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EVALUATION OF SOCIAL SECURITY: SYSTEMIC AND SYNERGETIC APPROACH

Abstract. *Introduction.* The effectiveness of the state economic security is assessed through the achievement of the certain level of the population social stability and welfare. This requires the evaluation of the social security level based at the complex system of internal and external relations. In order to analyze the current situation in the country and its regions, it is necessary to investigate dynamics of social processes in integrated manner. *Purpose.* The purpose of the article is social security state research through the interaction of economic, social and environmental development as secure environment of human formation development. This requires systemic and synergetic approach. *Methods.* Usage of the systemic and synergetic approach for social system security research promotes productive application of synergetic concept for solving urgent and particular tasks in this area. *Results.* The essence of «social security» concept using systemic and synergetic expediency assesses social security in its integrity and ability to determine security detection mechanisms of systemically important connection types. The basic components of social development are estimated, such as demographic situation, health preservation, education, population employment, population material security, the level and structure of consumption, housing conditions of the population, pension provision, social tensions and their impact on human development. The impact of economic and ecological development on social security at regional level is also analyzed. *Conclusion.* The authors present a comprehensive assessment of the social security based on systemic and synergetic approach. This approach allows government agencies to respond to real and potential country development threats. Effective public policies ensure an adequate living standard based at complex system of interaction performance – indicators.

Keywords: social security; systemic and synergetic approach; human development; socially oriented model; threats.

JEL Classification: B49, I19, I21, I30, J11, O18

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ОЦІНКА СТАНУ СОЦІАЛЬНОЇ БЕЗПЕКИ: СИСТЕМНО-СИНЕРГЕТИЧНИЙ ПІДХІД

Анотація. У статті проведено комплексну оцінку стану соціальної безпеки на основі системно-синергетичного підходу, що дозволить органам державного управління своєчасно реагувати на реальні та потенційні загрози розвитку країни, проводити ефективну державну політику для забезпечення належного життєвого рівня населення з урахуванням системної взаємодії комплексу показників-індикаторів. Досліджено сутність поняття «соціальна безпека», обґрунтовано доцільність використання системно-синергетичної концепції оцінки соціальної безпеки, що дає змогу розкрити її цілісність і можливість визначення механізмів забезпечення, виявити системоутворювальні типи зв'язків.

Ключові слова: соціальна безпека, системно-синергетичний підхід, розвиток людського потенціалу, соціально орієнтована модель, загрози.

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ОЦЕНКА СОСТОЯНИЯ СОЦИАЛЬНОЙ БЕЗОПАСНОСТИ: СИСТЕМНО-СИНЕРГЕТИЧЕСКИЙ ПОДХОД

Аннотация. В статье проведена комплексная оценка состояния социальной безопасности на основе системно-синергетического подхода, которая позволит органам государственного управления своевременно реагировать на реальные и потенциальные угрозы развития страны, проводить эффективную государственную политику для обеспечения должного жизненного уровня населения с учетом системного взаимодействия комплекса показателей-индикаторов. Исследована сущность понятия «социальная безопасность», обоснована целесообразность использования системно-синергетической концепции для оценки социальной безопасности, что дает возможность раскрыть ее целостность и возможности определения механизмов обеспечения, а также выявить системообразующие типы связей.

Ключевые слова: социальная безопасность, системно-синергетический подход, развитие человеческого потенциала, социально ориентированная модель, угрозы.

Introduction. The effectiveness of the state economic security is assessed through achievement of the certain level of the population social stability and welfare. This requires evaluation of the social security level based at a complex system of internal and external relations and dynamics of social processes in integrated manner in order to analyze the current situation

in the country and its regions. Studying the state of social security through the interaction of economic, social and environmental development as a secure environment for human development requires systemic and synergetic approach.

Brief Literature Review. Most of theoretical and methodological researches in the area of social security are devoted to

the scientific works of such economists, as S. Bandur, T. Zayats, V. Kutsenko, L. Shevchenko, O. Hritsenko, T. Kaminska, S. Makukha, O. Bilorus, D. Lukianenko, M. Honcharenko, I. Hnibidenko, N. Kravchenko, O. Novikova, O. Amosha, L. Shaulska, S. Hrinevska, L. Shamileva [1-7]. The main problems of social security were covered by western researchers J. Attarian (2002) [8], D. Pieters (2006) [9], J. Millar (2009) [10]. Synergetic approach, founded by Hermann Haken, is further developed by the thesis of O. Shevchuk [11] and V. Reshetilo [12]. In the meantime, actual research evaluation and analysis of social security through the prism of interaction (economic, social and ecological development) as a secure environment formation of human development based at systemic and synergetic effect is not researched enough.

Purpose. It is necessary to conduct evaluation of social security based at systematic and synergetic approach. Let us take for a basis achievements of national researchers.

Results. According to scientists and economists, «main strategic aim of modern social development of Ukraine should be sustainable growth of the population based at strengthening potential of its life, in direction of greater societal productive employment» [1, p. 10]. In the modern conditions, national economic interests are focused on providing social security environment at national and regional level. In this respect, L. Shevchenko, O. Hritsenko and T. Kaminska emphasize that «security of human development is the most important component of social security; social security is aimed primarily at protecting human as the highest value of any country» [2, p. 76].

Analysis of scientific publications indicates the absence of a unified approach to the interpretation of the term «social security». In scientific works [3, p. 140] it is pointed out that «social security is defined as a condition of the state in which the latter is able to provide a decent standard of living and quality of the population, regardless of the impact of internal and external threats».

The group of authors O. Bilorus, D. Lukianenko, M. Honcharenko describe a concept of «social security». It is shown that «reliable protection of vital interests of social subjects on macro and micro levels, conservation and development of human potential, support effective stimulation of people of their socialization and life support undying values and morals» [4, p. 541].

In the monograph [5, p. 45] it is interpreted that «social security – of the state social protection interests of the individual and society from acting on them threats to national security».

Indicators, which are stated above, show the feasibility of the systemic and synergetic approach in the assessment of social security that is caused by providing of social system stability and appropriate level of security, consideration possible changes in the dynamics of its development. The advantage of this methodological approach is in research of the selected object as a complex, dynamic, multilevel system. The use of systemic and synergetic approach is in the research of social security. It is aimed to reveal its integrity and is possible to determine mechanisms of its identification providing of system-types of relationships of this complex system. Usage of the systemic and synergetic approach for social system security research, promotes productive application of synergetic concept for solving urgent and particular problem tasks in this area. Scientists think that [6, p. 29] «solving problems of social security in the context of national security and social policy is extremely complicated because of the spent theoretical and practical problems associated with undetermined their interaction, coordination and ensuring realization».

The level of social security characterizes the formation level of environmental human

potential development, its integrity, and dynamics and directs the changes vector of its constituents. The scientists and economists argue that the «human potential is the highest social value and its development – the priority component of social and economic policy and the condition for government regulation of the economy» [6, c. 29].

A systematic and synergetic effect in the research of social security is shown as interaction of manifests (economic, social and ecological development), which provide stability and fastness in the country. The modern socially oriented model of stable and sustainable development integrates targets of its unity system aimed at: economic growth, sustainable social structure, healthy and ecologically friendly environment. These means provide individual, society and state life security (Figure 1).

Socially oriented model predicts the impact of social sector on economic development; need to support social security and creating conditions for effective social and economic policies [7, p. 56].

Dynamic economy development rate, high levels of innovation and enterprises investment production, effective use of human potential creates conditions comprehensive to economic growth. In 2012, analysis of the economic performance in the country and its regions shows an increase in gross domestic product per 106810 million UAH (8.2%) (that per one person is 30901 UAH) [13, p. 28]. In 2012, according to statistical data of country's economic development, an increase in volume of industrial production in the mining and quarrying industry was up by 299.3 million UAH (2%); increase in processing industry was up by 25182.5 million UAH (2.9%); machine building volume increased up to 10444.4 million UAH (7.8%); there was an increase in the supply of electricity, gas, steam and air conditioning up by 48619.1 million UAH (16.5%); water supply, sewerage, decreased on 1424.5 million UAH (6.4%), [14] compared to 2011.

In 2012 (on a contrary to 2011), agricultural production per capita decreased on 4.3%, reducing of crop production per capita was on 7.9%, but an increase in livestock production was up by 3.6% [14].

Investment providing is an essential component of the national economy stable functioning, it is the main condition to ensure its competitiveness. In 2012, capital investment increased from all sources of funding up by 33760 million UAH (13%) compared to 2011, including the total utilized 5.8% of capital invest-

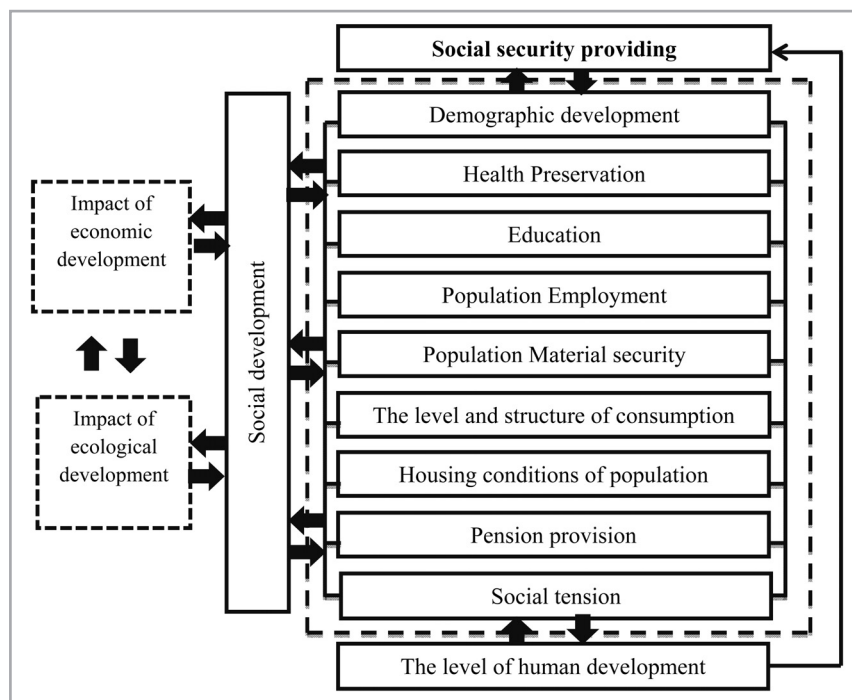


Fig. 1: Systemic and synergetic approach to secure social development forming
Source: Own development

ment for the state budget. There was an increase in export of goods by 33.9% and by 39.4% increase in import of goods in the foreign economic structure of Ukraine in 2012 [13, p. 110].

Implementation of a comprehensive assessment of the social security level is based on existing approaches analysis, requiring metrics, social situation indicators, which would reveal and characterize the living population conditions in the region.

Estimation of demographic situation in Ukraine indicates systemic decrease in population in recent years, particularly in 2012 it reduced to 80550 people. In 2012, the excess of deaths over births was 142435 persons. It is a negative indicator of reproducing population and it testifies the existing scale depopulation. In Volyn, Transcarpathian, Ivano-Frankivsk, Rivne, Chernivtsi and Kyiv regions positive indicator of natural population growth is observed [13, p. 173]. This is the evidence of negative and threatening demographic situation in most other regions of our country. During the last 13 years in Ukraine children under 1 year mortality rate decreased (from 11.9 to 8.4), but at the end of 2012, in Dnipropetrovsk region it was increased by 0.5 p., by 1.2 p. in Donetsk, by 2.9 p. in Khmelnytsky, by 1.5 p. in Cherkassy, by 1.3 p. in Chernihiv [13, p. 175].

Demographic situation is a significant threat for Ukraine and its regions. It requires effective demographic policy formation aimed at processes of reproduction normalization, which is the main driving force of social development. Negative balance of migration in most regions of the country was observed in 2012 that is a threat of human resources loss as a result of migration processes [13, p. 176].

The main indicator of social and economic prosperity of the country is an appropriate level of healthy population. Health indicators analysis in Ukraine reveals a reduction in the number of physicians of all specialties from 226.32 thousand in 2000 to 217.15 thousand in 2012. Number of paramedical personnel (from 541 thousand in 2000 to 441.1 thousand in 2012) has also declined. Since 2000, there has been a decrease of hospital establishments from 3300 in 2000 to 2369 in 2012, under shrinking hospital beds – from 465.97 to 404.5 thousand. The number of ambulance stations (from 1039 in 2000 to 866 in 2012) is also reduced [13, p. 209]. In 2012, financing health care from the state budget has been amounted to 58446 million UAH. Hence, there was an increase of 9484.4 million UAH compared with 2011, but in general volume of financial support does not comply state guarantees of free and qualitative medical services [14].

The population incidence analysis of the diseases in 2012 showed slight decrease in the number of reported cases of first time references to doctors of 1219 thousands cases compared with 2011. Respiratory diseases decreased – 928.4 thousand cases (all diseases proportion is 42%) and other classes of diseases. At the same time, in 2012 the structure of diseases increased proportion of tumors by 10.4 thousand cases. The proportion of the quantity of injury, poisoning cases has been increased to 4 thousand cases [14, p. 45]. The most diseases density is observed in Dnipropetrovsk, Donetsk and Kyiv regions. Quality health care improvement and forehand care is still a daunting challenge.

One of the most important components of the population social development is education quality. Coverage level of preschool education institutions is analyzed to evaluate the development of preschool education and training. In Ukraine, in 2012 this indicator was 59%, which is 4% higher than the previous year. The population decline, increasing depopulation rate leads to reduction of secondary schools number. For example, on the beginning of the 2000/01 school year the number was 22.2 thousand and by the beginning of 2012/13 – 19.7 thousand establishments. The largest decrease in the number of secondary schools for the last 13 years occurred in Khmelnytsky region – 250, in the Poltava region – 232, in Chernihiv – 201, in Donetsk – 195 institutions [13, p. 203].

In Ukraine, in 2000 general number of pupils has decreased up to 2542 thousands. It leads to reduction of teachers to 67 million people. At the beginning of the 2012/13 academic year, the largest decrease in the number of pupils of secondary schools in comparison with the 2000/01 academic year took

place in Donetsk region (by 250.7 thousand students), in Dnipropetrovsk region (by 198.2 thousand students), in Luhansk region (by 153.5 thousand pupils), Kharkiv region (by 152.1 thousand pupils). Problematic and threatening situation is caused by unfavorable demographic situation in the country [13, p. 203].

The number of people enrolled at vocational educational establishments in Ukraine has increased for 14 thousand students in 2012/13 academic year, compared with the 2011/12 academic year. One of the reasons is the decline in the population solvency in obtaining contract of education in universities and colleges. Decrease of persons studying in higher educational institutions of I-II accreditation levels is in 12 thousands in comparison with the 2011/12 academic year. The downward trend of students of higher educational institutions with III-IV accreditation levels has been observed in 2012/13 – 130 thousands over the previous year [13, p. 203]. In 2012, expenditures from the state budget for education are 17.7%, increased that in 2011 constituted 101547.5 million UAH [14]. Equal access to qualitative education throughout life is the key element of sustainable human development that provides an opportunity to professional and intellectual freedom of choice of each citizen in the country.

Potentially dangerous threat to the social security of the country and its regions is a systematic unemployment number increase. In 2012, in Ukraine unemployment rate increased up by 24 thousands of people (5%) compared to 2011. Exceeding indicator of unemployment by more than 1% is observed in Vinnitsia, Zhytomyr, Kirovohrad and Cherkasy region. According to statistical data in Ukraine the employment rate in 2011 slightly increased for the population aged 15-70 years and 1.5% at the end of 2012 amounted to 20354.3 thousand (59.7%). In Ukraine during 2011-2012 negative trend of workers reduction revealed, so in 2012 in comparison with the 2011 their number increased up to 5.8 thousands of people and amounted 110.2 thousands. In 2012, there was a decrease of 210.2 thousand people of economically inactive population aged 15-70 years; it is a favorable indicator for national development [13, p. 178]. During 2010-2012, debt of the population of wages and social payments decreased on 329 million UAH, in 2010 amounted to 1240 million UAH and in 2012 – 911 million UAH (98.1% – salary and 1.9% – the social insurance payments) [14]. The unemployment growth reduces the quality of life, leads to slowdown in human potential development, reduces purchasing power, and increases the cases of crime. All that means create a situation of social tension in society.

The financial level of the population is an important indicator of social security. In 2012, an income in Ukraine in comparison with the 2011 increased up by 140444 million UAH (11%) and income structure, the largest share is 593213 million UAH (42.2%). Social benefits and other current transfers account increased up by 526944 million UAH (37.4%), profit and mixed income amounts to 212420 million UAH (15.1%), the income derived from property accounts increased up by 74620 million UAH (5.3%). The average nominal wages in Ukraine in 2012 increased compared to 2011 up by 393 UAH (14.9%) and was the largest in aviation (9817 UAH), financial activity (5954 UAH), providing additional transport services and auxiliary operations (3855 UAH). In 2012, the highest average nominal wage of workers was in Kyiv (4607 UAH), Donetsk region (3496 UAH), Kyiv region (3157 UAH). In 2012, the level of expenditures from the state budget for social protection and social welfare increased up by 4547.9 million UAH compared to 2011 and amounted to 109982.7 million UAH [13, p. 185]. The problem of wage differentiation is important, matching its size international standards, ensuring an appropriate level of human activity.

In 2012, the structure of expenditure on goods and services was the proportion of 1179071 million UAH (83.8%), which is 14.4% more than in 2011, current taxes on income, property and other current transfers account for 95549 million UAH (6.8%) of all costs, the share of spending on capital of financial assets is 86035 million UAH (6.1%), the cost accumulation of non-financial assets are 18525 million UAH (1.3%). In Ukraine, in 2012 total expenditures amounted to 3591.76 UAH and an

increase of 135.75 UAH is observed in comparison with the 2011. In 2012, in total household expenditures increased in proportion of total consumer, spending up by 0.7% due to increased spending on non-food goods and services. Non consumer total costs decreased on 0.7% due to the decrease in purchasing shares, real estate, construction, overhaul, bank deposits and other costs [13, p. 185].

In Ukraine, housing stock increased on 8.2 million m² in 2012, the average per inhabitant was 23.7 m² compared to 2011 the increase was only on 0.2 million m². In 2012 by regions supply of average housing per inhabitant was 23.7 m², the excess of this value observed in Kyiv region and was 32.7 m², Cherkasy region – 26.7 m², Vinnitsia region – 27 m². In 2012, the number of families and singles who were on the housing waiting list decreased on 62 thousands compared to 2011, the number of families and singles who received housing during 2011-2012 was 7 thousand, it is only 0,7% of the total number being on the housing register [13, p. 199]. Housing provision still remains an unresolved problem and is one of the most important indicators of human development slowdown.

The level of pension provision remains relevant aspects of social security. In Ukraine on the end of 2012, the total number of pensioners decreased on 181 thousand compared to 2011. Due to pensioners in advanced years decrease on 126 thousand people, pensioner survivors' on 35 thousand people, the number of pensioners on social payments – 12 thousand and invalidity pensioners on 9 thousand. The greatest number pensioners live in Donetsk region (1.404 million people), Dnepropetrovsk region (1.022 million people) and Kharkov region (0.809 million people). At the end of 2012, across the country monthly pension average was intended at 1470.7 UAH that 217.4 UAH more than in 2011. In 2012, the greatest average monthly pensions was in Kyiv (1883.45 UAH), Donetsk (1724.4 UAH) and Luhansk region (1666.97 UAH) [14].

Considerable influence on the social tensions and social development creates an increase in salary arrears and arrears in the utility services payment. Unemployment increase, partial employment, layoffs in the region and increase the rate of crime also has influence on society. The growth of these indicators characterizing the level of social tension indicates the threat to the physical, spiritual and psychological health in the country.

Ecological situation and the natural environment of the population is an important factor of influence on social development in the country. In 2012, pollutants emissions into the atmosphere from stationary sources decreased on 39.3 thousand tons (0.9%). The biggest pollution was observed in Donetsk region (34.9%), Dnepropetrovsk (22.2%) and Luhansk region (10.3%). Statistical data analysis in Ukraine in 2012, shows an increase in sulfur dioxide emissions into the atmosphere up by 66.9 thousand tons (4.9%) but decreased carbon dioxide emissions on 4 tons (1.7%) in comparing with 2011 [13, c. 221]. The large numbers of enterprises in Ukraine, which have manufacturing emissions, should use latest technology waste recycling to save the environment.

Improvements in living standards can be provided by effective social policies at the national level applying a systematic and synergistic effect on the economic, social and environmental development.

To evaluate the security of social development and to determine potential risks, basing on indicators and parameters system it is necessary to identify possible threats to the satisfaction of social needs, proper level of the population, conditions of formation and distribution of material wealth and services, including systemic and synergetic approach.

It is necessary to mention that providing social security problem has escalated during 2013 and 2014 because of influence of socio-political crisis, accompanied by military conflict in the eastern regions of Ukraine. There can be a critical situation concerned with uncontrolled internal and external migration in Ukraine. The probability of continuing national currency (UAH) devaluation is still high. For instance, The National Bank of Ukraine exchange rate in 2011-2012 was about 8 UAH for 1 dollar, and in May 2014 – 11.59 UAH respectively. This fact indicates Ukrainian assets price reduction, external imbalance and

affects the citizens' living standard and their social security assurance; social and industrial infrastructure and housing stock destruction costs in eastern regions of the country are also very high.

Conclusions. Systemic and synergetic approach allows evaluating the state of social security, to create conditions to prevent potential threats to human development. A necessary condition for maintaining the level of social security should be increased by funding the education sector, health and social protection, because human capital is the most important factor in social and economic development. Comprehensive assessment of the social security with help of systematic and synergetic approach allows public administration to respond to real and potential development threats, provide effective public policies which provide proper living standards with implementation of a complex system with interaction indicators.

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