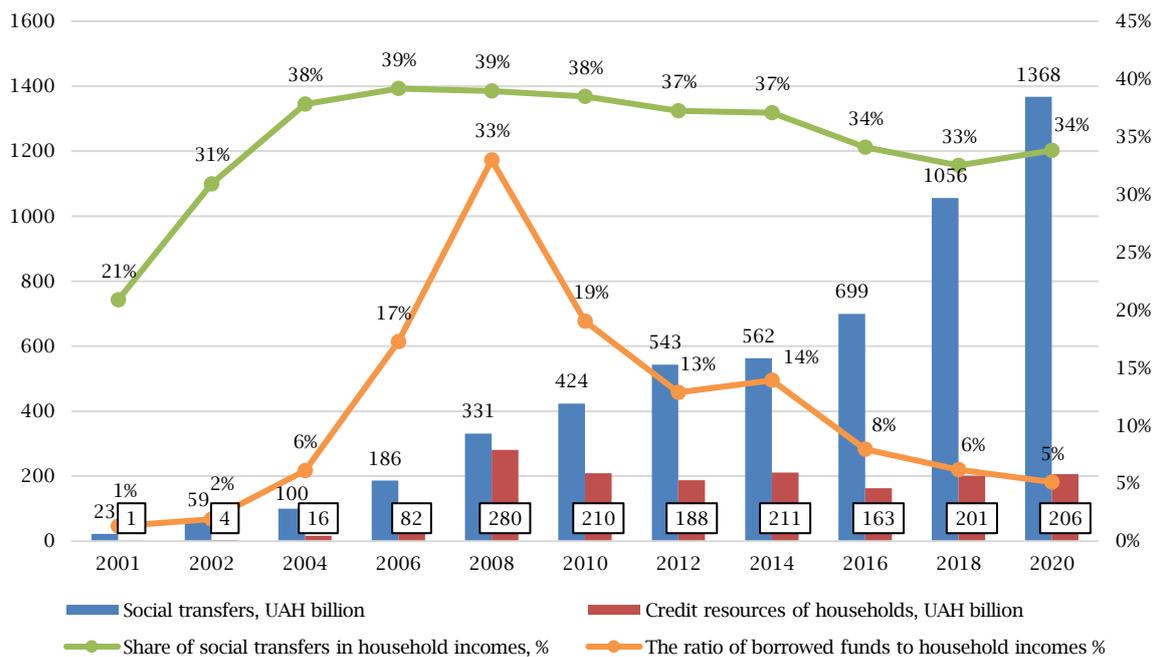
Note: Excluding temporarily occupied territories.
Source: Compiled on the data from National Bank of Ukraine (2022, 2023) and State Statistics Service of Ukraine (2023b).

The data presented in Figure 3 shows that the thesis put forward by us above about the change in the specific weight of social transfers in the structure of household incomes has been fully confirmed. Namely, against the backdrop of a reduction in the share of wages in household incomes from 52% in 2001 to 45% in 2020, the share of social transfers has increased significantly — from 21% in 2001 to 34% in 2020, respectively reaching its maximum (40%) in 2009. Similar trends are characteristic of another type of external financial resources of households — funds provided by credit corporations to Ukrainian households. Their volume increased from 1 billion UAH in 2001 to more than 200 billion UAH in 2020, reaching its maximum (280 billion UAH) in 2008. For the studied period, the ratio of borrowed funds to household incomes HBF_i increased five times — from 1% in 2001 to 5% in 2020. In the dynamic of indicator values two distinct periods were observed — growth from 1% to 33% in 2008 and a subsequent reduction to 5% in 2009. This indicates the financial policy of households regarding the borrowing of attracting borrowed funds to ensure their own needs in 2001–2020 also underwent significant changes.

Thus, the increase in the specific weight of external financial resources — social transfers (from 21% to 34%), borrowed funds (from 1% to 5%) — in the total amount of financial resources of households indicates that they generate income, after the initial distribution of GDP, on level is not sufficient to meet one's own needs. It assesses this trend as hurting the financial stability of households.

It is worth pointing out that, the reasons for the appearance of external resources in the composition of household income are different. If the form and amount of social transfers (benefits) are determined by the authorities by the announced principles and standards of the state social policy and to receive them it is enough to meet the specified criteria (low-income family, family with children, reaching retirement age or risk onset, etc.), borrowing borrowed funds is a conscious choice of the household itself. It cannot make a similar conclusion regarding social transfers as part of the financial resources of households (Garner et al., 1996).

4.2. Indicator for estimating the sufficiency of household incomes at the microeconomic level: Reasoning, data and interpretation

4.2.1. Reasoning

Following the methodological provisions approved by the State Statistics Service of Ukraine (2023c), at the microeconomic level of the study, per household per month, the indicator of household income sufficiency H_{is} is calculated by the method of dividing the amount of income by the amount of the subsistence minimum per month.

Indicator H_{is} characterizes the level of income sufficiency to ensure the minimum needs of the household. The higher the indicator, the better the household's financial stability and the more possibilities it has in conducting its financial policy (EC, 2022). A decrease in the indicator indicates a decrease in the financial stability of households. A theoretically possible value of the indicator H_{is} is difficult to define. It is obvious, the higher it is, the higher the degree of financial stability of the household (Garner & de Vos, 1995). Also, to study the financial stability of households, "the structure of aggregate household expenses in Ukraine" is estimated by Kachula et al. (2023). At the same time, as opposed to the approach of "the adequacy of income of a household may be defined as the ratio of its income to the income level required to achieve the conventional standard of living in the socio-economic group to which the household belongs" (Tabbarah, 1972, p. 57), this allows us to raise the question of the minimum value of the income-sufficiency indicator relative to living minimum per household (Reddy, 2018).

Accordingly, the size of the living minimum per household is determined depending on its size. The size of the household — the number of people in its composition — is calculated every year by the State Statistics Service of Ukraine. This approach will make it possible to detail the vast majority of the country's households in the process of analysis, which will strengthen the theoretical validity of using the income-sufficiency ratio at the microeconomic level to determine the level of their financial stability (Castro & Bleys, 2023).

4.2.2. Data and interpretation

Based on the provisions of the current legislation in 2001–2020 regarding the level of the subsistence minimum for able-bodied persons for the corresponding year, data from the State Statistics Service of Ukraine regarding the average size and structure of aggregate resources of households, in Figure 4 calculates the value of the indicator of income sufficiency to ensure their livelihood for the period 2001–2020.

Figure 4. Dynamics of living minimum per household per month, total income per household per month and the indicator of household income sufficiency (H_{is}), 2001–2020
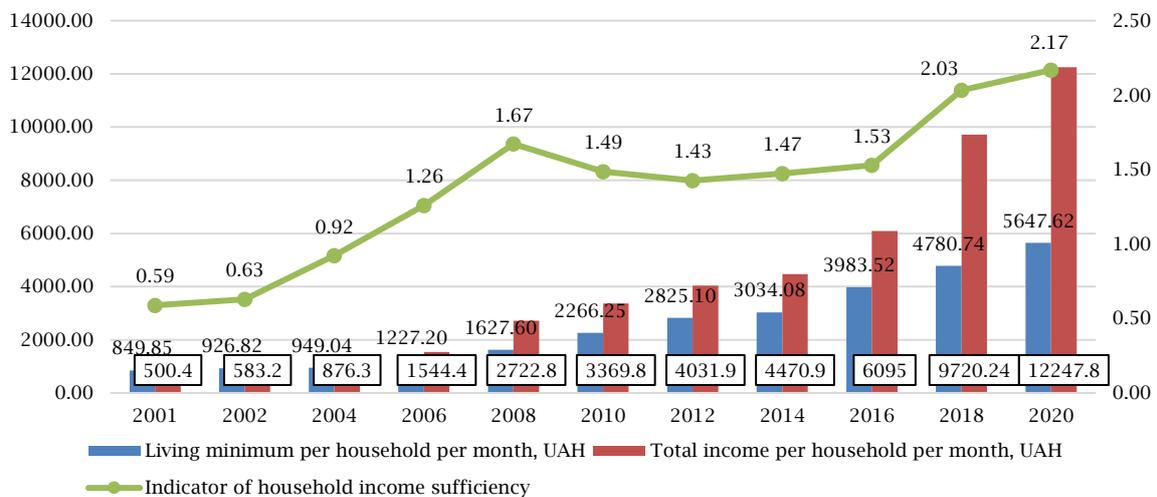
Note: Excluding temporarily occupied territories.
Source: Compiled on the data from the State Statistics Service of Ukraine (2023c).

The data presented in Figure 4 shows that in 2001, households provided their own 0.6 of the monthly subsistence minimum with their incomes. In 2020, the indicator of income sufficiency increased to the level of 2.2. This indicates a nominal improvement in the financial stability of domestic households at the microeconomic level. The amount of income generated by them is sufficient to ensure the minimum set of non-food goods and the minimum set of services necessary to satisfy basic social and cultural needs in a double amount. The change in the index of household income sufficiency during the studied period did not occur evenly: 1) gradually increasing values in 2001–2008 (from 0.59 to 1.67); 2) some reduction in 2009–2016 (from 1.67 to 1.53); 3) significant growth in 2016–2019 to the level of 2.27 and 4) correction in 2020.

5. CONCLUSION

According to the results of the study, it developed indicators for estimating the sufficiency of household income (three — at the macroeconomic level and one — at the microeconomic level of research) and provided an economic interpretation of the results for their financial stability. Our conclusion is based on a retrospective assessment of

the values of the proposed indicators at the macroeconomic and microeconomic levels for the period 2001–2020. The conducted analysis testified to a decrease in the indicator of income sufficiency of domestic households at the macroeconomic level and an increase at the microeconomic level of scientific research. Our position is based on the calculated data obtained on the change in the structure of household incomes, namely: 1) a decrease in the specific weight of wages (Figure 2) and, accordingly, 2) an increase in the dependence of households in ensuring their current livelihoods from external sources of financing (Figure 3). On the opposite, based on the analysis of income sufficiency based on the nominal values of the indicators of the subsistence minimum and the total resources of households (Figure 4), their financial stability at the microeconomic level in 2020 increased compared to 2001.

Furthermore, the result of the study showed a deterioration in the financial stability of households on a macroeconomic level. The amount of own income allows ensuring the minimum needs of households in two times (for 47% — one and a half multiple sizes). These results are due to various factors influencing the indicators of household income sufficiency at the macroeconomic and microeconomic levels of scientific research. Thus, the proposed hypothesis about the different values of income sufficiency indicators at the macroeconomic and microeconomic levels was confirmed.

This study recommended that the proposed indicators of income sufficiency can be used in estimating the financial stability of households by state executive departments to decide on the possibility of financing social benefits or payments to them. Also, the study of these Indicators should be supplemented by an assessment of the dynamics of the interest rate level on the credit market, the consumer price index; and analysis of the composition and structure of received loan funds. This will allow us not only to describe the current state of household income sufficiency but also to form reserves for its prospective (potential) improvement in the future.

Finally, the current research faces some limitations as follows. It is advisable to supplement the study of household income sufficiency with a correlation regression analysis. The functional type of dependence will help us establish the influence of individual endogenous and exogenous factors *x* on the effective factory. In the context of household incomes, which define as an effective factor *y*, exogenous factors *x* can be, for example, GDP, the inflation rate (expressed by the consumer price index), state-regulated social guarantees of the minimum wage, a living wage, social assistance (as exogenous factors) and changes in the composition of households (as endogenous factors) can appear. The use of tools of correlation and regression analysis will allow the ranking of the studied factors by the strength of influence from the smallest to the largest. The construction of a linear function (or linear functions) of the relationship between the indicated indicators and the calculation of the density, direction and strength of their interaction through indicators of elasticity, correlation, and dispersion opens up prospects for further research in the field of household finances.

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