

INSTITUTIONAL COMPONENT OF COMPETITIVENESS RISKS AND DEVELOPMENT OF SOCIO-ECONOMIC SYSTEMS

Stadnyk Valentyna¹, Sokoliuk Galyna², Holovchuk Julija³

¹Khmelnitskyi National University, Khmelnytskyi, Ukraine, stadnyk_v_v@ukr.net

²Khmelnitskyi National University, Khmelnytskyi, Ukraine, sokoliukg@ukr.net

³Vinnitsia Institute of Trade and Economics of Kyiv National University of Trade and Economics, Vinnitsia, Ukraine, holovchuk312@ua.fm

Abstract

The problem of competitiveness of socio-economic systems is inseparable from the problem of their development – to restore/enhance competitive advantages. Such benefits are provided either by innovations in the internal environment system constituents sensitive to changes and the market context requirements, or by the significant preferences in key aspects of its functioning, obtained as a result of their interests lobbying in the legislative (or regulatory-executive) process. In both cases, the implementation of the decisions is costly and fraught with risks. It has been argued that for macro-systems predominance of the first scenario of the micro-level subjects activities is more valuable, since it provides a multiplier effect and a positive synergy of joint activity. The actions according to the second scenario carry significant risks of negative synergy – if the micro-level subjects receive unjustified preferences. This weakens the competitiveness of macro-systems globally. On the basis of the analysis of dynamics of Ukraine industrial enterprises innovative activity it has been proved that the first scenario is favored by fewer and fewer micro-level subjects, resulting in a decline of their ability to create new consumer values. It has been confirmed by the deterioration of the export structure of Ukrainian machine-building enterprises products in 2011–2018, as well as a general decrease in the Economy Competitiveness Index of Ukraine. It has been stated that the behavior scenario choice by the participants of economic processes depends on the motivational characteristics of the institutional environment, the action total vector of which should ensure the development of the socio-economic system in the direction determined by the governing bodies. A model of such a choice has been presented, it generalizes the incentives formation principles and anti-incentives in terms of their influence on ways of gaining competitive advantages by participants of economic relations. It has been argued that the problem of economic agents behavior scenario choice in behalf of the socially useful can be solved in the plane of institutional change – by eliminating the discrepancy between formal and informal components of the institutional environment. It has been modeled in the form of an algorithm the process and directions of institutional changes for the development of the institutional environment, the total motivational vector of which will increase the role of innovative factors in the formation of competitive advantages and balanced development of business structures.

Keywords: institutional environment, motivational imbalance, corruption, institutional changes, innovations.

INTRODUCTION

Maintaining a positive and sustainable dynamic of socio-economic systems development is a key task of decision makers at all levels of management – macro-, meso- and micro-. Significant changes in the socio-historical context in an era of accelerating processes of globalization have increased the variability of scientific views on key sources and motives for development, and hence on the development of mechanisms for managing them in the context of goals. As the level of globalization of the business entities economic interaction space grows, it becomes increasingly

clear that the process of managing the development of a socio-economic system of any hierarchical level must be subordinated not only to the goals of ensuring its ability to exist, but also to improving its competitiveness.

The problem of competitiveness of socio-economic systems is inseparable from the problem of their development. They are dialectically interrelated and interdependent, because it is the development of system (as a process of qualitative improvement of its components or connections between them) provides recovery/increase of its competitive advantages due to significant changes in the market context. At the same time, the high level of competitiveness of the subject of economic activity is the key to its quantitative growth and strengthening of market positions. In particular, through the attraction of new investments and the development of strategic partnership, this allows us to reach a new stage of qualitative development. In the presence of a significant number of competitive enterprises, the competitiveness of the national economy as a socio-economic system of the highest level is also growing. As a result, the improvement of the overall economic dynamics creates conditions for solving social and environmental problems of the country, that is, ensures its sustainable development.

In the modern world, the concept of sustainable development is recognized by civilized society as such, which meets the requirements of preserving life on a planetary scale. Its key idea of “meeting current needs without compromising the ability of future generations to meet their needs” [20] every year is supplemented by new arguments confirming its relevance. The main components of the concept of sustainable development (positive economic dynamics combined with social development and environmental security) are structured according to the levels of management – macro-, meso- and the level of individual corporations and smaller business structures. This ensures a balanced development of socially-economic systems at all levels-both in the functional context (the level of business structures) and in the sectoral or regional (the level of the national economy, where the state economic policy is formed in close connection with the solution of socially-cultural and environmental problems of the country and regions).

Each socio-economic system operates according to certain rules, which more or less regulate the behavior of its structural elements, outlining the field of optimal solutions choice. These rules, together with the mechanism of their protection, form the institutions whose action vector is intended to ensure the development of the system in the direction determined by the governing bodies. They create certain constraints on the acquisition of significant competitive advantages by particularly aggressive market participants who neglect the public interest and, on the contrary, give certain preferences to those whose activities are socially valuable.

PREVIOUS RELATED RESEARCH

The significant influence of institutional factors on economic processes is now a universally recognized fact, which is confirmed by the conclusions of many well-known scientists. By definition of D. North, “institutions are the rules of the game in society or, more precisely, the limitations invented by people, which direct human interaction in a certain direction. And as a consequence, they structure

motives in the process of human exchange – political, social and economic” [11, p. 11]. In the post-Soviet space, many well-known scientists are engaged in active research of institutions, which, based on the fundamental work of D. North [11], began to consider the possibility of designing institutional changes to improve the dynamics of socially-economic systems. For example, G. Kleiner [7], G. Nureyev [12], Y. Olsevich [13], V. Volchik [22], in their works focused on the analysis of the motivating force of institutional factors from the standpoint of ensuring overall economic growth, as well as in the context of regulating social processes; V. Polterovich analyzed the causes of institutional traps and the possibility of their prevention [15]; V. Dementiev more deeply investigated the influence of institutions on the formation of the power system [1]; G. Kirdina, also based on the methodology of neo-institutionalism, proposed the theory of “institutional matrices” [6]; A. Gritsenko carried out his research in the same way, and developed recommendations for improving the “institutional architectonics of economic systems” [3].

In the researches of modern scientists, attention was paid to the relationship between the components of the institutional environment and the competitiveness of national economies. In particular, in Ukraine, this scientific direction is investigated by N. Harashchenko and V. Lavrenenko [2], I. Irtyshcheva and D. Krylenko [5], P. Leonenko [9], Ye. Polishchuk [14], V. Zapuhljak [25], O. Zubchik [26] and many others. However, today a significant part of the issues related to the impact of institutional factors on the competitiveness and dynamics of the national economy, remain insufficiently studied. For Ukraine, these issues are particularly relevant, since the current stage of its development is characterized not only by a change in the vectors and priorities of economic cooperation due to the European integration processes, but also by a radical redesign of the institutional environment, which is carried out by the new political players who came to power in 2019.

RESEARCH RESULTS AND DISCUSSION

In developed market economies, the institutional environment was formed gradually and for a long time, during which improving changes were made to the laws governing entrepreneurial behavior, inconsistencies were eliminated, manifested in the course of practical interaction of market participants, the instruments of state influence on the course of economic processes were polished and improved, and so on. Given the fact that in Ukraine the business environment (through its short history of establishment) did not form such stereotypes of economic behavior, which are typical of countries with developed market economies where the institutional setting supports parity of individual and social benefits, the logic of the research requires the analysis of the components of the institutional environment that are in conflict with the targets of state economic policy priorities is Ukraine's transition to innovative model of organization of economic activity that is consistent with the concept of sustainable development.

Unfortunately, innovative factors in the process of Ukraine industrial enterprises competitiveness formation play an increasing role every year. Thus, over the last 10 years, the share of innovative products in total industrial sales has decreased from 5.9% (2008) to 0.8% (2018) (Figure 1).

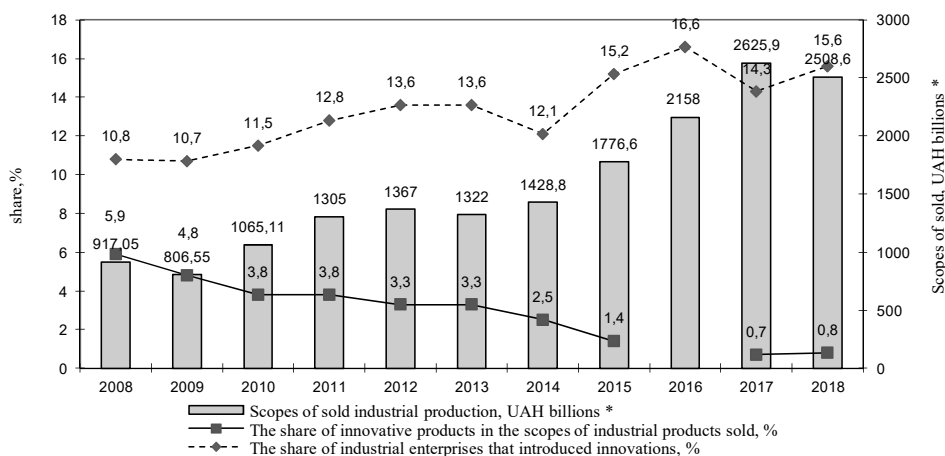


Figure 1. Dynamics of indicators of innovation activity and its results in the activity of industrial enterprises of Ukraine

* Excluding the temporarily occupied territories of the Autonomous Republic of Crimea, Sevastopol, and from 2014 the parts of the territories of Donetsk and Luhansk regions of Ukraine

Source: developed by the authors on the basis of [19; 20]

According to official statistics, the revenue from the sale of innovative products in 2018 only marginally exceeded the figure of 2017 and was below 40% from 2011, while the figures given in absolute terms do not take into account inflation which has significantly progressed during this period, and should lead to an increase in sales volumes in monetary terms, even in the unchanged sales volumes in physical units. Therefore, they do not reflect the critical state that has developed in the field of innovation management at the industrial enterprises of Ukraine. Indeed, the dynamics of the contribution of innovation in the performance of industrial enterprises can be seen by the indicator of the innovative products proportion in the total scopes of its implementation (a relative indicator that offsets the error on inflation processes). As can be seen from Fig. 1, it is constantly decreasing, from 3.8% in 2011 to 2.5% in 2014 and up to 0.8% in 2018. Statistical data on the introduction of product innovations also indicate a serious deterioration in this area, especially in 2017, when their number has decreased almost twice, including the samples of new technology. And this is despite the fact that many industrial enterprises still have a real task to enter new markets instead of the lost markets in the Russian Federation [24].

This task is strategically important for machine-building enterprises, which mainly worked on the Russian markets and are now forced to diversify their activities by resorting to an innovative product portfolio update. Confirmation of the need for such diversification is the data on the dynamics of volumes and structure of exports of machine building products (Table 1).

The export capacity of machine-building enterprises is one of the important indicators reflecting the ability of the national economy to carry out its expanded reproduction in the world economic space as the machine building products serve as a basis for updating production systems of enterprises of other industries.

Table 1. Scopes and structure of the export of machine-building products in Ukraine*

Groups of products	Indicators by years							
	2011	2012	2013	2014	2015	2016	2017	2018
<i>Exports of machine-building products, billions, USA dollars</i>								
Total for machine building, including	11,70	12,94	10,38	7,36	4,78	4,35	5,09	5,54
- machinery, equipment and devices; electrical equipment	6,63	6,87	6,82	5,66	3,94	3,64	4,28	4,66
- machines of land, air and water transportation	4,79	5,78	3,27	1,47	0,68	0,56	0,63	0,67
including aircrafts	0,32	0,92	0,31	0,25	0,19	0,08	0,03	0,06
- optical and photographic instruments and devices	0,28	0,29	0,29	0,23	0,16	0,15	0,15	0,15
<i>Structure of export of machine building products by main groups, %**</i>								
Total, including	100,00	100,00	100,00	100,00	100,00	100,00	100	100
- - machinery, equipment and devices; electrical equipment	56,67	53,09	65,7	76,9	82,42	83,68	84,09	84,12
- machines of land, air and water transportation	40,94	44,67	31,51	19,97	14,23	12,87	12,38	12,09
including aircrafts	1,34	2,74	7,11	2,99	3,40	3,97	1,84	0,59
- optical and photographic instruments and devices	2,39	2,24	2,79	3,13	3,35	3,45	2,95	2,71
<i>Export volumes compared to the previous year, %**</i>								
Total for machine building, including	-	110,60	80,22	70,91	64,95	91,00	117,01	108,84
- - machinery, equipment and devices; electrical equipment	-	103,62	99,27	82,99	69,61	92,39	117,58	108,88
- machines of land, air and water transportation	-	120,67	56,57	44,95	46,26	82,35	83,35	84,35
including aircrafts	-	287,50	33,70	80,65	76,00	42,11	37,50	200,00
- optical and photographic instruments and devices	-	103,57	100,00	79,31	69,57	93,75	94,75	95,75
<i>The share of machine building products in the total volume of commodity exports</i>								
Share, %	9,8	10,1	11,0	10,5	10,3	10,0	9,9	9,8

* Excluding temporarily occupied territories of Ukraine; ** own calculations

Source: developed by the authors on the basis of [18]

And if these products can compete with analogues in the markets of other countries, then it meets the requirements of the present time. In the structure of commodity exports of Ukraine, the share of machine-building products was almost always (with the exception of the period of the global financial and economic crisis) higher than 10%. Even not counting the temporarily occupied territories, as shown by statistical data with an appropriate adjustment (see Table 1). However, in 2017-2018, this figure dropped below 10%. This confirms the stability of the negative trend in the work of machine-builders in Ukraine, the beginning of which can be considered the year 2014 (see Table 1). Moreover, the most significant deterioration occurred in the most technological engineering sector. As can be seen from the above data, in 2015, aircrafts were exported only for the amount of 190.6 million US dollars, and in 2016 this amount decreased to 78.9 million US dollars, accounting for only 0.2% of total exports. In the years 2017-2018, the situation has improved somewhat, but given that Ukraine's airplane engineering is high-tech and competitive, exports of its products should be significantly larger. And this means that it is not enough to be able to create

competitive products; efforts must be made to confirm its consumer value for the target and perspective markets of other countries.

Overall, according to The Global Competitiveness Index in 2018, Ukraine ranked 81st out of 180 countries [4]. This is despite the fact that it ranked 43-rd position out of 126 countries (38.5 points) in 2018 according to the Innovation Index, ahead of Russia (46-th position, 37.9 points) for three positions. In 2019, Ukraine lost several positions and ranked 47-th position out of 129 countries, gaining 37.4 points (Switzerland being first with 68.4 points).

If we analyze the components of the Global Innovation Index of Ukraine, it will become clear that the main positions that significantly lower the rating lie in the institutional field – legislative, organizational and regulatory. These are the rule of law (107th position) and the effectiveness of government (95th position). Directly stemming from the imperfection of the institutional environment is political and operational stability – 125th position, investment – 115th position. And the best positions are in the field of intellectual property (intangible assets, patents, inventions – 17th, including utility models – 1st place) [23].

In our previous research, we emphasized that the key to maintaining the competitiveness of the socio-economic system of micro-levels (enterprises, companies) is the ability to create consumer values for target markets [16, p. 17]. And, as can be seen from the relevant positions of the Global Innovation Index, this ability of Ukrainian inventors to materialize ideas into consumer value has been preserved. However, their industrial development is not high enough, which once again confirms our conclusion that business is not sufficiently motivated to use innovations to create competitive advantages. This gives reason to claim that in Ukraine there is an urgent need for institutional changes to enhance the effectiveness (motivating force) of legislative preferences in areas that play an important role in shaping competitiveness and sustainable development.

To evaluate the effectiveness (efficiency) of incentives and antistimulants in the scientific literature proposed the use of so-called “Markov’s chains”, which reflect the dynamics of the process of acquiring the desired behavioral stereotypes in the socio-economic system in response to a specific set of incentives [10, p. 86–89; 8, p. 119–121].

Such dynamics have stochastic nature and based on an assessment of securing likelihood degree of the desired for the management subject reactions of the control object on it’s stimulating actions (that is, it takes into account the risks of the force of the motivating factor which is not equivalent to the expectations of the control object. Regarding behavior of entrepreneurs in a particular institutional matrix, such risks occur when the benefits / losses of choosing different business strategy scenarios are inadequate. The losses from compliance with existing institutional constraints are compared with benefits from the breach of those constraints in the case of corruption facilities (by representatives of authorities) or transferring part of the business to the illegal sector.

To reflect this process is assumed that such a probability (p_{n+1}) is coming only after $n+1$ iterations of certain stimulating actions. The probability of occurrence (p_{n+1}) depends on what the control object previous reactions to the stimulus complex

were, and it will be greater the greater the likelihood of the same reaction after the n -th repetition of stimulation is, such dependence can be approximated as linear and written as an equation:

$$p_{n+1} = a + mp_n \quad (1)$$

The probabilities p_{n+1} and p_n range from 0 to 1; Value $m \geq 0$, because it is expected that consistent repetition of stimulation increases rather than decreases the likelihood of the desired reaction. The parameters m and a are set experimentally for each type of socio-economic system.

In order to capture the desired behavior of the control object, it is important to establish a reasonable relationship between incentives (preferences) and anti-incentives. The latter in the form of various penalties (both at the national economy and internal corporate management levels) should be sufficiently tangible in comparison to the possible benefit of such behavior which is harmful to the system as a whole and is prohibited or disapproved by the management subject.

The process of fixing the desired behavior of a control object using incentives and antistimulants based on equation (1) can be investigated more thoroughly by entering parameters a and b , which are meaning the measure of the intensity of action on the control object, respectively, of the incentives and antistimulants. Introducing them into the parameter m : ($m = 1 - a - b$), needs some clarification and restrictions, in particular, $a \geq 0$ and $b \geq 0$; because $m \geq 0$, to $1 - a - b \geq 0$.

Then equation (1) will look like:

$$p_{n+1} = a + (1 - a - b)p_n \quad (2)$$

After the transformations, formula (2) becomes finite (4):

$$p_{n+1} = p_n + a(1 - p_n) - bp_n \quad (3)$$

$$p_{n+1} - p_n = a(1 - p_n) - bp_n \quad (4)$$

Equation (4) shows what determines the improvement of the control object's response to the stimulus, that is, progress in the self-learning process. This improvement reflected in the expression $(p_{n+1} - p_n)$ in the left side of the equation. The expressions of the right side of the equation correspond to it: $a(1 - p_n)$ and $-bp_n$.

The first one determines the maximum possible degree of improvement, and the second - the maximum possible degree of deterioration of process results, as the best of the possible outcomes that can be achieved by the management object is $p_{n+1} = 1$, and the worst is $p_{n+1} = 0$. Therefore $(p_{n+1} - p_n)$, that is the actual achieved improvement in the results of the stimulating action (as we can see from the equation) is equal to the weighted sum of the maximum possible degree of improvement and the maximum possible degree of deterioration of the behavior of the control object. The significance of the additives in this sum are the parameters a and b , the parameter a depends on the totality of circumstances contributing to the maximum improvement of the results of stimulation of the desired behavior, and the parameter

b depends on the circumstances causing the maximum deterioration of the behavior of the control object. Thus it is affirmed, and it is obvious, that the speed of gaining the desired behavior by control object depends on the absolute value of the incentives and antistimulants, and on their correlation (motivation structures) the result of the regulatory actions. These incentives and antistimulants should correspond to the essential characteristics of the control object and to acquire more individualized features as they move from the macro-level to the meso-level (individual industries or spheres of activity) and to the internal organizational and individual level.

The need to comply with the same rules of economic conduct for all has long been recognized as a prerequisite for the development of the competitiveness of the national economy. After all, the forms and vectors of competitive confrontation, as well as their effectiveness, largely depend on the parameters of the market environment, which are formed under the influence of institutional factors, in particular – in the legislative field of the country.

Accepted at the legislative level decisions are objectified in the activity of supervisory and regulatory bodies, which are designed to regulate economic relations in society. Thus, the institutional matrix of the national economy development is formed, which determines the formal rules of economic behavior of the subjects of market relations and should be not only regulatory, but first of all – motivating basis of this behavior

However, the institutional field of economic activity covers not only its formal component, which legally determines the rules of the game, but also informal (customs, traditions, mentality, behavioral stereotypes, etc.). Some of its components may contradict the rules of the “economic game” formalized in laws or by-laws and, in the absence of effective control by the state, distort their practical implementation.

In a perfect institutional environment that creates the same business environment for all market participants, competitive advantages are acquired through innovations that ensure consumers meet their needs better than in other ways. In the imperfect – competitive advantages are formed due to the received benefits and preferences.

Both cases of gaining competitive advantage is costly and fraught with risks. However, it is more valuable for the national economy predominance of the first scenario of the enterprises since it provides a multiplier effect and a positive synergy of joint activity. The actions according to the second scenario carry significant risks of negative synergy - if the micro-level subjects receive unjustified preferences. This weakens the competitiveness of the national economy at the global level. The algorithm for choosing the entrepreneurial structures of one or another scenario of maintaining their competitiveness, including through the initiation of institutional changes, is presented in Figure 2.

The discrepancy between the formal and informal components of the institutional environment “complements” the existing institutional gaps in the legislative field with new content, distorting the motivational basis of economic activity participants-both in the field of acquiring competitive advantages and in attracting investments for quantitative growth and qualitative development.

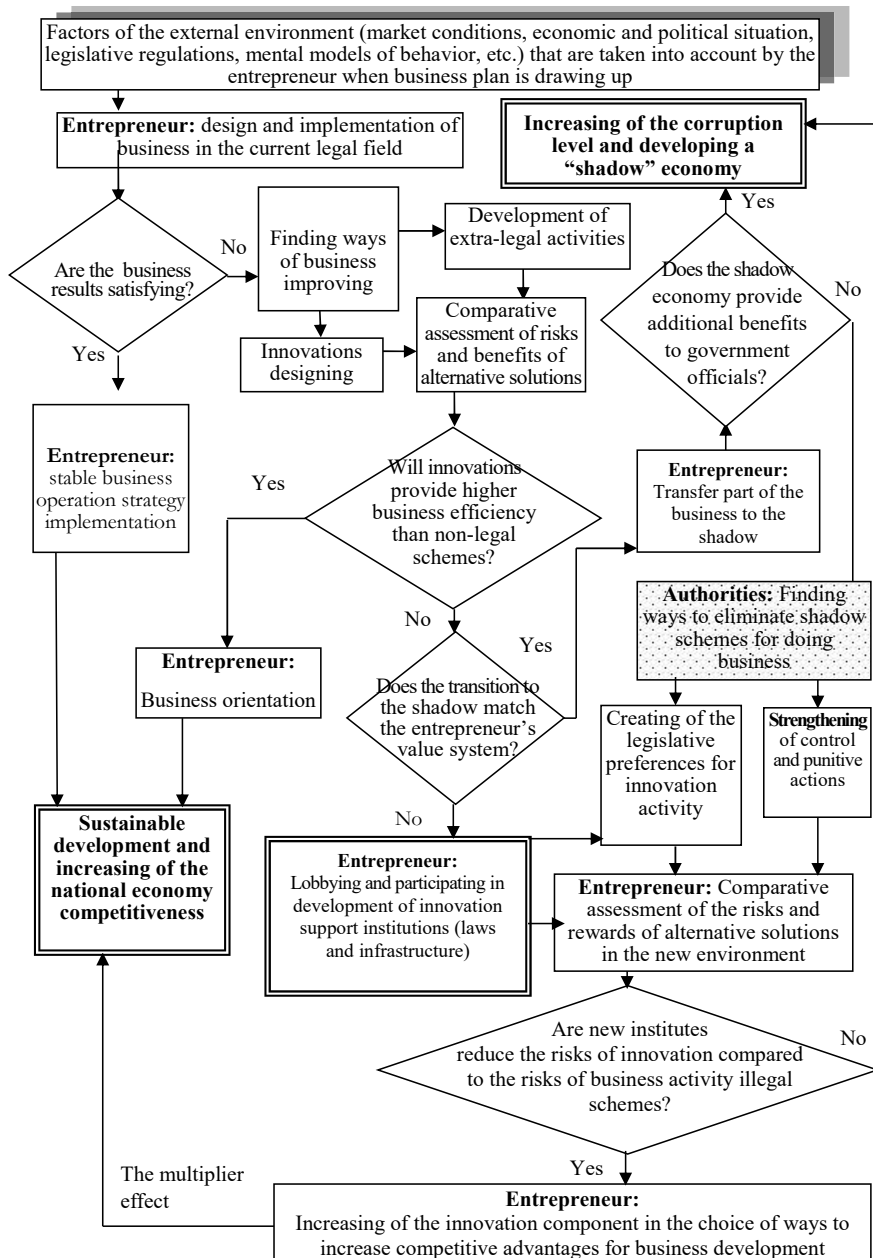


Figure 2. Interaction between entrepreneurs and the state (authorities) in reducing of the institutional risks of competitiveness and sustainable economic development

It can be argued that this discrepancy is one of the reasons that determine not only the high level of corruption in the relations between the state and business, but also the high risks of market transactions between the subjects of partnerships. As a

result, the level of shadowing of the national economy is growing, the conditions for deepening the integration processes in the chains of consumer value creation are deteriorating and the resultant implementation of strategies for the integration growth of small and medium-sized business structures is decreasing, what is an important condition for increasing their competitiveness. As we have noted in our previous work [17], the processes of disintegration in the Ukrainian economy are a reaction of business to the deterioration of its operating conditions, especially in the field of taxation.

Corruption is a specific component of the institutional environment, predetermined by its imperfection. It's not only the gaps in the current legislation that are made possible by the ambiguous interpretation of some of its norms, but also the result of a deliberate distortion of the legislative field in favor of particular interest groups.

It causes imbalance between the development of individual industries or regions, which violates the self-sufficiency and competitiveness of the economic system as a whole. This is manifested, in particular, in the deformation of the export potential towards the commodity turnover, which leads to environmental problems and does not contribute to the growth of intellectual capital of the country, and vice versa – increases the risk of further degradation of labor force.

In the legislative field, under the influence of shadow lobbying, there are constantly appearing systemic "holes" that are quite legal, although not obvious to the general public. And it frees from legal liability those who see their corruption opportunities and can use them themselves or advise to others. At the same time, it creates favorable conditions for further "legislative ingenuity", expanding and nourishing the field to design new revenue schemes that can only be conditionally attributed to honest ones.

Thus, in Ukraine, the vast majority of entrepreneurs are trying to "optimize" taxes by moving part of their businesses into so-called "gray zone" and not legally recruiting employees.

And the regulatory functions of the institutions, which are supposed to ensure compliance with the current legislation, are not fulfilled – because as a result a corruption compromise is reached between representatives of these institutes, business and the public. This makes it impossible to solve many social problems – from social welfare in case of disability (at the level of an individual employee) – and to the development of such socially important spheres as education, health care, law and order (financed from the budget). Another important factor of the development of corruption is low effectiveness of the institutional regulatory mechanism, when there is no or poorly traceable link between the actions of the executive of regulatory functions and his responsibility for the result of the implementation of these functions. This irresponsibility, combined with the low level of remuneration, compels the regulated entity (civil servant) to make decisions based on his or her interests. And this generates significant risks for business development, because it creates conditions for unjustified interference in its activities by representatives of law enforcement and other controlling institutions of authority, which violates the rhythm of business processes

The scale of these processes in Ukraine and the low efficiency of existing measures to fight with them predetermine necessitate an in-depth study of the institutional nature of the market transactions risks from the standpoint of their impact on the formation of the motivational basis for the choice of business structures strategy behavior in competition and in the context of increasing competitiveness and sustainable development of the national economy. The urgency of this task for Ukraine, which seeks to join the countries that are able to develop dynamically, professing civilized forms of market relations, is obvious

Today, there are different opinions on the instruments and directions of institutional support for the development of the national economy, but it is indisputable that it should ensure the growth of its international competitiveness. This means that in the process of institutional restructuring in Ukraine should form an institutional environment conducive to active entrepreneurial behavior, because this environment forms the potential for the development of the national economy.

CONCLUSION

The growth of the progress and level of globalization of the world economic space makes the problem of social-economic development of each country subordinate to the problem of its economy competitiveness. Based on the methodology of neo-institutional economic theory, the connection between the competitiveness of social-economic systems and the perfection of the institutional environment, which forms the matrix of development of social and economic relations between the participants of economic activity by economic agents, is proved. The latter include not only direct producers and consumers of goods and services, but also representatives of the authorities exercising the functions of control and regulation of economic processes. The motivational component of their behavior is determined by comparing the risks and benefits that each of the economic agents assesses at decision points. It is argued that in the imperfect institutional environment, which generates a motivational imbalance between the vectors of formal and informal institutions, institutional risks of improper choice of economic agents scenario of economic behavior. It has been noted that this discrepancy increases the risks of market transactions, which cannot be reduced in the current institutional space of Ukraine due to absence of legal institutions of collective action (lobbying institutes, elements of innovative infrastructure and creates the basis for corruption. The main reason for the development of corruption (as a shadow service sector) has been called the motivational imbalance between the scope of authority and responsibility of participants in illegal schemes. As a result, the real course of economic processes does not correspond to the planned ones.

This is confirmed by the results of the analysis of the dynamics of innovative activity of industrial enterprises of Ukraine and its effectiveness, as well as the structure of products exports of Ukrainian engineering enterprises in 2011-2018. In both cases, there is stable negative dynamic, which is accompanied by a General decline in the competitiveness Index of the Ukrainian economy.

Using economic-mathematical modeling we see the formation of effective institutions that serve as incentives and disincentives for behavioral choice. It is noted

that the total vector of action of institutions should ensure the development of the social-economic system in the direction determined by the governing bodies.

Taking into account the key role of innovative factors in the formation of the competitiveness of the national economy, a graphical model of institutional changes for the development of the institutional environment, the total motivational vector of which will increase the role of innovative factors in the formation of competitive advantages and sustainable development of business structures.

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