

Socio-economic determinants of the ecosystem of sustainable development of Ukraine

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Abstract. Now the world has felt the effects of events (pandemic, digitalization, etc.), which provoked a change in the socio-economic ecosystem, which the authors propose to understand as a set of objects and subjects, and grouped according to certain interests, including on professional interests related to the definition of priorities and directions of adaptation of society and the state to the existing environment, which includes rules, laws, moral and ethical norms, and thus forms a single whole with them. Realizing the irreversibility of these events and their consequences, it becomes obvious that the transformation of national ecosystems is accelerating, especially under the influence of the ecological program. Thus, the process of adaptation to the new ecosystem of state development and ensuring its sustainability actualizes the study of determinants of socio-economic nature. The author's research, based on his own methodology, proves that the key factors in ensuring the sustainability of this ecosystem are compliance with high standards of quality of life, maintaining partnerships and public trust in various institutions, taking into account various aspects of security (individual to collective), assessment of the present and forecasting the future.

1. Introduction

The transition from an industrial to a digital economy and the spread of the COVID-19 coronavirus have led not only to a change in business approaches, the classical liberal management model to a new concept of an economic ecosystem, where environmental friendliness, non-toxicity of labor relations will play a leading role. At the same time, scientists are trying to unravel the consequences of these phenomena and predict future changes to ensure sustainable development in the world. In particular, F. Fukuyama, reflecting on how the world has changed over the past 30 years, argues that society has two different models of relations: "The first is social fragmentation and its concomitant, the decline of the authority of mediating institutions, primarily in established democracies. The second is the rise of new centralized hierarchies in authoritarian states"[1]. Thus, the achievement of sustainable development is seen only through the prism of both individual and collective responsibility, the formation of trust in society. Also the unchanged fact is the recognition of corporate social responsibility as a basis for sustainable development [2, 3], which only strengthens the scientific interest in the study of qualitative changes in corporate social responsibility policy and assessment of the impact on the structure of the ecosystem.



At the same time, different countries have chosen radically different mechanisms for managing and achieving sustainable development due to the coronary crisis. Exploring a new socio-economic reality that shapes their own ecosystem, researchers do not have a single vision. Some believe that today the transition to a new economic ecosystem will lead to strict specialization of the world [4], while others emphasize that there will be a deepening of "closed nature" and the spread of circular economies in some countries [5, 6]. To what extent such processes are positive or negative is difficult to answer today, but it is clear that they will inevitably transform the ecosystem of the world market and economies, forcing governments to respond to challenges and adapt their governance models to today's realities. At the same time, digitalization and automation of production are becoming an integral feature of the socio-economic space and changes the social component of the ecosystem. For example, recent studies of value orientations among different age groups show an increase in the value of security, the balance of "work - life" [7].

Thus, considering the ecosystem as a set of organizations and infrastructure facilities grouped according to certain interests of people in particular according to professional, government and legislative bodies, which have adapted to coexistence and joint functioning in a certain environment (including rules, laws, moral and ethical norms), forming a single whole with it, we must distinguish its main components: economic, social, cultural-and-value and environmental. An important condition for the evolution (development) of such an ecosystem is its tendency to equilibrium, which is achieved by harmonizing relations in the working and social life of the population of the region, state, world.

2. Methodology and objectives of the study

The conclusions and statements of the authors are based on the results of analysis of statistical data from around the world, as well as publications in professional scientific journals. Considerable attention is paid to the reports (according to the results of surveys) of the European Union on the impact of the pandemic on the labor market and the economy as a whole. At the same time, the integrated indicator of a harmonious global ecosystem according to the author's method is selected sustainable development that meets the requirements of the OECD, de fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies [8].

The purpose of the study is to further develop the concept of a socio-economic ecosystem, where the ecological and social agenda is dominant, substantiation of methodological approaches to assessing the country's sustainability model in modern conditions

Given that the ecosystem in an ideal state should include such components as economics (production relations), social and labor relations, cultural, ethical relations, political and environmental relations, technology, the harmonization and balancing of volumes, limits of distribution and influences required from the authors selection of such criteria for ecosystem resilience that could be assessed not only quantitatively but also qualitatively. Thus, the simplified assessment model is a definition of the "sign" of the phenomenon and the total vector of changes in this ecosystem, which characterizes the stability or inhomogeneity of the system (namely the existence of many risks to the ecosystem).

3. Ecosystem as a model of human functioning: what has changed in recent years?

Previous research [9-11] prove that despite the drastic changes both in the middle of production processes and chains, and in social relations, all of them are somehow or other aimed at sustainable development. At the same time, the ecological economy is gaining popularity among politicians and businesses. In the global dimension, countries and their socio-economic systems, according to researchers, can become sustainable provided environmental sustainability by improving the quality of life of each person without compromising the ecology of the Earth [12]. With this approach, the key task is "economic growth", which allows to meet the needs of each person. Given this, the ecosystem will be characterized by stability if the quality of life (social and economic, ecological) is achieved.

That is why the state of the ecosystem is evidenced by indicators of traditional economic growth (they show the level of satisfaction with material security, ie show whether food supplies increase, whether such an environment allowed people to live longer, whether it stimulated mass production of many useful goods and services for many people). At the same time, consumption and satisfaction of human needs cannot harm the environment, so alternative technologies of energy security and production of goods come to the forefront. That is, the very sustainable development in the paradigm of ecological economy is inclusive in essence.

Researchers also often combine sustainable development with a circular economy, the latter focuses not so much on profits as on environmental safety, which is reflected in the relevant goals (in particular, in terms of clean energy, environmental management, waste disposal, etc.). A distinctive feature of Economy 4.0 (it is a prototype of a collaborative combination of creative, ecological and digital economy), as a component of the ecosystem, is the dominance of knowledge and information over other types of capital. Thus, the manifestations of Economy 4.0. are presented in the form of productive activities of society, the socio-economic result of which should be the emergence of organizational and managerial decisions and the formation of new communication channels that affect the knowledge and behavior of all market actors. Therefore, the process of spreading the digital economy is more like a new way of dividing labor, when certain countries are transformed into specialized centers for knowledge production, and prairie centers – specialized in infrastructure projects (the latter also have some specialization in areas: service, consumer goods, etc.).

At the same time, scientists point out that focusing only on the technical and environmental component of sustainable development creates distortions in the social sphere. For example, D'Amato and others note that the labor market responds to innovation by increasing destructive factors – market imbalances (which cause despair, imbalance of supply and demand, deteriorating job quality [13, 14] Study on the impact of the spread in digital technologies and Industry 4.0 in Ukraine, identified risks such as rising unemployment, digital discrimination, etc. [15].

The results of the e-survey Eurofound's Living, Working & Covid-19 show the accumulation of problems that arose during the pandemic, such as increasing job insecurity due to the threat of job loss, declining mental well-being, erosion of recent advances in gender equality, declining trust in institutions, deteriorating work-life balance and growing doubts about vaccination [16], especially noticeable after the beginning of the pandemic among the poor countries of the world World Bank surveys.

According to his forecasts, poverty was already projected to increase in 2021 before the pandemic, but the rate of increase in poverty is projected to more than double (from 1.0% to 2.5%); in the poorest countries of the world, the impact of COVID-19 on poverty is worsening [17]. But these are not the only processes that occur and determine the ecosystem. It is important to look at migration phenomena, because to some extent they are the result of environmental changes, cataclysms. According to the IDMC Global Report on Internal Displacement, as of the end of 2020, there were 55 million internally displaced people worldwide, 48 million as a result of conflict and violence, and 7 million as a result of natural disasters [18].

All this reinforces the importance of adequate relations between the state, society (public), science, ie all stakeholders [19]. The European Community has already taken the first steps in this direction: from new environmental and labor standards to corporate tax reform. But it is important to expand and take seriously the search for alternative ways to ensure sustainability, as there is a growing sense that the global status quo – political, economic and environmental – is not just unstable, but very dangerous [20].

In fact, we have a chance to change the global economy for the better because the pandemic with its limitations has forced us to rethink values and to set new priorities. Therefore, an open "overtone window" is a potential opportunity to radically change the world and how it will depend on the unity and determination of politicians, scientists, the public and business.

4. Determinants of modern ecosystem development: dangers and potential (by the example of Ukraine)

Summarizing the above, we conclude that if all components (factors that evaluate them) have different vectors (change, such as increase or decrease relative to the ideal or threshold value), eventually give a chaotic model, so the sustainability of the ecosystem is threatened in the future period. Another feature of the ecosystem is that a vast majority of factors have a deterministic and cumulative impact. In some places their manifestation becomes apparent after a certain lag of time. Therefore, the authors chose the following groups of factors for a formalized simplified model of ecosystem determinants: demographic, moral and ethical, market inclusion, technology. This model allows to take into account both the objective physical processes of change in the ecological economy, and subjective, including information, bearing the "framework" of visions and responsibilities of all market actors.

Let us consider in more detail some of these determinants and assess their impact on the sustainability of the ecosystem, in particular in Ukraine. First, demographic factors, including health. This factor depends on the quality and availability of medical services. Thus, life expectancy at birth and a self-assessment report are key to determining health. For example, in Ukraine from 2015 to 2018 there is a gradual increase in life expectancy from birth from 71.38 years to 71.76 years for both sexes [21]. But this is not enough, as this level of life expectancy from birth is lower than in most European countries, including Greece and Germany (where life expectancy is 81 years) or Japan (where life expectancy is 84 years). At the same time, demographic sustainability factors should also be assessed in relation to the population's attitudes towards their own health. And here "problem zones" are exposed. After all, according to subjective assessments of the state of health, the health care sector has certain shortcomings. In particular, in Ukraine, the average score on the results of self-assessment of health in 2016 was 3.34 points, in 2017 – 3.37 points, and in 2018 – 3.41 points [22]. In addition, the death rate among infants and the dynamics of death rate among children testify to the state of health of the population. Unfortunately, now the death rate among infants and children under 5 years old remains much higher than the European average. In particular, the death rate among infants and children under 5 years old in Ukraine in 2016 was 7.4 per 1,000 live births against 1–5 ‰ in the European Union. Thus, we can conclude that the sustainability of the ecosystem in terms of "Demography" is unsatisfactory due to the lag behind the thresholds. At the same time, higher rates of change also require personal responsibility for everyone's own health and the health of others (during a pandemic, non-compliance with the rules of social distancing due to irresponsibility infects others and complicates the work of doctors; unfortunately, such cases are not uncommon in Ukraine).

The subjective assessment of the sustainability of the ecosystem is influenced by factors of social interaction which reflect the ethical and moral factors of the system (in particular, the development of charity and trust in government). According to the Charity Index, Ukraine does not occupy the highest positions: the total rating for the last 10 years in Ukraine is set at 106, while the country is gradually moving to the positions with the best rating [23]. That means this factor cannot significantly improve the sustainability of Ukraine's ecosystem.

Another factor of sustainability is the level of trust and social responsibility. So, the level of trust in Ukraine in different institutions is different. In particular, the majority of respondents (60 to 69%) surveyed in February 2020 trust the Armed Forces of Ukraine, the State Emergency Service, the Church, the State Border Guard Service, and volunteer organizations [24]. At the same time, the level of trust in the government and trade unions is constantly declining. Thus, given that such a structure of trust and distrust persists for a long time, the deepening of unrest in the country against the background of high distrust of the government may become a bifurcation point and worsen social and personal security, destroy the stability of the ecosystem.

If we analyze the economic factors, which are primarily represented by the income of countries, the structure of their debt and the dynamics of poverty, Ukraine is characterized by a low level of GDP and dependence on foreign investment. As for poverty, it is to some extent provoked by the situation on the labor market which shows signs of disparities and risks of job loss, as there is a constant redundancy.

At the same time, the excess of labor supply over demand was in 2019 on average 6 times, and the employment landscape itself indicates a significant share of low-productivity jobs. If we analyze the poverty of the population as a factor in the economic sustainability of the ecosystem, unfortunately Ukraine is characterized by an increase in the share of the poor (expenditures below the actual subsistence level) covered by social support programs (social benefits, housing subsidies, child benefits, assistance to low-income families) and other types of social assistance) - from 63% in 2015 to 70.9% in 2018. During the pandemic, the number of poor increased in 2020. there were 51% of them in the country, according to various experts.

At the same time, if biological approaches are applied to the assessment of the ecosystem, its development involves the adaptation of biosystems to environmental challenges. Therefore, it is important to assess the ability of its components to change in accordance with the determining factors. These may include integrated and comparative indicators. For example, as wages remain the main source of income (and the share of wages in total income has been rising in recent years), the working population is also potentially at risk of impoverishment. And this is a direct risk of deteriorating the sustainability of the ecosystem.

Therefore, assessing the material component of the quality of life as a component of ecosystem sustainability, we emphasize that the dynamics of the ratio of average monthly wages in the country and the minimum wage and the assessment of decent wages are closely correlated with the threshold value (European average), such a situation may be considered acceptable. Since the level of achievement of decent wages can be represented by an indicator of wage potential or the level of performance of the function of expanded reproduction of labor (Fig. 1) which will reveal the social component of sustainability. This indicator reflects the ability of the employee not only to restore their own efforts, energy losses, etc., but takes into account the needs for development, health, ie creates the potential for strengthening the stability of the system. At present, according to the authors, it shows that no significant progress has been made in achieving a decent wage.

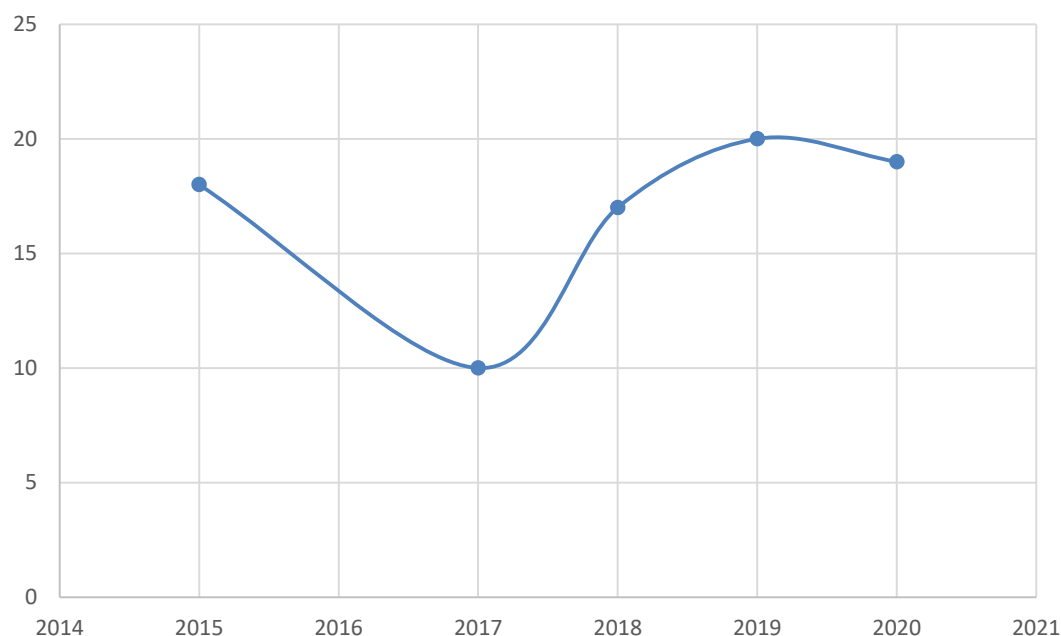


Figure 1. Salary potential (estimated) in Ukraine, %.

Source: calculated by the authors according to the data [25].

Thus, the study of the basic dominants of ecosystem development on the example of Ukraine gives grounds to form a model of sustainability (Table 1).

Table 1. Model of assessing the sustainability of the country's ecosystem.

№	Determinant	Limit indicator (base)	Actual value	Sign of the phenomenon / process
1	Demographic quality	↑*	↓*	_*
	including level of health	↑	↓	-
	lifetime	↑	↑	+*
2	Responsibility, social values	↑	↓	-
	including level of charity	↑	↓	-
	level of trust in society	↑	↓	-
3	Economic stability	↑	↓	-
	including poverty	↓	↓	-
	productivity	↑	↓	-
	labor market conditions	0*	↓	-
	productivity	↑	↓	-

* in the table "↑" the indicator should grow / improve; "↓" indicator deteriorates, decreasing value; "-" overall value deteriorates / negatively affects stability; "+" Phenomenon / process has a positive effect on stability; "0" phenomenon must be balanced (with zero deviation)

Source: developed by the authors according to the data [25].

As we can be seen in Table 1, in Ukraine the ecosystem is characterized by a high level of instability, ie in both the social and economic environment there are many risks.

Therefore, ensuring the sustainability of the ecosystem requires improvement in the above determinants by changing the management paradigm to human-centered one. Each management decision during validation must be assessed for its impact on the sustainability of the ecosystem, improving the quality of life and environmental friendliness. Typically, managers have to solve a dilemma: to prefer higher profits, or the socio-environmental component. For example, the threats posed by changes in the labor market can be offset by the timely retraining of people or the introduction of "mentoring support for seniors". The positive dynamics of the determinant of "life expectancy growth" can have a negative impact on the sustainability of the ecosystem, as it means a longer stay in the workplace of an experienced worker, and increased competition for the first job among young people.

5. Conclusions

Thus, due to the influence of external determinants (digitization, distribution of remote work, pandemic COVID-19) there was a socio-economic transformation of ecosystems which means the environment of harmonious existence and development of organizations, infrastructure, government, legislature, etc. Any ecosystem tends to balance, so in the case of chaotic influence of determinants, which was described in the study, it including the compensatory mechanism can be divided into several ones, which provokes instability. Therefore, it is important to evaluate each management decision in terms of the impact on ecosystem sustainability.

Some determinants may have a positive impact on the transformation of the ecosystem, but in combination with other factors in general threaten the sustainability of the ecosystem. The study shows the following effect on the example of improving the quality of the determinant "demography". Further research should be conducted in the direction of developing and calculating a model of the impact of socio-economic determinants on the sustainability of the ecosystem.

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