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## ANALYTICAL DIAGNOSTICS OF SOCIAL SECURITY DEVELOPMENT IN REGIONS OF UKRAINE

*The article examines the phenomenon of social security and the problems of social security in modern conditions from the point of view of various branches of science and practical application. A study of Ukrainian and international legal documents determining the global spread of the concept of social security was conducted. The acuteness of social challenges and problems requires the search for effective tools for measuring the level of social security with the aim of timely coordinated actions of authorities to increase its level both at the state and regional levels. The purpose of the article is to adapt the methodological approach to measuring social security for its use at the regional level. The object of research is the process of formation and development of the concept of social security. The subject of the study is the measurement of social security in the regions of Ukraine. The following general and special scientific methods were used in the research: the method of structural-logical analysis – to build the logic and structure of the research; the method of analysis and synthesis – to identify the peculiarities of the existing approaches to the measurement of social security; methods of economic and statistical analysis and the method of grouping – for studying the current state and trends in the development of social security at the regional level; methods of secondary data analysis – to study the current state and trends in the development of social security at the regional level, etc. The main results of the study are: adaptation of the methodological approach to the measurement of social security to its use at the regional level; evaluation of the value of the index of social security on the example of the regions of Ukraine; construction of a scale for a more detailed qualitative interpretation of the level of social security. The proposed method of diagnosing the development of social protection in the regions of Ukraine allowed to determine the objective level of social protection of the largest cities of Ukraine and to provide recommendations for increasing the level of social protection.*

**Keywords:** social security, measurement, methodological approach, social development.

**JEL classification:** C12, C14, C18

## АНАЛІТИЧНА ДІАГНОСТИКА РОЗВИТКУ СОЦІАЛЬНОГО ЗАХИСТУ В РЕГІОНАХ УКРАЇНИ

*У статті досліджено феномен соціальної безпеки та проблеми соціальної безпеки в сучасних умовах з точки зору різних галузей науки та практичного застосування. Проведено дослідження українських та міжнародних нормативно-правових документів, що визначають світове поширення поняття соціального забезпечення. Гострота соціальних викликів і проблем вимагає пошуку ефективних інструментів вимірювання рівня соціальної безпеки з метою своєчасних скоординованих дій органів влади щодо підвищення її рівня як на державному, так і на регіональному рівнях. Незважаючи на значну кількість досліджень, невирішеною проблемою залишається оцінка соціальної безпеки окремого регіону та розробка інструментарію для порівняльного аналізу показників соціальної безпеки різних регіонів. Не розроблено якісної методики вимірювання індексу соціальної захищеності для кожного регіону, яка б дозволила надати сформовану шкалу рівнів соціальної захищеності. Метою статті є адаптація методичного підходу до вимірювання соціальної безпеки для його використання на регіональному рівні. Об'єктом дослідження є процес становлення та розвитку поняття соціального забезпечення. Предметом дослідження є вимірювання соціальної безпеки в регіонах України. У дослідженні використовувалися такі загальнонаукові та спеціальні методи: метод структурно-логічного аналізу – для побудови логіки та структури дослідження; метод аналізу та синтезу – для виявлення особливостей існуючих підходів до вимірювання соціальної безпеки; методи економіко-статистичного аналізу та метод групування – для вивчення сучасного стану та тенденцій розвитку соціального забезпечення на регіональному рівні; методи вторинних даних – для вивчення сучасного стану та тенденцій розвитку соціального забезпечення на регіональному рівні тощо. Основними результатами дослідження є: розробка методичного підходу до вимірювання соціальної безпеки на регіональному рівні; оцінка значення індексу соціальної захищеності на прикладі регіонів України; побудова шкали*

для детальної якісної інтерпретації рівня соціальної захищеності. Запропонована методика діагностики розвитку соціального захисту в регіонах України дозволила визначити об'єктивний рівень соціального захисту найбільших міст України та надати рекомендації щодо підвищення рівня соціального захисту населення.

**Ключові слова:** соціальна безпека, вимірювання, методичний підхід, соціальний розвиток, соціальне забезпечення, регіональний рівень.

**Statement of the problem.** Problems of social security under modern conditions are studied in various branches of science and are solved in practice. Traditionally, among the first legal documents that determine the global dissemination of the concept of social security is considered to be international regulations. The theoretical basis of social security was provided by the specialists of the United Nations (hereinafter referred to as *UN*) namely, they introduced the concept of social security in the Universal Declaration of Human Rights (1948) [12]. Thenceforth, social security has been legally recognized as a right of every person. The adoption of the Universal Declaration of Human Rights was one of the first steps in rethinking of the role of man in the sphere of public life and redefines the essence of security on a global scale. The next step was to define basic principles, conditions and directions of social development. These and other theoretical foundations laid down in the Copenhagen Declaration on Social Development (1995) [13].

**Analysis of recent research and publications.** Social security protection is clearly defined in ILO (2022) [3] as the protection that a society provides to individuals and households to ensure access to health care and to guarantee income security, particularly in cases of old age, unemployment, sickness, invalidity, work injury, maternity or loss of a breadwinner.

According to the definitions of foreign scholars Atkinson (1989) [1], social security should be understood as a set of payments in cash and in kind, including services provided to certain categories of persons. The results of international literature analysis of the essence of social security, proposed by many other scholars allow us to conclude the domination of the instrumental approach (applied approach) to the interpretation of the concept.

Later studies, such as the one by Sydoruk (2020) [9] have taken up the idea in a somewhat different fashion (larger) as a component of national security. According to the Guidelines for calculating the level of economic security of Ukraine (2013) [7] (hereinafter referred to as the Guidelines), social security is a state of development in which the government is able to ensure a decent and quality standard of living regardless of age, gender, income level, promote human capital as the most important component of the country's potential.

Social security means the state of protection of social interests of society from threats to national security that affect them, and the state of security is a consequence of the implementation of social protection measures, which characterizes their effectiveness and efficiency [8]. Libanova and Paliy (2004) [5] in defining the term follows the situational approach. This approach is based on the assumption that social security is a state of protection as a result of the implementation of government social protection policy.

Conducting a measurement of social security requires scientifically based information and analytical support that provides structured information about the key targets of social security and the factors that affect it.

Despite a significant number of studies, the assessment of social security of a particular region and the development of tools for comparative analysis of social security indicators of different regions remain an unsolved problem. A qualitative method of measuring the social security index for each region has not been developed, which would allow providing a formed scale of social security levels. This question will be considered in the article.

**Objectives of the article.** The purpose of the article is to adapt the methodological approach to the measurement of social security to its use at the regional level.

The research object is the process of formation and development of the concept of social security. The research subject includes measurement of social security in the regions of Ukraine. In order to achieve the purpose of the article, the following research methods were used: method of structural-logical analysis – to build a logic and a structure of the research; method of analysis and synthesis – to identify the features of existing approaches to measuring social security; methods of economic and statistical analysis and the method of grouping – to study the current state and development trends of social security at the regional level; methods of secondary data analysis – to study the current state and development trends of social security at the regional level, etc.

This study is based on secondary data that are collected from various sources. The information base of the research includes the official data of the State Statistics Service of Ukraine (2020) [10], statistical bases of international organizations, research institutions and the results of calculations made by the authors.

**Summary of the main results of the study.** Methodological approaches to measurement of social security are presented by the Ratio of Social Security Expenditure to GDP (Chien-Chiang & Chang, 2006 [2]; Tasci & Tatli, 2018 [11]; Gongcheng & Scholz, 2019 [4]). The structure of the Ratio of Social Security Expenditure to GDP consists of the state budget expenditures on national health, education, pensions, and other social services to GDP. But such a methodological approach corresponds to the instrumental approach to the interpretation of social security. In our opinion, this approach has a number of shortcomings. So, they are: 1) ignoring the inclusion of social security result-indicators; 2) does not reflect regional differences; 3) has no thresholds; (4) the results of the calculations have no worth information to use, in particular for the formation of regional and state development strategies.

In Ukraine, an extremely significant contribution to the development of methodology of measurement of social security has been made by the specialists of the Ministry for Development of Economy, Trade and Agriculture of Ukraine in 2013 [7]. The methodology is based on the composite Index of Economic Security and its sub-indices (including social security sub-index). A list of basic indicators, weighted coefficients for each indicator, as well as an algorithm for calculating is presented in the Guidelines. The scientific novelty of Melnykova's

(2018) [6] study is the implementation of quantitative and qualitative indicators in the diagnosis of social security. Further research in developing a methodological approach was conducted by Sydorchuk (2020) [9]. This approach is based on a composite index, which consists of 7 sub-indices. The general list of indicators is more than 50 primary ones, moreover, some indicators are correlated with each other.

The results of the critical analysis allowed the authors to conclude the universality and ease of use of the system of indicators, that were presented in the Guidelines (2013) [7]. But, it should be noted that the list of indicators requires a review taking into account the availability of indicators at the regional level. This is largely due to the fact that the indicators were intended for use at the state level, instead of using to compare the level of social security between regions, determining the place of each region on a scale of measurement.

We adapted the system of social security indicators in order to use it at the regional level (Table 1).

The adapted system of indicators highlights the main aspects of social security. Therefore, the list of indicators in tab. 1 is due to the fact that among a number of primary ones the most important are indicators that directly affect the level of social security. There is also reliable annual statistical information by region.

The normalization of the selected indicators was carried out using a linear function on a scale from 0 to 1 or a percentage. The use of normalization for each indicator, we consider quite justified for regional measurement; because the use of minimum and maximum normalization method has a lot of shortcomings and is considered impractical. In our opinion, this method leads to the fact that a certain region will be considered a reference that significantly limits the use of the composite index only for track rating between regions, and not to determine progress in social security.

The calculation of the regional social security index is carried out according to the following formula:

$$I = \sum X_i \times W_i,$$

where I – Regional Social Security Index;  $x_i$  – normalized value of the indicator;  $w_i$  – weighted coefficients

(the contribution of the indicator to the Regional Social Security Index).

The calculation of the Regional Social Security Index was carried out based on statistical data for 2016–2021 in the largest cities of Ukraine (Table 2).

The other novelty of our approach to measurement of social security is constructed a five-interval scale for Regional Social Security Index for a more detailed qualitative interpretation of the level of social security (Table 3). Table. 3 shows the values of the intervals from 0 to 1.

Scientifically justified intervals allow as conducting qualitative analysis interpretation of the results of calculation of the Index in terms of social security for each region. So, the state of social security in most regions of Ukraine is in a low interval during the period.

Analyzing the data, it should be mentioned that over the period from 2016 to 2021 a certain uniformity of social security in the regions of Ukraine was revealed. In general, there is a tendency to increase the social security index by an average of 0.3 percentage points, which indicates an improvement in social security in some regions.

The results allowed forming the main recommendations to improve the level of social security.

Since almost all regions are in the *Low level* of social security, the priority recommendations should concern the general state policy in the social sphere:

- improvement of state and regional programs to combat socially dangerous diseases, including: tuberculosis and HIV / AIDS epidemic, popularization of a healthy lifestyle, primarily among children and youth;
- activation of unemployed but able-bodied labor market participants through the use of effective tools to involve such groups to the labor market;
- dissemination of knowledge and skills necessary for employment and entrepreneurship;
- improving the conditions for doing business and promoting priority economic activities in the regions; as well as promoting of small farms, including family farms, etc.;
- review of the amounts of state social norms and standards taking into account the modern development of society.

Table 1

System of Indicators of the Regional Social Security Index

№	Initial indicators	Unit of measurement	Impact on the social security
1	Share of population with per capita money income below subsistence	<i>per cent</i>	Negative
2	Ratio of nominal wages to the subsistence level, per person of working age	<i>percentage points</i>	Positive
3	Ratio of the average old-age retirement pension to the subsistence level for incapacitated persons	<i>percentage points</i>	Positive
4	Ratio of expenditures on food products in consumer cash expenditures of households	<i>per cent</i>	Negative
5	Ratio of consolidated budget expenditures on health to GDP	<i>per cent</i>	Positive
6	Ratio of consolidated budget expenditures on education to GDP	<i>per cent</i>	Positive
7	Number of new HIV infections per 100 thousand population	<i>per 100 thousand population</i>	Negative
8	Number of new active tuberculosis, per 100 thousand population		Negative
9	Ratio of total number of full-time pupils to permanent population aged 6–17	<i>per cent</i>	Positive
10	Ratio of wage arrears to the wage fund	<i>per cent</i>	Negative
11	Crime rate	<i>per 100 thousand population</i>	Negative
12	Unemployment rate among the population at the age from 15 to 70 (by the ILO methodology)	<i>per cent</i>	Positive
13	Ratio of the average hourly labour costs in the EU-27 and in Ukraine	percentage points	Negative

Source: compiled by the authors

Table 2

The results of the calculation of the Regional Social Security Index in Ukraine

Regions of Ukraine	Calculated values of Regional Social Security Index						Absolute deviation				
	2016	2017	2018	2019	2020	2021	2017 / 2016	2018 / 2017	2019 / 2018	2020 / 2019	2021 / 2020
<b>Regions</b>											
Dnipro	0.48	0.52	0.55	0.51	0.51	0.53	0.04	0.03	-0,04	0	0,02
Kyiv	0.50	0.56	0.58	0.66	0.67	0.68	0.06	0.02	0,08	0,01	0,01
Lviv	0.51	0.58	0.60	0.56	0.51	0.52	0.07	0.02	-0,04	-0,05	0,01
Odesa	0.46	0.53	0.55	0.53	0.50	0.51	0.07	0.02	-0,02	-0,03	0,01
Kharkiv	0.55	0.60	0.62	0.53	0.57	0.55	0.05	0.02	-0,09	0,04	-0,02

Source: State Statistics Service of Ukraine, 2020 [10]

Table 3

Interval Scale for Regional Social Security Index values

Qualitative interpretation	Critically Dangerous	Dangerous (Very Low Level)	Low Secure	Medium Secure	High Secure
Scale of Values	0 – 0.2	0.2 – 0.4	0.4 – 0.6	0.6 – 0.8	0.8 – 1

Source: compiled by the authors

It should be mentioned, social standards (including the basic – subsistence level) is one of the tools of state regulation and should be the basis of social security. But the high level of poverty, the vulnerability of some groups of people, working poverty, high differentiation between rich and poor, social tensions, low standard and quality of life indicate the imperfection of the mechanism of social standards in Ukraine.

When choosing a method of calculating the subsistence level, it is necessary to take into account the peculiarities of the Ukrainian economy. Thus, we propose to use the median method of calculation. Based on the methodology of the median method, 48% of Ukrainians received a wage of about UAH 6500, and 52% – more than UAH 6500. That is, according to the median method, the subsistence should be not less UAH 6600, while as the subsistence per person per month was only UAH 2118.

Thus, taking into account the results of the measurement of social security in regions of Ukraine we conclude it is necessary to change the general state policy in the social sphere (consider proposed priority recommendations).

One of the most important tasks of the government of the country in the social sphere is the optimization of social standards and norms in accordance with today's conditions for the development of society. As a result of the analysis of the subsistence level, we conclude the necessity of changing the methodology for determining the size of the subsistence level in order to ensure the maximum compliance of its size with the economic capabilities of the state and to ensure a sufficient level of consumption. The introduction of a median method for calculating the subsistence minimum as such, the level of prosperity, which is most often found in the country and is able to meet the minimum needs of the population.

In addition to changing the calculation methodology, in accordance with world practice, we consider it expedient to (1) establish subsistence for both one person and a family separately; (2) to change the role of the subsistence minimum as a poverty line to a standard, a level sufficient to ensure a normal human life.

**Conclusion.** The results of the analysis of social security measurement allow us to conclude that there is a tendency to imitating the international and domestic standards models of calculation of the Social Security when improving the system of indicators or the way of their normalization, etc. This indicates the dynamic development of the social security conception and other human-centered concepts, and an increasing attraction of the attention to issues related to its measurement.

An adapted method is a necessary tool for determining the objective level of social security. The methodology consists of thirteen primary indicators and their weighted coefficients, that allows to calculate the composite Regional Social Security Index.

Qualitative interpretation of the social security index for each region allows to provide the formed scale of levels of social security. It must be mentioned, social security is in a low interval during 2016–2021 in most regions of Ukraine.

The comparative analysis of the average values of the calculated indices by the adapted method made it possible to determine the level of Social Security by regions. Thus, the measurement results show a low level of social security in almost all regions. It should also be noted the differentiation of the population according to the level of availability of tangible goods and intangible services. In addition, the unfavorable socio-economic situation in the regions of Ukraine, generates trends that are a potential source of social instability in the country, stimulates the social stratification of society. The result of the adaptation of the national approach to measuring social security is the establishment of an objective level of social security, and it creates an analytical basis for the formation of recommendations for improving its level.

Further development of research problems as the extension to the presented research results can be seen in conducting a deeper analysis of today's government mechanism of support of social security in Ukraine and the most effective foreign models of organizational and communication support of realization the social security high level.

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