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HOUSEHOLD CONSUMPTION EXPENDITURES IN UKRAINE: ASSESSMENT AND DISTRIBUTION ANALYSIS

The paper deals with the analysis of consumption characteristics of households of Ukraine based on Household Living Condition Survey data and System of National Accounts data. The results of application of the proposed methodological approach to the more reliable assessment of some indicators of economic well-being of households are presented, this approach also provides the possibility of assessment of the well-offs' expenditures and incomes. This approach is based on harmonization of Household Living Condition Survey results as the main information source and the System of National Accounts data as an additional source using the procedure of household statistical weights calibration. The differentiation of the structural characteristics of consumption expenditures of the first and the last decile and also percentile groups of households ranked by cash income is presented. The household consumption expenditures based on Household Living Condition Survey results and the data after calibration are compared. The main characteristics of well-offs consumption expenditures are defined. The assessment of economic inequality of households including the well-offs' incomes and expenditures is done.

Key words: *households, consumption expenditures, Household Living Condition Survey, System of National Accounts, the well-offs.*

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СПОЖИВЧІ ВИТРАТИ ДОМОГОСПОДАРСТВ УКРАЇНИ: ОЦІНКА Й АНАЛІЗ РОЗПОДІЛУ

В статті представлено результати аналізу споживчих витрат домогосподарств України, що ґрунтуються на даних державного вибіркового обстеження умов життя домогосподарств і даних системи національних рахунків. Наведено результати реалізації методологічного підходу до більш повного оцінювання окремих показників економічного добробуту домогосподарств України на основі урахування витрат і доходів заможних верств населення. Цей підхід передбачає гармонізацію даних обстеження умов життя домогосподарств як основного джерела інформації з даними системи національних рахунків як додаткового джерела на основі застосування процедури калібрації системи статистичних ваг одиниць

обстеження. Застосування підходу забезпечило можливість здійснити оцінку споживчих грошових витрат заможних верств населення України та визначити основні структурні характеристики їх споживчих витрат. Представлено та проаналізовано диференціацію структур споживчих грошових витрат першої та останньої децильних і процентильних груп розподілу домогосподарств за середньодушовими грошовими доходами з використанням результатів обстеження умов життя домогосподарств і даних після калібрації. Здійснено оцінку диференціації домогосподарств України за рівнем їх середньодушових грошових доходів із урахуванням витрат і доходів заможних верств населення.

Ключові слова: *домогосподарства, споживчі витрати, обстеження умов життя домогосподарств, система національних рахунків, заможні верстви населення*

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ПОТРЕБИТЕЛЬСКИЕ РАСХОДЫ ДОМОХОЗЯЙСТВ УКРАИНЫ:
ОЦЕНКА И АНАЛИЗ РАСПРЕДЕЛЕНИЯ

В статье представлены результаты анализа потребительских расходов домохозяйств Украины, основанные на данных государственного выборочного обследования условий жизни домохозяйств и данных системы национальных счетов. Приведены результаты реализации методологического подхода к более полному оцениванию отдельных показателей экономического благосостояния домохозяйств Украины, основываясь на учитывании расходов и доходов зажиточных слоев населения. Этот подход предполагает гармонизацию данных обследования условий жизни домохозяйств как основного источника информации с данными системы национальных счетов в качестве дополнительного источника на основе применения процедуры калибрации системы статистических весов единиц обследования. Применение подхода обеспечило возможность осуществить оценку потребительских денежных расходов зажиточных слоев населения Украины и определить основные структурные характеристики их потребительских расходов. В статье представлена и проанализирована дифференциация структур потребительских денежных расходов первой и последней децильных и процентильных групп распределения домохозяйств по среднедушевым денежным доходам с использованием результатов обследования условий жизни домохозяйств и данных после калибрации. Осуществлена оценка дифференциации домохозяйств Украины по уровню их среднедушевых денежных доходов с учетом расходов и доходов состоятельных слоев населения.

Ключевые слова: *домохозяйства, потребительские расходы, обследование условий жизни домохозяйств, система национальных счетов, зажиточные слои населения.*

Introduction. Indicators of household incomes and expenditures are momentous since they reflect the effectiveness of socio-economic policy in general and some aspects of economic well-being of people particularly. But there is the issue dealing with reliability of assessments of indicators based on sample survey data: it is considered that results of sample survey hardly represent information concerning some population groups, e. g. well-offs, migrant worker households, marginalized population, shadow employment, etc. Thus, assessment reliability of household incomes and expenditures impacts the assessment accuracy of the important socio-economic indicators, that is monetary inequality indices, Consumer Price Index (hereinafter − CPI), households' solvency, which are used in the majority of social economic studies, policy effectiveness analysis or in decision making process. The importance of these indicators' reliable assessment proves the fact that considerable error of the CPI assessment could possibly lead to significant effects. For example, the cumulative systematic overestimation of US CPI (0.8−1.6 %) caused excessive indexation evaluated as US public debt increase by more than 1 trillion US dollars for 12 years [1].

Analysis of recent publications highlights the theoretical aspects of the reliability of sample survey data, approaches to small area estimations, and analysis of expenditures of different population (household) income groups.

The study by E. Libanova, ed. (2012) examines the theoretical aspects of Ukrainian population incomes and expenditures measurement and analyzes the consumption of goods and services by various welfare groups. The issue of macroeconomic indicator assessment pertaining to assessment of well-offs' expenditures is highlighted by M. Ogay (2011) who provides the approaches to assessing the national CPI bias. These methodological approaches involve harmonization of data from different sources, i.e. the results of the state sample survey of household living conditions, national accounts data, information of citizens' electricity consumption. Theoretical aspects of the data survey reliability, integration of data from different sources are presented by V. Sarioglo (2005).

The studies conducted in Ukraine omit some important aspects of assessment of expenditures of well-off households and their impact on the level of economic inequality in Ukraine (highlighted in Yu. Ostapchuk, A. Revenko (2007).

It's worth to mention that such methodological problem of household sample surveys conduction is «international» and is inherent to any household budget survey (in this case see [6—7]).

Main results. Studies of household expenditures cover a lot of aspects of the population consumption issue which includes consumption behaviour, household expenditures patterns, distribution of expenditures in case of poverty and inequality analysis, etc. **This paper** shows some methodological issues related to household budget surveys and **aims** to present the results of application of the proposed approach to more reliable assessment of Ukrainian household consumption expenditures with well-offs' included, and also to provide an analysis of consumption structure characteristics by different household income groups.

In this paper household consumption expenditures are defined as cash expenses on commodities (nutritive and industrial) and services spent on by households for their own consumption but not for any kind of business activity. They include expenditures on food and non-alcoholic beverages; alcoholic beverages, tobacco and narcotics; clothing and footwear; housing, water, electricity, gas and other fuels; furnishings, household equipment and routine household maintenance; health; transportation; communication; recreation and culture; education; restaurants and hotels; miscellaneous goods and services and exclude any sorts of expenses for product-producing activities of private households for own use, financial assets, real estate, monetary assistance to other persons, etc.

All sorts of these expenditures reflect the consumption of an «average» household without expenditures attributable to the extreme income groups of households: e.g. do not include all sorts of subsidies which are usual for poor households and do not contain expenses on assets of various types of liquidity which are purchased by well-off households.

The information sources usually used for household incomes and expenditure research are the results of household budget surveys, administrative data (e.g. tax statistics) and specialized databases (covering items such as dwellings, vehicles). It was decided to use data provided by the State Statistics Office of Ukraine since its data are considered reliable enough for a quantative analysis of national household consumption. In Ukraine the main information source for the household economic well-being analysis is the results of the state sample survey of household living conditions (hereinafter — HLCS).

In order to detect main characteristics of households' consumption in Ukraine the analysis of their cash consumption expenditures based on HLCS-2004, 2012 was made (Fig. 1).

As seen in the graph above, the maximum share in the household cash consumption expenditure structure accounts for food and non-alcoholic beverages which is 52.1 %. So-

mewhat lower are expenditures on housing and clothing, footwear, which are respectively 11.2 % and 7.4 %. The others vary from 4.9 % to 1.6 %. The structures of households cash consumption expenditures in 2004, 2012 slightly differ in quantitative analysis: Hatyev and Salai indices, Riabtsev criterion are respectively 0.08, 0.12, 0.05, which indicate small structure differences during that time.
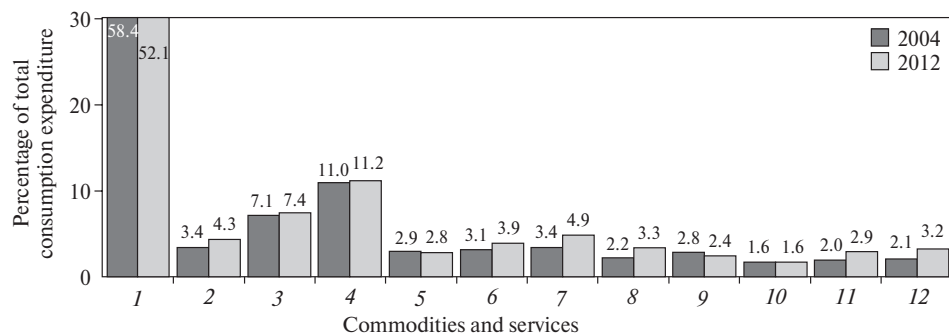
1 — *Food and non-alcoholic beverages; 2 — Alcoholic beverages, tobacco and narcotics; 3 — Clothing and footwear; 4 — Housing, water, electricity, gas and other fuels; 5 — Furnishings, household equipment and routine household maintenance; 6 — Health; 7 — Transport; 8 — Communication; 9 — Recreation and culture; 10 — Education; 11 — Restaurants and hotels; 12 — Miscellaneous goods and services.*

Fig. 1. **Per capita money consumption expenditures in Ukraine**

Source: author calculations based on HLCS-2004, 2012.
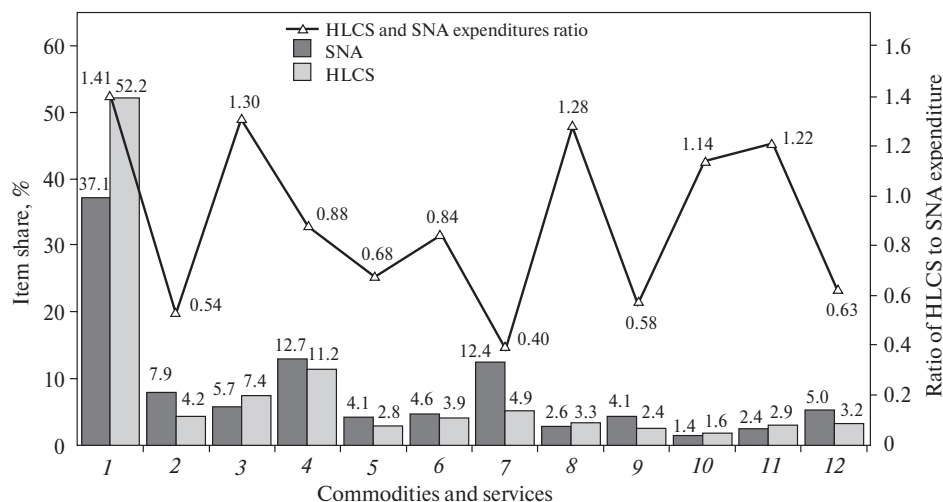
1 — *Food and non-alcoholic beverages; 2 — Alcoholic beverages, tobacco and narcotics; 3 — Clothing and footwear; 4 — Housing, water, electricity, gas and other fuels; 5 — Furnishings, household equipment and routine household maintenance; 6 — Health; 7 — Transport; 8 — Communication; 9 — Recreation and culture; 10 — Education; 11 — Restaurants and hotels; 12 — Miscellaneous goods and services.*

Fig. 2. **Comparison of household consumption expenditure structures based on HLCS and SNA data**

Source: author calculations based on HLCS-2012, SNA-2012.

The additional information source for the household consumption expenditure study are the data of the System of National Accounts (hereinafter − SNA), particularly − household final consumption expenditure data.

The comparison of the household expenditures provided by SNA and HLCS gives a clear understanding of discrepancies of household expenditure structure characteristics especially on food and beverages, clothing, house equipment and furnishing, transport, recreation and culture (see Fig. 2).

According to SNA data, households in Ukraine spend 37.1 % of their total expenditures on food (instead of 52.2 % in HLCS), 12.4 % −on transport (4.9 % in HLCS), 4.1 % − on recreation (2.4 % respectively), etc.

The cause of this discrepancy lies in the different methodological "nature" of these data sources, as SNA data being the result of compilation of data from various macro statistics branches (i.e. trade, agricultural, industrial statistics), they are information of marco level. SNA data present expenditures of Ukrainian households in full (including shadow economy and households groups which are not covered by the survey). Household sample survey data are data of micro level, they are obtained from respondents.

To detect economic inequality by consumption expenditures it is common to compare the percentile distribution of households by income (more often − decile groups (containing 10 % of population), rarely − percentile groups (correspondently 1 % of population). To analyse the differentiation of population by expenditures, consumption of the first and the last decile and percentile groups of households ranked by average cash income per capita are compared as ratio of expenditures of the first to the last income groups (Fig. 3).

Based on the data in Fig. 3, the substantial difference of expenditure structures by the income groups is defined. The expenditures on food and non-alcoholic beverages spent by the first decile group are 40 % more than that of the last decile group. At the same time, the expenditures on housing, water, electricity, gas and other fuels, transport, recreation and culture, restaurants and hotels spent by households from the last decile group are 20 %−50 % more than the ones made by the 10 % of households with lowest incomes.
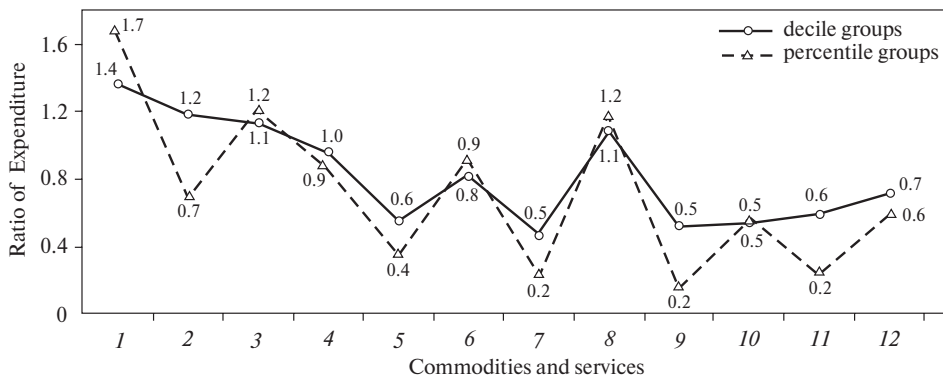
1 — Food and non-alcoholic beverages; 2 — Alcoholic beverages, tobacco and narcotics; 3 — Clothing and footwear; 4 — Housing, water, electricity, gas and other fuels; 5 — Furnishings, household equipment and routine household maintenance; 6 — Health; 7 — Transport; 8 — Communication; 9 — Recreation and culture; 10 — Education; 11 — Restaurants and hotels; 12 — Miscellaneous goods and services.

Fig. 3. **Ratio of money consumption expenditures by their types of the first and the last decile and percentile groups of households in Ukraine**

Source: author calculations based on HLCS-2012.

The ratios of expenditures of the first and the last percentile groups are closely similar to the previous ratios. The main difference is in «deepness» of disparity of the «responsive» expenditures: first percentile group share of expenditures on food is 70 % than that of the last percentile group, but they spend 60 % less on furnishing, 80 % less on transport, recreation and restaurants.

It should be emphasised that expenses on clothing and footwear, housing, health, communication, education, miscellaneous goods and services have almost equal ratios for the different distribution groups. This proves the significance of variation of «responsive» expenditures in terms of consumption inequality analysis.

Besides, the mentioned above difference in expenditure structures of the first and the last decile groups are similar that of discrepancies in household expenditure structures based on SNA and HLCS (see Fig. 2, Fig. 3). This fact could also account for the methodological problem of household budget surveys: sample survey data do not reflect toto caelo the consumption of all the income groups, e.g. expenditures of well-offs are not fully covered in the survey data since high rate of the non-response concerning this population group. The fact that the highest rate of non-response in HLCS is registered in cities, especially ones with the highest levels of average salaries, serves as the indirect proof of this statement. For example, in HLCS-2012 the rate of unit non-response of rural territory was 17.5 %, urban territory had a bit higher rate − 22.9 % (city rate reached 29.8 %). At the same time, Kyiv, the capital, with average salaries almost two times higher of Ukraine average salary, had non-response rate of 49.7 % (Fig. 4).

In case of far more full representation of well-offs in survey data, it is expected household expenditure structure is expected to change due to reduction of expenditures on nutritive and increase of industrial commodities and services.

To solve the problem of incomplete representation of well-offs' expenditures in HLCS data it is proposed to use the approach of harmonization of data from different sources and various levels of aggregation which implies the procedure of calibration of statistical weights system of HLCS according to the SNA data. The calibration procedure is aimed to make correspondence between HLCS statistical weights and household final consumption expenditure of SNA. Finally, after calibration the household cash consumption expenditure structure is similar to the SNA one (in detail see [9]).

This procedure somewhat reduces well-offs' non-response and gives more reliable assessment of incomes and expenditures of this population group. The increase of Gini index,
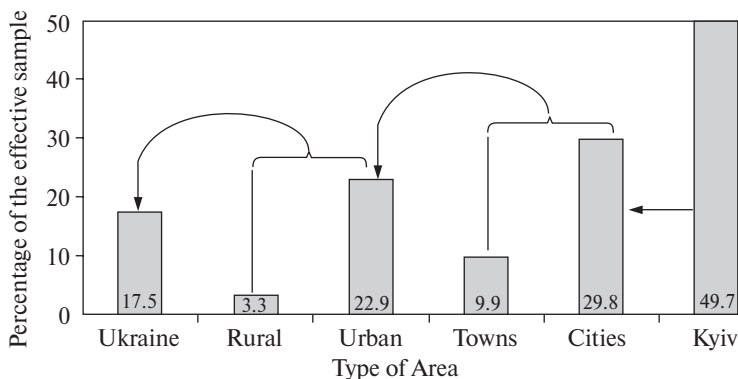

Fig. 4. **Nonresponse share in HLCS 2012**

Source: [8].

*Table.* **Gini index by decile groups of households evaluated using data before and after calibration**

Data	Decile groups of households ranked by average cash income per capita									
	1	2	3	4	5	6	7	8	9	10
before calibration	0.11	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.04	0.14
after calibration	0.12	0.04	0.02	0.02	0.02	0.02	0.03	0.03	0.05	0.17

Source: author calculations based on HLCS-2012, SNA-2012.

which is calculated using data before (0.252) and after (0.292) calibration proves this statement. Moreover, Gini index calculated by decile groups of households which are ranked by cash income per capita represents a significant increase of economic inequality in the last group. At the same time, the other groups' indices slightly change (Table).

Due to the use of the methodological approach mentioned above, it is possible to perform quantitative analysis of cash consumption expenditures of the first and the last income groups of households ranked by average cash income per capita which more fully include expenditures of well-offs (Fig. 5).

The expenditure structure based on the data after calibration differ from that which are based on HLCS data: the total expenses of the last decile group contain relatively low share of expenditures on food which is below 30 % and is twice as much as that of the first decile group (in HLCS it is 40 % more). Besides, the last decile group has relatively high share of expenditures on transport — it is about 23 % which is 5 times as much as the share of the first decile group. The ratio of these expenditure shares based on data after calibration is 2.5 times less than that from HLCS data. The last decile group share of expenditures on food away from home (which is above 4 %) differs widely from that of the first group (it is 3 times as much). The expenditures on entertainment of the defined groups of households also considerably differ: the share of expenditures spent by the first decile group is 40 % of the last decile group share (see Fig. 3, Fig. 5).
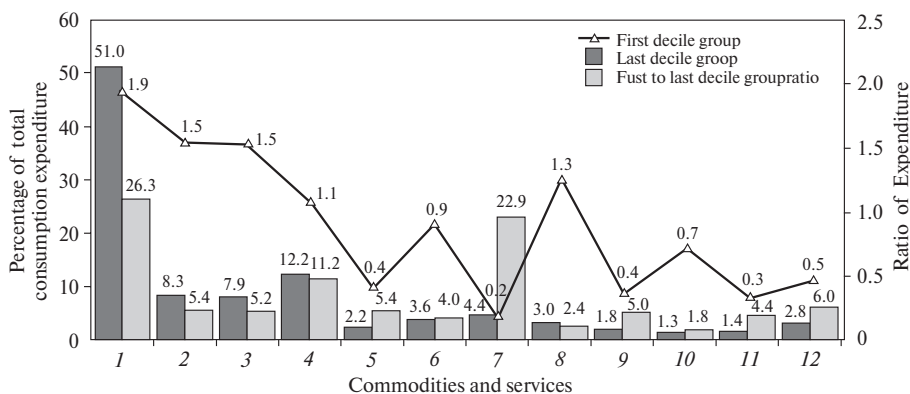
1 — Food and non-alcoholic beverages; 2 — Alcoholic beverages, tobacco and narcotics; 3 — Clothing and footwear; 4 — Housing, water, electricity, gas and other fuels; 5 — Furnishings, household equipment and routine household maintenance; 6 — Health; 7 — Transport; 8 — Communication; 9 — Recreation and culture; 10 — Education; 11 — Restaurants and hotels; 12 — Miscellaneous goods and services.

Fig.5. **Cash consumption expenditures of the first and the last decile groups of households of Ukraine and their ratio based on data after calibration**

Source: author calculations based on HLCS-2012, SNA-2012.

At the same time, the ratios of consumption expenditures on commodities and services performed by the first and the last decile groups based on the data after calibration is more similar to the respective ratios of percentile groups of household distribution which also can be the proof of the statement about more full assessment of well-offs' expenditures in data after calibration.

The quantitative assessment of the consumption expenditures by the different income groups makes it possible to identify the main structural characteristics of the consumption pattern of households with relatively high incomes (i.e. — households from the last decile group):

- the share of expenditures on food and non-alcoholic beverages is about 27 % and is 2 times as much as the same share of 10 % of households with lowest incomes;
- the shares of expenditures on transport, restaurants and hotels, recreation and culture, miscellaneous goods and services of the last income group are respectively 20 %, 5 %, 4 %, 6 % and 2—3 times as much as the first decile group shares.

Thus, the quantitative assessment of the expenditures of the first and the last income groups testifies to the significant discrepancies between their structures, especially concerning the expenditures on food and beverages, transport, restaurants and hotels, recreation and culture. This information is far more important in case of tariff policy development (in terms of assessment of solvency of different income group households who consume housing services), fiscal policy (in terms of evaluation of household tax burden), social and economic policy (in terms of calculation of population differentiation by income level).

Conclusions. The structures of household cash consumption expenditures based on Household Living Condition Survey are almost invariable, expenditures on food constitute the highest share of total expenditures (above 50 %). Expenditures on housing are about 11 %, clothing and footwear — above 7 %.

One of the issues in assessment of household incomes and expenditures based on sample survey data is bias which also includes non-response bias concerning well-offs' refusals to take part in the survey. To solve this problem the methodological approach of the more reliable assessment of incomes and expenditures of households in Ukraine in general and well-offs in particular is suggested.

Due to the methodological approach application the qualitative evaluation of discrepancies of structural characteristics of consumption expenditures of the first and the last decile groups of households is made, the main characteristics of the consumption pattern of households with relatively high incomes are defined: relatively low share of expenditures on food (about 27 %), relatively high shares of expenditures on transport (about 7%), recreation (above 4 %), restaurants and hotels (5 %).

The level of economic inequality of national households is specified. With the more complete assessment of well-offs' incomes the Gini Index is 0.292 which is 4 p. p. more than the index based on data of Household Living Condition Survey.

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