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THE EQUILIBRIUM STATE OF COMPOUNDS OF VANADIUM, CAPABLE OF SPONTANEOUS STRUCTURE FORMATION

Abstract. This article presents the results of theoretical and thermodynamic analysis of equilibrium States of vanadium compounds in order to justify the possibility of xerogel synthesis in the presence of ammonia. It is shown that vanadium, which is one of the 3d-elements, has the ability to form complexes. One of the stable complexes is $[HV_{10}O_{28}]^{-5}$, whose properties allow to obtain nanomaterials based on vanadium.

Key words: complex formation, nanomaterials, template, xerogel, Sol-gel method, thermodynamic analysis, monomer forms, polymer forms, vanadium complexes.

Introduction

Currently, nanotechnology is attracting a lot of attention, allowing to create a number of fundamentally new production processes, materials and devices based on them. Within the framework of the known synthesis methods, nanoobjects of different morphologies can be obtained, having a variety of shapes, sizes and functional properties.

Among the known methods of obtaining nanomaterials, one can note the Sol-gel technology. Traditionally, the Sol-gel method is understood as the state of the stages, including the preparation of the precursor solution, its subsequent transfer first to Sol, and then to the gel due to the processes of hydrolysis and condensation, subsequent aging, drying and heat treatment of the product [1].

The Sol-gel method is a simplified flow chart of the synthesis. This method allows to achieve a high degree of purity of products at all stages of synthesis with a minimum of energy consumption to achieve it. It becomes possible to obtain by this method products that are characterized by a monophase crystal structure with a high degree of perfection, strictly stoichiometric composition.

The solvent removal from the gel (drying) plays an extremely important role in Sol-gel synthesis. Depending on the method of their implementation, various synthesis products (xerogels, ambigels, cryogels, aerogels) can be obtained. The General features of these products are the preservation of nanosize of structural elements at different stages of synthesis (due to changes in reaction time, temperature, concentration and chemical composition of reagents), and sufficiently high specific surface area values [2-4].

Nanomaterials synthesized on the basis of vanadium compounds are of great scientific and practical interest. Vanadium, which is a polyvalent metal, shows a high tendency to complexation. Its compounds have a wide range of properties due to spontaneous structure formation, which is the starting point for the synthesis of nanomaterials based on them in the presence of a template (the educator of complexes), which contributes to the creation of an ordered structure complex.

It should be noted that in the compounds of vanadium it is extremely difficult to distinguish a certain valence structure, and as for the formation of macroscopic gels obtained on the basis of vanadium oxide (V), the use of the term valence may generally lose its meaning.

Vanadium oxide is a unique substance forming lyotropic liquid-crystal systems. When such colloidal solution dries, xerogels with a partially ordered layered structure are formed [5].

The xerogel based on vanadium pentoxide ($V_2O_5 \cdot nH_2O$) is characterized by a layered crystal structure. Using a template (i.e. an ion or a molecule embedded in a crystal structure) of different radius, it is possible to regulate the interlayer space of the structure, as a result of which the xerogel will "stretch" or "shrink" on the principle of an accordion [6]. On the other hand, due to this "flexibility" of the structure, the xerogel can intercalate (i.e. "suck") a variety of ions and molecules-guests.

The authors of [7, 8] note that in the structural spaces of the nanomaterial there are hydroxonium cations, since there is an alternative entry of the formula of xerogel $H_xV_2O_5 \cdot nH_2O$, which, first, shows the presence of V^{4+} and V^{5+} cations in the composition, and secondly, that protons can easily be ion-exchanged for other cations of different radius. Despite the fact that the authors used crystal V_2O_5 (ie. this is the phase in which the vanadium cations have an oxidation state of only 5^+), the appearance of the cations V^{4+} associated with the flow of the Sol-gel process in which the cations V^{4+} is an essential factor of the stage of gelation.

In addition to xerogels, the vanadium pentoxide with the participation of surface-active substances constitutes a whole range of modifications [4-15]: nanoribbon, nanotube filamentary crystals (whiskers), hybrid organic-inorganic materials. Important derivatives of vanadium (V) and (IV) oxides are nanotubes – hybrid non-organic materials containing molecular template.

These nanomaterials, due to their highly developed structure and ability to integrate into porous matrices, are of great interest from the point of synthesis of precision sorbents and catalysts, improving their special properties. Composites made by modifying porous matrices with anisotropic particles are promising in terms of their use in the separation of elements and wastewater treatment of metallurgical and other industries. In this regard, nanostructures based on 3D-element oxides, in particular vanadium, which are characterized by the ability to complex formation, are of great interest.

Despite the intensive development of nanotechnology, information on nanomaterials based on vanadium oxide is not extensive enough. Therefore, the studies conducted in this direction are timely, relevant and practically significant.

Research methods

The literature data were studied and the thermodynamic analysis of vanadium-containing systems in the presence of ammonia and without it was carried out to assess the possibility of synthesis of xerogel of vanadium using ammonia as a template.

The thermodynamic analysis of vanadium-containing systems was carried out using the certified program of thermodynamic calculations HSC Chemistry 5.11 of Outokumpu Technology Engineering Research.

Results and discussion

The exceptional variety of ion forms of vanadium (V) in aqueous solutions makes this area of its chemistry extremely complex. Its knowledge and correct understanding are crucial for the research on the synthesis of nanosized materials.

Vanadium belongs to the transition d-elements. The presence of an unfilled 3d-shell in vanadium atom determines the existence of its unique ability to complex formation. Complex vanadium compounds in the presence of a template under certain conditions due to various intermolecular interactions contribute to the creation of spatial highly developed layered nanoscale structures.

The electronic structure of vanadium atom is 1s22s22p63s23p63d34s2. Its oxidation state in the compounds varies from -1 to +5. However, from the point of view of technological processes, the most important are the compounds of vanadium, in which it has an oxidation state of +5. Vanadium in the oxidation state + 5 has amphoteric properties and is present in aqueous solutions in both anionic and cationic forms. Depending on the pH of the medium and the total concentration of vanadium in the solution, both the diverse ionic forms of vanadium and the degree of their polymerization change [16].

In aqueous solutions in the pH range of 1-14 at a vanadium concentration of 10^{-4} g-atom / dm^3, there are only monomer forms of vanadium. Vanadium is present in the form of ions of orthovanadiic acid VO_4^{3-} (pH 13-14), HVO_4^{2-} (pH 8-13,5), $H_2VO_4^-$ and H_3VO_4 (pH 7-9,5) and metavanadiic acid ions VO_3^- (pH 4.5-8.5) and HVO_3 (pH 3-5). With increasing acidity of the solution, a VO^{2+} cation (pH 4-1) appears, in high – acid media-a VO^{3+}cation. In the polymer form of vanadium exists in the form of dimers $V_2O_7^{4-}$, $HV_2O_7^{3-}$ (ions of pyrovanadic acid), trimer $V_3O_9^{3-}$ (ions of metavan-diic acid). The highest degree of polymerization, equal to 10, is observed in decavanadic acid ions $V_{10}O_{28}^{6-}$, $HV_{10}O_{28}^{5-}$ and $H_2V_{10}O_{28}^{4-}$in the pH range 2-6 [16, 17]. The solution becomes orange color. Increasing the pH of the medium to 6 causes the formation of $VO^{2+} \cdot VO^{3-} \cdot$ pn2o compounds, which fall in the form of poorly filtered precipitation of polyvanadates at pH 4.5-5.0.

It should be noted that in the presence of ammonia, it is possible to change the ionic state of vanadium in an aqueous solution, which directly depends on the amount of ammonia introduced into the solution, and hence the structural characteristics of the nanomaterials obtained.

In the presence of ammonia, ions $(VO_2)_{10}(OH)_{16}^{6-}$ are not stable (the stability constant is lgK = -7,5 + 0,3) [17, 18, 22]. Molecules of free ammonia in the concentrated solution begin to replace OH-groups in the decavanadium ion with the formation of ammonia complexes of type $[(VO_2)_x (OH^-) y \cdot nNH_3]^{y-x}$, characterized by high solubility. Thus, vanadium complexes with a neutral ammonia molecule may appear [20].

IR-spectroscopic studies of ammonia and vanadium-containing solutions [20, 21] show that coordinated ammonia bands have four main absorption regions at 3100-3300, 1560-1650, 1150-1350 and 600-900 cm-1, characterizing valence, deformation and pendulum oscillations of atoms in the ammonia molecule.

In IR absorption spectra of vanadium-containing solutions after ammonia addition, it is possible to distinguish the bands belonging to the coordinated molecules of ammonia [16]. In the region of valent oscillations ν (N-H) there is a wide blurred band 3050-3300 cm-1, deformation oscillations – absorption bands at 1220 cm^{-1} and 1150 cm^{-1}. The data obtained show that at pH 4.0-6.0 in the presence of ammonia, vanadium $[VO_2 \cdot nNH_3]^+$ ammonia complexes are formed. This conclusion is confirmed by the research of the authors in [19-22], which established the interaction of vanadium ions with the neutral molecule ammonia with the formation of complexes of composition $[VO_2 \cdot zNH_3]^+$, where z = 1-4.

The thermodynamic analysis of V-N-H_2O systems for the temperature range of 25-80 ° C was carried out (figures 1, 2, table 1). Analyzing the Pourbaix diagram for vanadium-containing systems, it can be concluded that in neutral environments, the formation of various oxygen-containing compounds of trivalent and pentavalent ions.

In the system V–N–H_2O (figures 1, 2) at Eh = (-1,15)÷(-0,75) b and pH 0÷4,2 vanadium is in cationic form V^{2+}. The region of existence of hydroxocomplexes of vanadium occur in the pH 1.5÷13.5 and Eh = (+0,3)÷(+1,45) V. the introduction into the system of the reducing agent resistant forms become oxides of vanadium, in the presence of oxidizing agents are stable ionic forms.

Stable form in V-N-H_2O system at pH 1.8÷13.5 and potential values(-0, 5)÷(+1,25) the decavanadium ion $[HV_{10}O_{28}]^{-5}$ is b, which in the presence of ammonia, due to the electron-donor properties of the nitrogen atom, is converted into an ammonia-vanadium complex $[(VO_2)_x(OH)_{y \cdot n}NH_3]^{y-x}$ [14, 19]. The stability of the ion $[HV_{10}O_{28}]^{-5}$ confirmed by the thermodynamic calculations presented in table 1.

Analysis of diagrams of the state of the V-N-H_2O system at different temperatures suggests that the formation of vanadium xerogel, which is directly dependent on the presence and stability of the ion $[HV_{10}O_{28}]^{-5}$, is possible at room temperature.

Under certain conditions, when the dispersed phase increases, coagulation contact between the particles appears, leading to the beginning of the material structuring process. In the process of structuring gradually formed a homogeneous substance-xerogel vanadium, which is then subjected to aging and drying. At this time, the hygroscopic and part of the crystallization water is removed and the template evaporates.

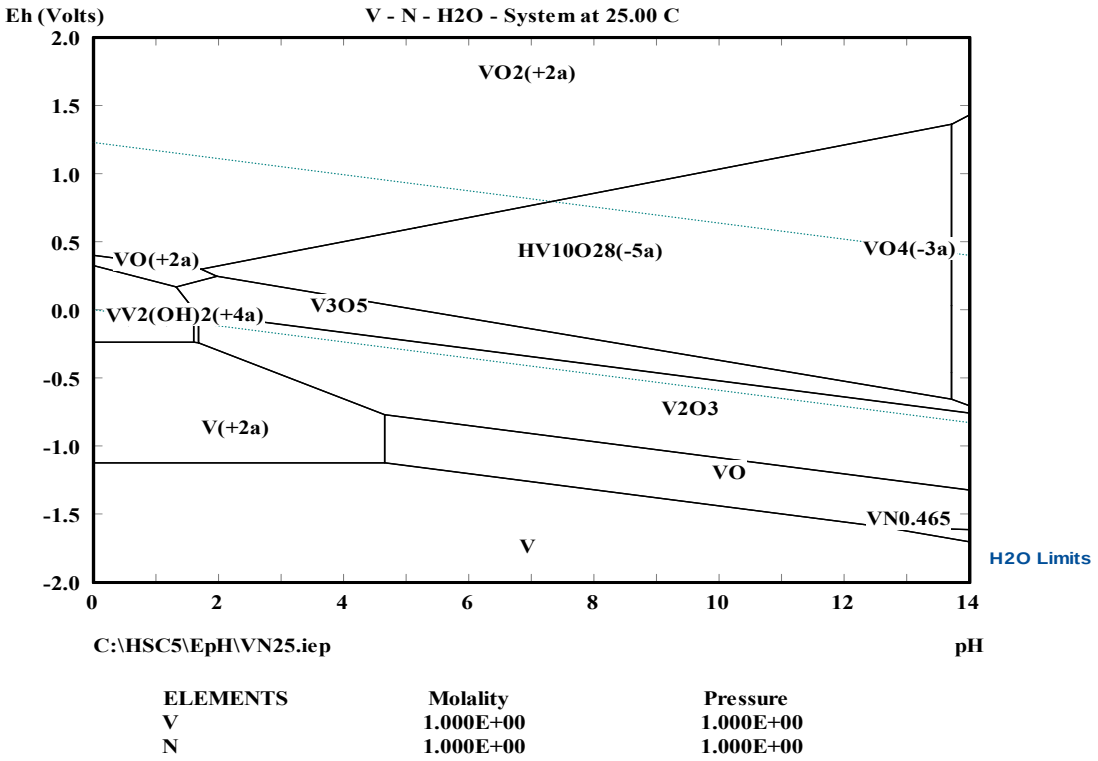
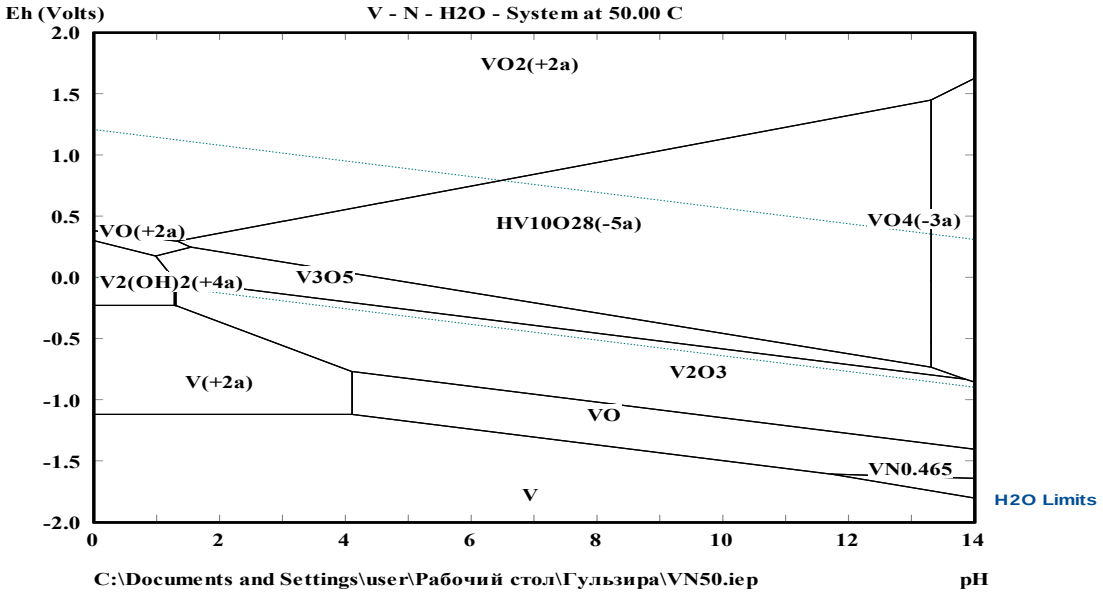


Figure 1 - diagram of Th-pH of M-T-H_2O system at 25 ^oC

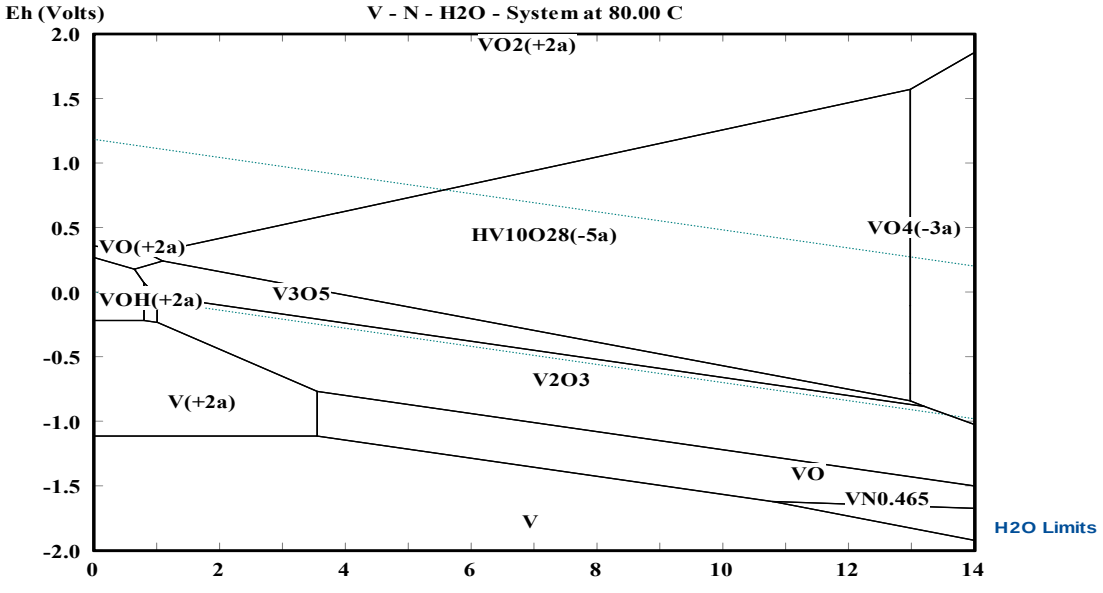
Table 1- Thermodynamic analysis of the state of equilibrium vanadium forms in the V-N-H_2O system

Vanadium ions and compounds	ΔG°, kJ/mol		
	25 ^oC	50 ^oC	80 ^oC
$VN_{0.465}$	-117,772	-116,549	-115,080
VO	-401,286	-398,786	-395,789
VO_2^+	-587,293	-585,167	–
V_2O_3	-1135,619	-1135,619	-1120,529
V_3O_5	-1815,358	-1128,748	-1791,194
$HV_{10}O_{28}^{5-}$	-8100,748	-8081,379	-8004,987
HVO_4^{2-}	-989,698	-983,543	–
V^{2+}	-217,171	-216,388	-215,367
VO^{2+}	-446,171	-442,867	-439,149
VO_2^{2+}	-606,198	-602,606	-598,515
VO_4^{3-}	-898,941	-879,333	-855,747
VOH^{2+}	-466,959	-465,833	-459,640

The final product of this transformation is a nanomaterial with a porous, mixed-layer, twisted, spatially developed structure, which allows further influence on the properties of catalysts and sorbents.



a)



b)

Figure 2-diagrams of Th-pH of M-T-H_2O system at 50 ^oC (a) and 80 ^oC (b)

Summary

The results of the thermodynamic analysis of vanadium-containing systems showed that the formation of complex ions and vanadium compounds in the V-N-H_2O system occurs spontaneously, since all calculated values of ΔG° in the entire studied temperature range have negative values; the formation of decavanadium complexes, in particular $[HV_{10}O_{28}]^{-5}$ (ΔG° = -8004,987 kJ/mol), is preferable.

The possibility of formation of vanadium complexes with a neutral ammonia molecule is shown. In ammonia solution the molecules of free ammonia start to replace the hydroxyl ions in decavanadate June, amicitia forming complexes of the type $[(VO_2)_x(IT\ -)\cdot nNH_3]^{u-x}$, ensure its high solubility. Choosing the conditions for the formation of vanadium-containing ammonia particles and the emergence of coagulation contact between the particles, it is possible to cause spontaneous structuring and the formation of nanomaterial in the form of xerogel vanadium.

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А.О. Байконурова[1], Г.А. Усольцева[1], М.С. Маркаметова[1], С.Б. Нуржанова[2], Р.С. Акпанбаев[1]

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РАВНОВЕСНЫЕ СОСТОЯНИЯ СОЕДИНЕНИЙ ВАНАДИЯ, СПОСОБНЫХ К САМОПРОИЗВОЛЬНОМУ СТРУКТУРООБРАЗОВАНИЮ

Аннотация. В данной статье изложены результаты теоретического и термодинамического анализа равновесных состояний соединений ванадия с целью обоснования возможности синтеза ксерогеля в присутствии аммиака. Показано, что ванадий, относящийся к числу 3d-элементов, имеет способность образовывать комплексы. Одним из устойчивых комплексов является $[HV_{10}O_{28}]^{-5}$, свойства которого позволяют получать наноматериалы на основе ванадия.

Ключевые слова: комплексообразование, наноматериалы, темплат, ксерогель, золь-гель метод, термодинамический анализ, мономерные формы, полимерные формы, комплексы ванадия.

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ӨЗДІГІНЕН ҚҰРЫЛЫМДЫ ТҮЗІЛІС ЖАСАЙТЫН, ВАНАДИЙ ҚОСЫЛЫСТАРЫНАН ТЕПЕ-ТЕҢДІК КҮЙЛЕРІ

Аннотация. Осы мақалада тепе-тең күйдегі ванадий қосылыстарының аммиактың қатысуымен ксерогельдің синтезі болу мүмкіндіктерін негіздеу мақсатында теориялық және термодинамикалық анализ нәтижелері баяндалған. 3d-элементтер қатарына жататын ванадийдің, кешендер құруына қабілеті бар екені көрсетілген. Бірі-тұрақты $[HV_{10}O_{28}]^{-5}$ кешені болып табылады, оның қасиеттері ванадий негізінде наноматериалдар алуға мүмкіндік береді.

Түйін сөздер: комплекс түзу, наноматериалдар, темплат, ксерогель, золь-гель әдісі, термодинамикалық талдау, мономерлі пішіндер, полимерлік пішіндер, ванадий кешендері.

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SUSTAINABLE INNOVATIONS IN AGRICULTURE: COMPLEX CHALLENGES IN THE INNOVATION SYSTEM

Abstract. Innovations in agriculture should help to cope with future challenges such as climate change or scarcity of resources. In addition, they are at the center of societal debates, such as those currently on genetic engineering or certain forms of animal husbandry. Among other things, the article provides information on the extent to which the causes of these conflicts are rooted in the framework conditions and in the course of innovation processes in agriculture. For this purpose, the innovation system of Kazakhstan agriculture will be examined from an innovation system-theoretical perspective and verified with empirical findings on innovation barriers. The innovations examined in three case studies each contribute to overcoming current challenges and are influenced by several factors in their development process: different technologies, diverse actors, connections to other sectors, overlapping framework conditions and current challenges as well as social discourses. The applied innovation system approach and the empirical investigation on several levels allow to gain insight into the interactions and thus to recognize starting points for changes. The high demands on innovations in agriculture and the social acceptance debates can be explained and solved from the perspective of the authors on the basis of the following aspects: (1) A prerequisite for innovation is the existence of a basis of trust. This arises in agriculture - and not only there - primarily in smaller, longer-term networks. (2) The success of innovation depends heavily on integrating societal demands into innovation processes, for example through the early involvement of trade and consumers. Beyond this balance of continuity and openness of agricultural innovation networks, the results raise questions about the (self-) understanding and design of the innovation system, the incentives and the design of interdisciplinary cooperation as well as the roles of the stakeholders.

Keywords: Agricultural innovation policy, innovation mechanism, precision farming, animal monitoring, energy in horticulture.

1. Introduction

In recent years, innovations in agriculture have been of great societal interest, such as the genetic engineering debate, the debate on animal husbandry, the use of bioenergy or discussions about "inferior" food quality through "industrial" production and manufacturing practices in agriculture and food industries [1,2]. In addition to such technology-related ethical debates, the ability of all actors in the agri-food sector to adapt to global challenges such as scarcity of resources, climate change, demographic change, biodiversity loss and others is becoming increasingly important and urgent. One possible approach to tackling these global challenges is seen in the knowledge-based bio-economy, which plays a key role in national and European research funding [3]. At the same time, research and politics around the world are increasingly focusing on the innovative capacity of agricultural systems [4].

While there is a wealth of statistical information about the economic structural features of the Kazakhstan agricultural sector, the innovation process is not sufficiently statistically mapped. The

Mannheim Innovation Panel, which is the central innovation survey and at the same time the Kazakhstan contribution to the European Innovation Survey, contains no statements on agriculture. In contrast, the statistics of expenditure on research and development (R & D) and of the R & D personnel of the Kazakhstan economy, which is created by the Government, shows the economic activity "agriculture and forestry, fishery". However, only if different performance indicators can be evaluated over a longer period of time can it be described retrospectively how the innovation system contributes to economic success [5]. However, Hall et al. for agricultural innovations noted that evaluating with only economic indicators is not expedient because decision-makers cannot derive conclusions for the institutional design of innovation conditions and innovation processes. Against the background of the difficult data situation and the current necessity to orient innovation conditions and processes in agriculture to the mastering of future challenges, this article describes the innovation process in Kazakhstan agriculture and analyzes mechanisms and influencing factors in innovation processes.

Malerba's Sectoral Innovation Systems approach provides the theoretical and methodological basis for the analysis [6]. It provides a comprehensive and systemic view of the actors, their relationships with each other and the framework conditions within which they are involved in innovation processes, and also allows qualitative analyzes if the corresponding quantitative (statistical) indicators are missing. The results of an innovation system analysis can thus provide information on the current competitiveness and innovation capacity of the sector and on the design of innovation conditions and processes.

At the same time, this comprehensive and context-specific perspective on innovation also allows a territorial and sectoral approach adapted to the study subject at various levels (national, regional) [7].

A peculiarity of agri-innovation systems is that they can be seen in the context of the respective agricultural policy paradigms. An example of this is the establishment of publicly funded advisory and testing services in the 1960s or the common agricultural policy (CAP). It can also be explained that the publicly funded part of the sector is sometimes considered to be the only relevant "system" and so far derived mainly for these intervention measures (World Bank 2006) [8]. These specific conditions of innovation in agriculture do not take into account Malerba's innovation system approach, in particular the specificities of the publicly-funded part of official advice and experimentation as an interface between science and practice. Furthermore, this approach does not provide any information on how innovation systems can be designed in the long term so that economic as well as ecological and social goals are taken into account [9,10]. Nevertheless, the international literature recognizes an added value of the innovation system approach for the discussion of the future design of the agricultural knowledge and innovation system and continues to be discussed [11].

Rakhimzhanova A. developed approaches to researching the innovation system of the Kazakhstan food industry and expanded it in 2010 by Eisner and Daniel for the food industry, including with regard to consumers. However, the entire Kazakhstan agricultural sector, including the upstream sector, is a "terra incognita" in recent innovation research. The aim of the article is therefore to analyze the innovation system of Kazakhstan agriculture and to explain the emergence of innovations in agriculture [12].

The paper begins with a theoretical part, in which the gap between innovation research in agriculture and other sectors is first closed by an adapted conceptual framework with four system levels (Section 2). The third section describes the methodological conception of three case studies - Precision Farming, Animal Monitoring and Energy in Horticulture. The fourth section presents the empirical findings. The fifth chapter discusses the results in the context of innovation systems research in general. By understanding the structures and modes of operation that constitute innovation, the last section provides guidance for adapting the agricultural innovation system to the future challenges of sustainable food supply.

2. Theoretical background for the study of agricultural innovation systems

With the innovation system approach, differences in innovation activity can be identified by means of a uniform analysis framework of the framework conditions. Malerba's Sectoral Innovation Systems Approach synthesizes scientific evidence from innovation research into a (normative) hypothesis on how innovation systems can ideally be designed. At the same time, it is a theoretical-empirically grounded heuristic analysis framework, but not a self-contained theory and does not provide any concrete

methodological guidelines for the analysis. Therefore, the system boundaries and the level at which innovation processes take place must first be defined [13].

First of all, it can not be assumed that agriculture is a coherent, closed innovation system. As a result of specialization and division of labor, there are different economic sectors (including plant and animal production, horticulture, viticulture) and technology approaches (such as agricultural technology, breeding, animal husbandry systems). These each form homogeneous subsystems, which in turn are each closely networked. Not only the individual company perspective, but the understanding of the sector as a complex system of different value chains is therefore helpful for the explanation of developments [14]. The central assumption is therefore that only the perspective on the value chains allows to adequately investigate innovation processes and to draw conclusions on how innovation processes can be improved in the sense of sustainable mastering of future global challenges and supported by appropriate funding instruments. The study thus conceptualizes value chains or networks as the arena and relevant system level on which the innovation processes take place, which are used to investigate innovation mechanisms.

The innovation system approach provides for analysis the six elements described below that need to be explored in innovation systems in order to make statements about its structures and interaction relationships.

1. Agents / Actors and Organizations. Here, existing organizational forms including their characteristics and key actors are analyzed and their characteristics are described. Actors are understood as individuals, groups and organizations at different levels of aggregation.

2. Interactions and Intermediaries. The focus of this sub-section is on market and non-market relations and actors' communication and their interaction within the sector and across sectors. These include exchange processes, competition, but also implicit or explicit collusion, hybrid forms of governance or formal research and development cooperation. Innovation intermediaries are organizations or groups within organizations that work to innovate.

3. Knowledge base and human capital. The element contains statements about sector-specific and cross-cutting knowledge. Factors such as the mobility of labor or the dissemination of knowledge come into play here.

4. Technologies and Demand Analysis of existing technological trends (products, services) and demand can shed light on which key development and future potentials can be expected for the sector and which problems require innovative solutions.

5. Institutions and Politics. This system element describes the implicit and explicit rules for the interactions of actors and organizations. These include, for example, laws, standards, but also behaviors or routines. Among other things, the actors of the innovation system agriculture are significantly influenced by the legal framework applicable to them, for example the sector-specific departmental policy.

6. Competition. The competitive situation in the field of innovation and the positioning of Kazakhstan y in international comparison are outlined. In general, the competitiveness of supply chains can be considered.

7. Innovation processes. This point is not listed in Malerba. Based on the question of how innovations are created in agriculture, this element has been added to the frame of reference by the authors. It allows an insight into innovation mechanisms, which makes it easier to recognize influence possibilities.

Most international studies on agricultural innovation systems do not relate to the innovation system approach. The literature has a large number of case studies that compare overarching conclusions and design statements [15].

It remains to note that (1) there is no universal method of analyzing innovation systems and (2) a methodology adapted to the specifics of the agriculture sector needs to be developed.

That's why the authors take the agriculture sector as a sub-sectoral industry. The subsystems differ in each case through specialization from each other and in them innovation processes take place in specialized networks / subsectors or fields of innovation. The sector as a whole (level 1, agriculture as a whole) is subdivided into the subsectors crop production, animal production and horticulture (level 2). Within these there are concrete innovation processes in socio-technological subsystems,

Value networks or innovation fields at level 3, using individual innovations (level 4). This multi-level approach secures connectivity with current innovation research, which assumes socio-technical niches and regimes as sites of innovation as sub-levels of sectoral innovation systems [16]. Figure 1 illustrates the

multilevel research approach presented here as part of the Sector Study to Investigate the Innovation System of Kazakhstan Agriculture.

3. Methodology

Creating quantitative indicators for describing innovation systems and evaluating innovation policies poses a problem for data availability, loss of meaning through aggregation, and economies of scale. This is why qualitative indicators are becoming increasingly important. Rogers also notes that innovation research is limited in its own meaningfulness by limiting itself to indicators and ignoring important aspects [17]. In particular, the process nature of individual decisions and the spread in the system are often too short in diffusion and adoption research. It is also problematic for the agricultural sector those individual areas of the value chain are assigned to other sectors (for example, chemicals, construction, trade, services) and that these industry statistics do not explicitly identify the relevant agricultural innovation figures. In order to generate insights into the development process of agricultural innovations, an explorative and process-oriented approach is necessary in addition to the analysis of secondary statistical indicators [18].

The first empirical step to investigate the agricultural innovation system was initially an expert workshop with 16 experts involved in various innovation processes from politics, associations, science and upstream areas such as banking and consulting. The workshop discussed the following issues: (a) how are innovations in agriculture, (b) what are promoting and inhibiting factors in the innovation process and (c) which fields of innovation are suitable for further investigation at level 3. The case studies to be examined should be as appropriate meet the following criteria:

• role model in tackling current challenges such as environment and resources, developing markets, social trends and ethics, food security,

• contributing to competitiveness, for example through increased efficiency, cost savings, new markets or niches,

• relevance to the labor market and value added, such as working conditions, jobs in agriculture and supply industries,

• the case studies should have been advanced by actors from Kazakhstan y in order to establish a connection to the innovation system of Kazakhstan agriculture,

• relevant significance for the innovation system of Kazakhstan agriculture, in particular with regard to economic, ecological and social sustainability dimensions.

On the basis of the presented criteria, of which as many as possible should be fulfilled, the authors were recommended by the experts to investigate the following case studies: Precision Farming, Animal Monitoring and Energy in Horticulture. The reasoning of the experts for this was that in these fields of innovation important aspects of agricultural innovation processes in Kazakhstan y can be traced and that they have a model character for the sector. For the processing of the selected case studies 15 expert interviews were conducted along the value chains [19]. The experts were identified according to their participation in innovation processes in the chosen innovation fields at different stages of the value chain.

4. Results

4.1. Secondary analysis of the total sector

The results of the analysis of various innovation-related indicators at the level of the overall sector point to an increasing importance of research and development in the Kazakhstan agricultural sector, albeit at a comparatively low level. For example, agricultural expenditure has risen slightly in recent years. In 2016, the volume of investment in fixed assets of agricultural enterprises increased by 51% and amounted to KZT 253 billion. The share of internal R & D expenditure in agriculture in the economy as a whole is from 2.4 percent in 2015 to 3.3 percent in 2016 as opposed to total declining R & D expenditure. In comparison to the economy as a whole, more R & D contracts are awarded to other companies or research institutions in agriculture. This indicates the actors' ability to work together in networks. The focus of R & D expenditure and the proportion of new product sales has been higher in the last five years than in any other sector, indicating increased innovation momentum, at least in the exploitable patent classes [20]. Despite the slight increase, however, it also becomes clear that the input variables for

agricultural innovation activities within the Kazakhstan economy, which are to be mapped with indicators, are of relatively low importance.

4.2 Expert workshop

The main findings of the expert workshop on the origin, promoting and inhibiting factors of innovations in agriculture with 16 experts from different areas of the agricultural innovation system can be summarized as follows:

• Innovations in agriculture are difficult to implement by individual actors.

• Dialogue, interdisciplinary networks and innovation partnerships along the value chain promote innovation.

• The promotion of innovation is sometimes not transparent enough, coupled with too many conditions, restricts entrepreneurial freedom and is perceived as inadequately coordinated with other policy instruments.

• A reliable funding structure and laws, especially in the early stages through pilot and demonstration projects, as well as the availability of venture capital are required.

• Federal structures in agricultural consultation, research and education make the emergence and spread of innovation more difficult.

• There is a lack of incentives for innovative and timely science thinking in the field of science that hinders innovation.

• A lack of social acceptance partially inhibits innovation.

• Entrepreneurship, solid education, competition, scarce resources and entrepreneurial freedom drive agricultural innovation.

According to the experts, the political framework would increasingly have to be aligned with other laws relating to innovation in order to take account of the systemic nature of innovations in agriculture and to avoid false incentives (for example in the bioenergy innovation field with energy legislation such as the EEG). A further assessment of the experts was that questions of social acceptance of agricultural innovations require a factual social discourse. Also, training and the fragmentation of agricultural research were named as determining innovation conditions in Kazakhstan.

4.3 Case Study Precision Farming (Subsector Crop Production)

Precision Farming (PF) can be defined as an information-led management concept that allows site-adapted and site-specific management in crop production using various technologies and applications. This involves both completely new solutions and technologies that come partly from other areas and have been recombined and developed for use in agriculture, for example Global Positioning System (GPS), a global navigation satellite system for position determination and time measurement or agriculture-specific mobile phone applications [21]. According to the interviewed experts, Precision Farming is "still at a very good idea stage" (interviewed expert 2011), which exists in the form of many individual innovations, but not yet as a complete system. The market penetration of the various PF technologies is estimated by some interviewed experts and in the literature with a general user rate of seven to ten percent in Kazakhstan. In particular, nitrogen fertilizer or crop protection technologies are the focus of demand, with the most widely used applications being land surveying, soil sampling, yield mapping and tracking systems. The main actors in innovation in this field of innovation have been the supply industry (mainly as an applied research and development provider), science (long-term, basic research), and agricultural businesses (users and demanders of innovations, prototype testers, field trials).

The arena within which Precision Farming is being developed consists of a manageable number of actors, among whom there are already numerous contacts and network structures. The experts emphasize the basis of trust that is often created through joint projects or long-term (personal) customer relationships. In the innovation process, trade and consumers had no direct influence on developments. However, consumer and trade demands for transparency, traceability and sustainability are trends that may lead to greater use of Precision Farming. From the invention to the market launch, it took up to ten years for some of the individual innovations studied.

In the area of knowledge base and human capital, it has been established that Precision Farming currently lacks specialist advisers. It was also estimated that there will be a shortage of skilled workers in

the future as well as in the overall sector. Due to the use of modern agricultural technology as well as information and communication technology, jobs in agriculture would become more and more demanding. General conditions such as documentation requirements or traceability favor the use of certain innovative technologies, such as navigation satellite systems (GPS) and geographic information systems (GIS) [22]. However, standards and standards are also capable of inhibiting innovation if manufacturers cannot agree on common standards. Furthermore, there are still deficits in the transfer of research and development results from science into agricultural practice. The innovation example illustrates a specific feature of the sector: Very often industries outside the agricultural sector are involved here (for example, sensors, mechanical engineering) [23]. Strong international competition from both agricultural machinery manufacturers and farmers has resulted in high levels of innovation among pre-suppliers and greater adoption of precision farming technologies by agricultural machinery service providers coupled with new services offered to farmers. Many small and medium-sized agricultural machinery companies in this area also operate globally at the same time.

At present, a low degree of compatibility of individual technology components and data formats is particularly inhibiting. Despite proven knowledge of economic and environmental benefits, the effects on individual operations are often difficult to estimate. The company takeover process is therefore often very tedious due to training and continuing education needs in agricultural trade and distribution and the lack of special advice.

In addition, the spread of precision farming is characterized by a variety of (cross-sectoral) feedback loops. Examples of this are the serial interfaces for machine control in automotive technology developed by farmers in the USA, the GPS systems made available by the US military since the 1990s for civilian use al Experts reported the promotional innovation effect of (free) access to satellite data, aerial photographs and digital terrain maps.

4.4 Animal monitoring case study (Subsector Animal Production)

The innovation field Animal Monitoring refers to the continuous electronic recording, collection and evaluation of animal data, which are used to assess behavior, health status, net performance and growth. The basis of this system is electronic animal identification. Animal monitoring should make a decisive contribution to securing and expanding the international competitiveness of animal husbandry in Kazakhstan. In addition, animal monitoring should provide a technological answer to current social discourses as well as statutory provisions on animal and consumer protection, as animal welfare and product characteristics can be monitored in the production process and influenced by individual animals.

In the interviews it became clear that also in animal monitoring the main actors in the innovation process are science, subcontractors and agricultural enterprises. Farmers are perceived by the experts to be less innovative, and are rarely involved in innovation development, taking on the role of test farms and feedback providers. Low profit margins for meat producers reduce their willingness to invest [24]. The test and demonstration functions also often take over the teaching and experimental goods of the respective state institutions. Consumers, politicians and consumers on the one hand, and the food trade and industry on the other hand, are the current indirect drivers of developments with demands for animal and consumer protection or quality and traceability systems. In addition, the ongoing trend towards automation and rationalization (including labor savings) further supports innovation in this area. However, many technical systems are not yet compatible with each other, which hinder market penetration. The innovation field of animal monitoring is characterized by small, specialized actor networks, according to the secondary analysis and the interviews. According to interviewees, there is a shortage of well-trained professionals in consulting, practice, research and sales. In addition, the experts observe a reduction of application-oriented teaching and research resources at the universities, coupled with a "haphazard" development of the structure of the research landscape. The quality of cooperation is a decisive factor for success in innovation projects for the experts.

Deficits in the design of the framework conditions and funding programs are a low focus on the needs of SMEs, no promotion of innovative ideas beyond the mainstream, problems in long-term validation, stringent requirements for test facilities for development, and high costs of licensing new systems. When it comes to animal monitoring, Kazakhstan science and research, according to the interviewed experts, have a high standard but also a low market and exploitation orientation. The subcontractors in the area of

milking and feeding systems and stable equipment are partly world market leaders and are characterized by a high export orientation. Here, from the point of view of the experts for innovation success, close cooperation between research and development and practice partners is required, since the innovation process is characterized by a multitude of intersectoral feedback, for example to human medicine or mobile and mobile phone technology.

4.5 Case Study Energy in Horticulture (Subsector Horticulture)

In addition to workers, energy represents one of the two most important cost factors in horticulture. For this reason, innovations for the efficient use of energy in greenhouse cultivation are particularly important, as Kazakhstan horticultural companies are facing increasing competition from climatically favored growing regions. The topic of energy in horticulture also gains importance from the social discourse about sustainability and environmental aspects of production. The innovation field currently consists of various horticultural-specific individual innovations such as climate computers and roofing materials and is even further away from an integrated technological-organizational paradigm than the Precision case study:

1) Farming. A key player in the innovation process is science, which contributes a great deal to knowledge production in this area. According to the surveyed experts, however, this knowledge is often not developed in a practice-oriented manner and is not translated into market-compatible products. A second group of actors are the market-oriented suppliers who have to design their products for a very small, highly segmented market. The production companies are rated by the experts as little innovation-friendly. Above all, they act as the "recipients" of innovations, but rarely act as proactive

2) Feedback providers. In addition, many experts discussed that the numerous networks in this very heterogeneous subsector are in part not known to all actors and there is a lack of cross-value chain management. In addition, consumers and commerce are not included in these networks.

Respondents are also troubled by the different performance evaluations in industry and science, which rarely provide incentives for closer cooperation.

According to the experts, horticultural consultancy, which has traditionally grown but has undergone major changes in recent decades and has very different regional structures, is still of particular importance in innovation. According to the experts, horticultural consulting acts as a mediator between the individual actors and "languages". However, the heterogeneous field "energy in horticulture" is not fully comprehensible for the individual consultant. A peculiarity for the adoption of innovations in horticulture is that company-specific solutions are necessary, which would require a detailed analysis of the operating conditions. According to the experts, this rarely happens. Special consultants are often lacking in developing individual innovations available on the market such as climate computers, roofing materials, energy shields or combination solutions of alternative fuels with the operations manager to form consistent overall concepts for the individual company [25]. Here the respondents observe a shortage of skilled workers. Although the legal framework currently promotes energy-related improvements in the under glass businesses through different facts (for example, the Renewable Energy Act (EEG)), the subsidy is not sufficiently used. According to respondents, funding programs are often only relevant for science because the barriers to entry for small and medium-sized horticultural businesses are assessed as very high. It is also criticized that (semi-) sector-specific conditions are not sufficiently taken into account in the programs (for example, harvest times or failures).

Social and procedural innovations must also be considered in this innovation example: These include, among others, the ecological footprint of horticultural products, traceability systems or new (energy) forms of cooperation. Innovations in the processes are conceivable, among other things, in logistics. However, according to the statements of the actors, these aspects did not (yet) play a role in the subsector, for example in France or Great Britain. In terms of technical innovation, however, Kazakhstan companies are considered to be leaders in international competition, also favored by strict national environmental regulations and standards. Social innovations (such as environmental foot printing methods) still need to be tackled in comparison to other countries, for example, in creating a single data base for the environmental footprint. In this case study, the friction losses in the communication between individual players, lack of demand by the companies as well as organizational obstacles are named as innovation-inhibiting. As promoting spatial proximity and trust were called.

5. Conclusion

The study shows that an investigative approach adapted to the various levels of innovation systems can describe the current framework for innovation in an industry with a combination of quantitative and qualitative information. The adapted analytical concept of the innovation system approach links the framework conditions for innovations and their effects in the concrete arena of the respective value chain with a process perspective (analysis element innovation processes).

In this way it is possible to describe the interplay of innovation conditions and innovation processes and to explain innovation success. This makes starting points for improvements visible to all actors, the framework conditions and the design of innovation processes.

With the classic concept of sectoral innovation systems, the multiple links to other sectors and niches would not be visible. The investigated case studies, which are considered to be typical for innovations in agriculture, show a technological complexity, for the co-ordination of innovation processes from the view of the authors a common system and role understanding of the actors is necessary. Only from this shared system understanding, in the sense of a common mental model, effective coordination mechanisms can be derived. This is not easy in the context of regionally different changes in the publicly funded part of the agricultural system, changes in general conditions and social debates, and controversial incentives for interdisciplinary cooperation. In addition, trade and consumers are not directly involved in innovation processes, but their expectations are translated into policy processes or trade requirements. From this experience, some of the actors can see a wait-and-see attitude until social trends are confirmed by the adaptation of the framework or delivery conditions.

The apparent contradiction between the high demands and expectations of innovations in agriculture on the one hand and the social acceptance debates on the other can be solved from the authors' point of view by two findings and conclusions derived from our empirical findings: (1) The prerequisite for innovation is the existence of a basis of trust. This arises in agriculture - and not only there - primarily in rather small longer-term networks. (2) In the innovation processes taking place in these networks, social and agricultural requirements must be integrated at an early stage, for example through the early involvement of trade and consumers. Thus, not only complex constellations have to be taken into account in agricultural innovation processes, but the innovation management faces the challenge to enable a trusting cooperation of the participants, but at the same time to remain open to changed claims or developments, in order to avoid acceptance debates in the diffusion process [26].

The authors see further need for research on ways of making better use of the innovation potential of agricultural enterprises to improve acceptance and adoption as well as opportunities for the further development of individual solutions towards integrated innovation fields. In addition, from the perspective of the authors, it should be examined how decision-makers can better be provided with information on innovation activities in the sector in the sense of monitoring.

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АУЫЛ ШАРУАШЫЛЫҒЫНДАҒЫ ИННОВАЦИЯЛЫҚ ПРОЦЕССТЕРДІ ТҰРАҚТЫ ДАМЫТУ: ИННОВАЦИЯЛЫҚ ЖҮЙЕДЕГІ КЕШЕНДІ МӘСЕЛЕЛЕР

Аннотация: Соңғы онжылдықта агроөнеркәсіп саласындағы инновациялық зерттеулер кеңейді. Бұл ауыл шаруашылығындағы инновациялар климаттың өзгеруі немесе ресурстардың жетіспеушілігі сияқты азық-түлік қауіпсіздігіне қатысты болашақтағы жаһандық проблемаларын жою мақсатына байланысты. Агроөнеркәсіптің даму бағыттары қазіргі гендік инженерия мен мал шаруашылығының кейбір түрлеріне байланысты салаларға әсер етеді. Бұл мақалада Қазақстанның агроөнеркәсіптік кешеніндегі инновациялық процестердің дамуы туралы ақпарат бар. Осы мақсатта Қазақстанның агроөнеркәсіптік кешенінің инновациялық жүйесі теориялық жағынан зерттелді және зерттеулер инновациялық даму кедергілерінің эмпирикалық деректермен расталады. Инновациялар үш зерттеу тақырыптарда қарастырылған, инновациялар өзекті мәселелерді шешуге және олардың даму процесінде бірнеше факторларға байланысты: түрлі технологиялар, әртүрлі әртістер, басқа секторлармен байланыстар, үйлесімділік жағдайлары мен ағымдағы проблемалар мен әлеуметтік дискурстар. Инновациялық жүйенің қолданбалы көзқарасы және бірнеше деңгейдегі эмпирикалық зерттеу осы өзара әрекеттесу туралы түсінік береді және осылайша ұсыныстарды әзірлеу үшін бастапқы нүктелерді белгілейді. Авторлардың пікірінше, ауыл шаруашылығында инновацияларға деген жоғары талаптар және әлеуметтік қабылдау туралы пікірталас келесі аспектілер

негізінде түсіндіріледі және шешіледі: (1) Инновацияға алғышарт - сенімнің негізі. (2) Инновациялардың табысы негізінен инновациялық процестерге әлеуметтік талаптарды біріктіруге байланысты болады, мысалы, тұтынушылық сұранысты ұлғайту. Агроөнеркәсіптік инновациялық процестердің ашықтығына қосымша инновациялық жүйені дамыту, ынталандыруды күшейту және пәнаралық ынтымақтастықты дамыту, сондай-ақ мүдделі тараптардың маңыздылығы көтеріледі.

Түйін сөздер: Ауыл шаруашылығындағы инновациялық саясат, ауыл шаруашылығындағы инновациялық үдерістер, ауыл шаруашылығындағы мониторинг.

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УСТОЙЧИВОЕ РАЗВИТИЕ ИННОВАЦИОННЫХ ПРОЦЕССОВ В СЕЛЬСКОМ ХОЗЯЙСТВЕ: КОМПЛЕКСНЫЕ ПРОБЛЕМЫ В ИННОВАЦИОННОЙ СИСТЕМЕ

Аннотация. В последние десятилетия исследования в области инноваций в агропромышленности расширились. Это связано с тем, что инновации в сельском хозяйстве развиваются с целью искоренения будущих глобалтных проблем, связанных с продовольственной безопасностью, такими как изменение климата или нехватка ресурсов. Направление развития агро инноваций в настоящее время затрагивает такие области как генная инженерия и некоторые виды животноводства. В данной статье представлена информация о том, в какой степени находится развитие иннвоационных процессов в агропромышленности в Казахстане. С этой целью изучена инновационная система сельского хозяйства Казахстана с теоретической точки зрения и исследования подтверждены эмпирическими данными об инновационных барьерах развития. Инновации, рассмотренные в трех тематических исследованиях, способствуют преодолению текущих проблем и зависят от нескольких факторов в процессе их развития: различных технологий, различных участников, связей с другими секторами, пересекающихся рамочных условий и текущих проблем, а также социальных дискурсов. Прикладной подход инновационной системы и эмпирическое исследование на нескольких уровнях позволяют получить представление об этих взаимодействиях и тем самым распознать отправные точки для разработки рекомендаций. По мнению авторов, высокие требования к инновациям в сельском хозяйстве и дискуссии о социальном принятии могут быть объяснены и решены на основе следующих аспектов: (1) Необходимым условием для инноваций является наличие основы доверия. (2) Успех инноваций во многом зависит от интеграции социальных требований в инновационные процессы, например, за счет роста спроса потребителей. Помимо необходимости открытости сельскохозяйственных инновационных процессов, ставится вопрос о необходимости разработки инновационной системы, наращиванию стимула и развитию междисциплинарного сотрудничества, а также важности заинтересованных сторон.

Ключевые слова: Инновационная политика в области сельского хозяйства, инновационный процессы в сельском хозяйстве, мониторинг в сельском хозяйстве.

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SCREENING OF *L. EDODES* STRAIN PRODUCING BIOMASS WITH HIGH CONTENT OF POLYSACCHARIDES

Abstract. *Lentinus edodes* (shiitake) is a mushroom with medicinal and functional properties. Widely sold as nutritional agents, these mushrooms are helpful to human health and contain various bioactive compounds including terpenoids, steroids, phenols, alkaloids, lectins, ergosterols. At present, 70%-80% of all medicinal mushroom products are derived from fruiting bodies and 20%-30%% of all products are based on extracts from mycelia and culture filtrates. However, the production of medicinal mushrooms' fruiting bodies usually takes several months, and it is difficult to control the quality of the final product. By contrast, the growth of pure mushroom cultures in submerged conditions in a liquid culture media permits acceleration of the growth speed, resulting in high biomass yield in several days. Commercially grown shiitake currently are cultivated on synthetic media. In this article *Lentinus edodes* strain, producing a significant amount of endo-polysaccharides was selected during submerged cultivation. The maximum endo-polysaccharides production in fungal biomass was observed both in wort and glucose-peptone-yeast nutrient media. It was stated that *L. edodes* strain 2541 showed the best endo-polysaccharides production and was selected for further study.

Key words: Basidiomycetes, *Lentinus edodes*, endo-polysaccharides, submerged cultivation.

Introduction

Shiitake is the common Japanese name for *Lentinus edodes*, and is also the common name now used in the West. Indigenous to Asia, shiitake is now cultivated and is the second most commonly produced edible mushroom in the world [1-5]. Besides being a culinary delicacy, there is a long tradition of use of shiitake as medicine in Asia, dating back >2000 years. Shiitake contains protein (26% of dry weight), lipids (primarily linoleic acid); carbohydrate; fiber; minerals; vitamins B-1, B-2, and C; and ergosterols [6, 7].

Biological activity of most mushrooms has been determined by carbohydrate compounds, which contents 60% of dry fungal biomass [8, 9]. They are represented by free and bound sugars, as well as by polysaccharides. These substances isolated from shiitake have immunomodulatory, lipid-lowering, and antimicrobial properties. In 70s of the last century, a group of Japanese scientists established the oncostatic effect of polysaccharides isolated from the fruit bodies of some basidiomycetes, which led to active study of these compounds, as well as the search for their producers [10, 11].

Polysaccharides are a group of biological macromolecules widely distributed in nature. They consist of repeated structural units - monosaccharide residues, connected by glycosidic bonds. In comparison to proteins and nucleic acids, polysaccharides have a higher ability to transfer biological information since they have the greatest potential for structural variability.

At present, 70%-80% of all medicinal mushroom products are derived from fruiting bodies and 20%-30%% of all products are based on extracts from mycelia and culture filtrates [12-16]. However, the

production of medicinal mushrooms' fruiting bodies usually takes several months, and it is difficult to control the quality of the final product. By contrast, the growth of pure mushroom cultures in submerged conditions in a liquid culture media permits acceleration of the growth speed, resulting in high biomass yield in several days. For most substances, this mycelium biomass obtained by submerged cultivation also has higher nutritional value. The culture media in which mycelium grows is made of chemically pure and ecologically clean substances. Submerged cultivation of mushrooms has significant industrial potential, but its success on a commercial scale depends on increasing product yields and development of novel production systems that address the problems associated with this technique of mushroom cultivation. The production of polysaccharides, as well as other components, is determined both by the biological characteristics of the fungal strain and cultivation conditions such as the content of nutrient components media, aeration, temperature, pH, and other factors.

The present study focuses on *L. edodes* biomass and endo-polysaccharides production capabilities in different nutrient media at submerged cultivation.

Materials and Methods

The objects of the study were 31 strains of *L. edodes* fungi from the collection of Basidiomycetes of the Institute of Botany of Ukraine. The cultures were maintained on wort agar (4°C), stored at 4°C. For biomass production, following nutritional media were used: (i) wort (W); (ii) synthetic glucose-peptone-yeast medium (GPY): (g/l) glucose - 30; peptone - 3; KH_2PO_4 - 1.0; K_2HPO_4 - 1.0; $MgSO_4$ x $7H_2O$ - 0.25; yeast extract – 20.

The inoculum preparation was comprise several steps: (i) inoculation of 100 ml of synthetic medium with 25 mycelia discs (Ø 0.5 cm, from 7-day-old culture from wort agar); (ii) incubation at room temperature (22 ± 2ºC), on a rotary shaker (180 rpm), for 7 days; (iii) washing of obtained biomass (3 times) by sterile distilled water; (iv) biomass homogenization with 100 ml of sterile water in a laboratory blender. Mycelia biomass was assessed after 7 days of submerged cultivation in 250 ml flasks containing 50 ml of medium. The fungal biomass was separated by centrifugation (4ºC, 3000 rpm, 30 min), washed by dH_2O, dried at 50ºC until constant weight will be obtained, and measured as g L-1 of the medium.

To extract polysaccharides from the deep mycelium it was destroyed in a homogenizer, then poured in distilled water at a ratio of 1:10 and boiled in water bath for 18 hours. The removal of cytoplasmic contents was carried out by repeatedly suspending the destroyed mycelium in distilled water by centrifugation at 3000g for 15 min. The washing was stopped only when the optical density of the supernatant did not exceed 0.1 at 280 nm [17, 18]. The extracts were concentrated 2-3 times on a rotary evaporator, treated with 96° ethyl alcohol in a ratio of 1:1 by volume and left at 4°C until complete precipitation. The precipitate (polysaccharides) was separated by centrifugation and dialyzed against distilled water for 3 days. The dialysed polysaccharides were precipitated with ethyl alcohol at ratio of 1:2, washed with ethanol or acetone and dried at 37°C. The homogeneity of the polysaccharides was checked by gel filtration on *Sephadex* G-200. The detection of the polysaccharide was carried out using the phenol-sulfuric acid method [19]. The content of polysaccharides was calculated in % to dry biomass (a.s.m.).

All the analyses were performed in triplicate, and the results were expressed as mean SD values of the three sets of observations. The mean values and standard deviation will be calculated using STATISTICA 6 [20].

Results and Discussion

Many types of polysaccharides could be produced by mushrooms in submerged cultures. Among them, endo-polysaccharides from mycelia may mediate biological activities. Since the production of polysaccharides is more efficient from mycelia than from fruiting bodies, the influence of culture conditions on mycelial production has drawn much attention. The present study has focused on the biomass and endo-polysaccharides production capabilities of *Lentinus edodes* strains in submerged cultivation on wort and synthetic glucose-peptone-yeast media. The selection of active endo-polysaccharides producers among fungal strains showed that all fungal strains accumulated 5.0 - 13 g/l of mycelial biomass growing on wort medium and 3.5 – 8.5 g/l - on glucose-peptone-yeast medium (Table).

Table - Biomass and endo-polysaccharides production by *Lentinus edodes* strains during submerged cultivation

Fungal strain	Biomass, g/l		Endo-polysaccharides, %	
	W	GPY	W	GPY
55	6	3,5	2,6	2,5
2541	**12,5**	**7,2**	**3,5**	**4,5**
57	7,8	4,4	3,1	2
65	9,3	6,5	3,5	1,7
503	12	7,1	4	3,2
504	7,8	6,3	3	2,9
1712	10	6	2,9	2,5
2082	6.5	6	2,9	2,5
711	5,7	4	3,2	2,4
712	5,7	3,5	3	2,5
713	7,5	5,7	2,9	2
1500	7	3,5	2,6	2,5
1501	7	6	2,7	1,8
1628	5,3	4,5	2,5	2
1658	6,3	6	3,1	2,8
1659	5,5	5,2	3	2,8
1973	5,8	5	2,8	1,6
1992	5,7	4,8	2,8	1
2022	9,5	7,2	3,5	3
2023	7,8	7,3	3,2	3
2056	6,2	6	2,8	2,7
1709	9,0	6,4	2,3	1,5
1711	9,8	4	1,2	1,8
2059	9,3	5,6	1,1	2
1710	10,6	8,5	3,0	1,7
2180	13,0	7,2	3,0	2,4
2267	8,2	6,5	3,5	3,9
2084	5,5	7,1	1,9	1,3
2085	5	4,6	1,8	1,3
2914	5,9	7,7	1,5	1,9
507	12	7	2,6	2,9

As can be seen from the data presented in the table, fungal strains 2180, 1710, 507 and 2541 were good producers of endo-polysaccharides. Maximum biomass accumulation was reached both in wort and in glucose-peptone-yeast media. Endo-polysaccharides were produced at the highest level by fungal strains 2180, 1710, 507 and 2541; in wort nutrient medium endo-polysaccharides content was 1.1 - 3.5% while on a glucose-peptone-yeast medium – from 1.0 to 4.5%.

Thus, the optimization of growth conditions for enhancing the biomass accumulation by 31 fungal strains was studied. The endo-polysaccharides production by fungal strains was observed both in wort and glucose-peptone-yeast media. *L. edodes* strain 2541 showed the best endo-polysaccharides production and was selected for further study.

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БИОМАССАСЫНДА ПОЛИСАХАРИДТЕРДІҢ ЖОҒАРЫ МӨЛШЕРІ БАР *L. EDODES* ШТАМДАРЫНЫҢ СКРИНИНГІ

Аннотация. *Lentinus edodes* (шиитаке) – емдік және функционалдық қасиеттерге ие саңырауқұлақ. Бұл саңырауқұлақтардың жемісті денелері әлемнің көптеген елдерінде өндірістік мөлшерде өсіріледі және онда терпеноидтар, стероидтар, фенолдар, алкалоидтар, лектиндер, эргостеролдар сынды әртүрлі биологиялық белсенді қосылыстар кездеседі. Қазіргі таңда саңырауқұлақ препараттарының 70%-80% мөлшерін жемісті денелерінен және 20%-30% - саңырауқұлақ мицелиі экстракттарынан және дақылдық сұйықтықтан бөліп алады. *L. edodes* жемісті денелерінен препараттарды алу әдетте бірнеше айларға созылады, сонымен қатар мұндай жағдайда өндірілетін өнімнің сапасын қадағалау өте қиын. Процесс жылдамдығы бойынша саңырауқұлақ биомассасын тереңдік жағдайда алу, жеміті денелерін дәстүрлі әдіспен алуға қарағанда айтарлықтай жоғары. Бұл өз кезегінде биомасса алу уақытын айтарлықтай қысқартып, оның мөлшерін жоғарылатуға мүмкіншілік береді. Шиитаке саңырауқұлағын коммерциялық өсіру, қазіргі таңда оны арзан синтетикалық қоректік орталарда өсіруді көздейді. Бұл мақала саңырауқұлақ биомассасында эндополисахаридтер мөлшері жоғары *Lentinus edodes* штам скринингіне арналған. Эндополисахаридтердің жоғары мөлшері саңырауқұлақты суслода, сонымен қатар глюкоза-пептон-ашытқы ортасында өсіру барысында анықталды. Эндополисахаридтердің перспективті өндірушісі ретінде *L. edodes* 2524 штамы іріктеліп алынды.

Түйін сөздер: базидиомицеттер, *Lentinus edodes*, эндополисахаридтер, тереңдік дақылдау.

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СКРИНИНГ ШТАММОВ *L. EDODES* С ВЫСОКИМ СОДЕРЖАНИЕМ В БИОМАССЕ ПОЛИСАХАРИДОВ

Аннотация. *Lentinus edodes* (шиитаке) – гриб, обладающий лечебными и функциональными свойствами. Плодовые тела этого гриба выращивают в промышленных масштабах во многих странах мира и содержат различные биологически активные соединения, включая терпеноиды, стероиды, фенолы, алкалоиды, лектины, эргостеролы. В настоящее время 70%-80% всех грибных препаратов получают из плодовых тел и 20%-30% - из экстрактов мицелия грибов и культуральной жидкости. Получение препаратов из плодовых тел *L. edodes* обычно занимает несколько месяцев и, более того, в таких условиях очень трудно контролировать качество производимого продукта. Получение же грибной биомассы в условиях глубинного культивирования по скорости процесса более чем на порядок выше, чем традиционное получение плодовых тел, что позволяет значительно сократить время получения биомассы, увеличить ее количество. Коммерческое выращивание гриба шиитаке в настоящее время предполагает его выращивание на синтетических недорогих питательных средах. Настоящая статья посвящена скринингу штамма *Lentinus edodes* с высоким содержанием в грибной биомассе эндополисахаридов. Установлено, что максимальное количество эндополисахаридов отмечено при культивировании изучаемых штаммов как на сусле, так и на глюкозо-пептон-дрожжевой среде. Штамм *L. edodes* 2524 отобран нами как наиболее перспективный продуцент эндополисахаридов.

Ключевые слова: базидиомицеты, *Lentinus edodes*, эндополисахариды, глубинное культивирование.

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STATE SUPPORT OF CREDITING OF AGRICULTURE IN KAZAKHSTAN

Abstract. Inthisarticleweinvestigated problems of availability of credit resources to subjects in agriculture. For carrying out research were used economical and statistical methods of the analysis. Crediting of agriculture constantly increases in Kazakhstan, generally due to the state preferential crediting through NUH JSC "KazAgro". Despite various credit product and preferential terms of crediting, a circle of borrowers which can use the credit offer of holding is limited. For increasing of availability of credit resources, firstly development of agricultural cooperatives and introduction of the effective mechanism of insurance in agriculture is necessary. These measures will help to increase the level of solvency of the borrower, to reduce branch risk of agricultural production and possibility of giving mortgage providing in the form of the earth or property. Secondly, practically there are no private creditors and there are no conditions for their effective functioning in Kazakhstan. Therefore creation of cooperative bank in Kazakhstan, that will promote development of the competitive environment in the credit offer is offered, and attraction of the capital in financing of agriculture will expand investment opportunities.

Keywords: credit, agriculture, agricultural cooperative, cooperative bank.

In the annual message to the people the President N.A.Nazarbayev called agriculture "a new driving force of the economy" [1]. For this purpose there is a number of prerequisites, namely growth of agricultural sector for 2001-2016 averaged 4,4% a year, and the share in GDP makes about 4,5%. Nearly one fifth working-age population worksin agriculture. In general this sector is extremely important for the solution of problems on ensuring food security and reduction of unemployment rate.

Development of agriculture is caused, first of all, by the state support which main directions are reflected in the State program on development of agro-industrial complex in the Republic of Kazakhstan for 2017-2021 (further – the Program). Subsidizing of rates of remuneration on the credits of subjects of agro-industrial complex, under credit-leasing contracts for acquisition of agricultural machinery and animals, processing equipment, on the credits issued to agricultural producers on financial improvement, and also increase the capital of "KazAgro" for granting the credits is offered in the Program [2].

However, now practical use of the instrument of preferential crediting of agricultural producers didn't bring due effect. In this regard research of problems of availability of credit resources to subject of agriculture is a hot topic that formed the basis for writing of this article.

The purpose of scientific research in the assessment of the operating system of preferential crediting in agriculture and development of recommendations about ensuring availability of credit resources for agricultural producers.

For an assessment of a current state crediting of agriculture of the Republic of Kazakhstan economical and statistical analysis were used, including a method of group of economic indicators on certain signs; a method of a number of dynamics for definition of a pure and relative gain, growth rate; method of calculation of average sizes; graphic method.

Now the main creditors of agricultural producers are JSC "National operating holding "KazAgro" and banks of the second level". Thus, the state financial support of agriculture in Kazakhstan is carried out by

NUH JCS KazAgro (further – Holding). In 2016 the total amount of subsidies, credits and transfers of Holding made more than 80% of the budget of the Ministry of Agriculture of RK, without expenses, connected summary and forestry [3].

As showed the analysis, for the last decade on domestic the credit market observes a tendency of growth of volumes of crediting of agriculture. (figure 1)

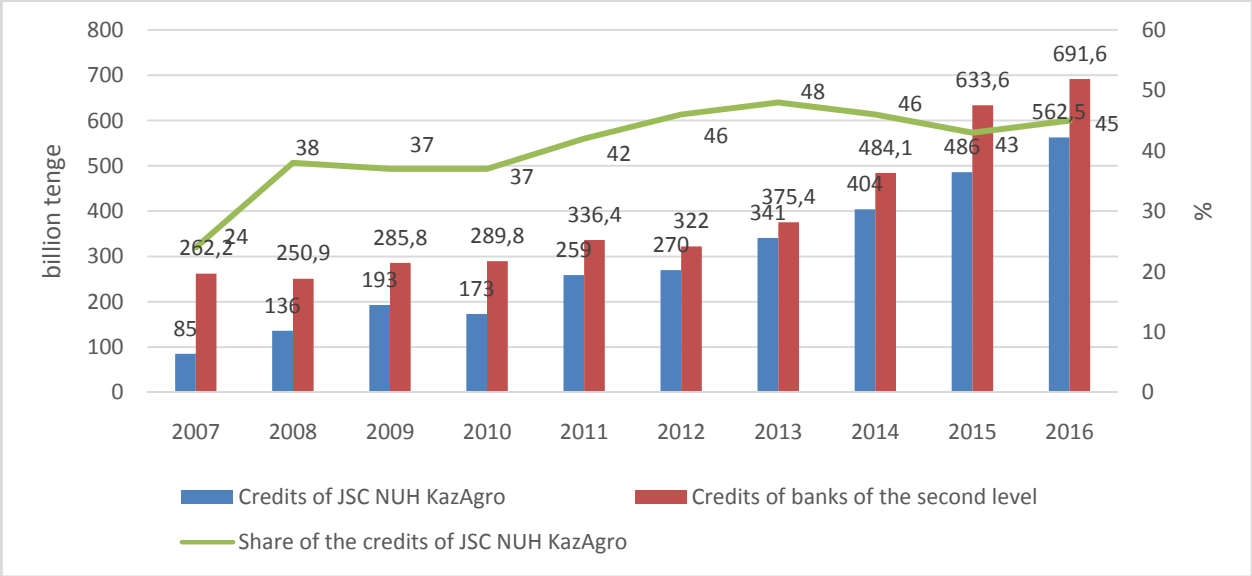

Figure 1 – Structure of volumes of credits to agriculture in Kazakhstan

Note: it is made by authors on the basis of statistical data of JSC NUH KazAgro//the Source: the annual report of JSC NUH KazAgro for 2016 [4]

Apparently from the figure 1, the credits issued by banks of the second level grew from 262,2 billion tenge in 2007 to 691,6 billion tenge in 2016, or by 2,6 times. However, according to National Bank of Kazakhstan, for the analyzed period the of agriculture in a total amount of the bank credits was reduced from 7,8% in 2011 to 2,5% in 2016 [5].

It should be noted that banks mainly credit large-scale steady enterprises for replenishment of current assets on ensuring short-term production. Thus, a source of part of the agricultural credits issued by commercial banks isthe means borrowed JSC NUH KazAgro. So, the Holding carried out funding of banks of the second level for crediting of subjects of agro-industrial complex in 2014 for 20 billion tenge, in 2015 – for 44 billion tenge, in 2016 for 33 billion tenge.

Therefore, if the policy on subsidizing of interest rated for the credit wasn't pursuedfrom the state, banks of the second level actually would limit access to financing of subjects of agriculture. In our opinion, here the major limiting factors are:

- a conservative assessment of branch risks in agricultural production,
- deficiency of effective instruments of hedging of branch risks,
- low level of liquidity of mortgage providing agricultural producers,
- the shortage of sources of long-term funding demanded for financing of projects with a long payback period.
- weak methodology of the analysis of projects in agriculture,
- higher rates of remuneration on loans in comparison with subsidiaries of Holding.

As for JSC NUH KazAgro, for 2007-2016 the Holding increased volumes of crediting of agro-industrial complex from 85,0 billion tenge in 2007 to 562,5 billion tenge in 2016, or to 6,6 times.

Specific weight in a total amount of crediting made 45% in 2016 or increased by 1,9 times in comparison with 2007. It is significant growth and shows that the state represented by Holding gives essential state support to agriculture.

JSC NUH KazAgrocarries out the state financial support of agriculture through the subsidiaries, including:

- JSC Agrarian Credit Corporation who grants soft loans to agricultural producers for the purpose of development of business in the village;
- JSC KazAgroFinance who finances acquisition of agricultural machinery in leasing;
- JSC Fund of Financial Support of Agriculture is engaged in microcredit in the village
- JSC KazAgroGaran carries out guaranteeing performance of obligations of subjects of the agrarian and industrial complex on loans (credits) and leasing provided by financial institutions;
- The KazAgroMarketing renders services of the operator within the "Agrobusiness – 2020" program for subsidizing of rates of remuneration for the credits, and also leasing of processing equipment and agricultural machinery of subjects of agrarian and industrial complex.

Thus only 3 subsidiaries credit agricultural producers: JSC Agrarian Credit Corporation,JSC KazAgroFinance and JSC Fund of Financial Support of Agriculture. The analysis of credit portfolio of Holding showed that for 2012-2016 the greatest specific weight in a total amount of the credits in the share of JSC Agrarian Credit Corporation which share in 2016 made 52,0%. Shared of JSC KazAgroFinance and JSC Fund of Financial Support of Agriculture in a credit portfolio of Holding are approximately identical and in 2016 made 21,0% and 27,0% respectively. (table 1).

Table 1 – Structure of a credit portfolio of JSC NUH KazAgro

Years	JSC Agrarian Credit Corporation		JSC KazAgroFinance		JSC Fund of Financial Support of Agriculture	
	sum	specific weight, %	sum	specific weight, %	sum	specific weight, %
2012	82061146	63	28901531	22	18762054	15
2013	113210190	61	40242908	22	33630484	17
2014	100605389	49	53044703	26	50213705	25
2015	124504541	51	59739798	24	60705259	25
2016	135725198	52	54841601	21	69838862	27
Note: it is made by authors on the basis of statistical data of JSC NUH Kazagro//the Source: the annual report of JSC NUH KazAgro for 2016 [4]						

It should be noted that ensuring availability of financial resources in many respects depend on credit conditions. We studied state programs of crediting of agricultural producers which are presented in table 2.

The analysis of conditions of granting the credits by subsidiaries of JSC NUH KazAgrorevealed that its credit products have advantages before bank crediting. First of all, the Holding credits agricultural producers at the rates much below market, and partially interestrates are subsidized, objects of crediting are much broader, that other creditors. The Holding credits replenishment of authorized capitals of the companies, acquisition of agricultural machinery, replenishment of the fixed and working capital. Requirements to mortgage providing are lower, that in banks of the second level. Also the grace period of repayment of the credit for up to two years is provided. All these conditions make credit products of Holding more available for agricultural producers.

Despite various credit products and preferential terms of crediting, it should be noted that the circle of borrowers who can use the credit offer of holding is limited. As of January 1, 2017 the quantity acting country and farms on the republic made 177,8 thousand units, 10,3 thousand farms or 5,8% from them are the acting clients of subsidiaries of Holding of total number in the country. The number of the operating agricultural enterprises according to statistical data for January 1, 2017 made 9,8 thousand. Clients of subsidiaries of Holding are 2,2 thousand agricultural enterprises or 23% of total number in the country [4]. It is very low indicator.The main reason for such situation is that not all farmers can meet requirements for receiving the credit. It is connected with that in Kazakhstan generally small-scale farms are engaged in agro-industrial production. For example, in animal husbandry the share of personal subsidiary, small-scale country farms in production exceeds 70%, in plant growing – 45,5% [7].

The main problem of small farms in receiving financing, including credit resources is insufficiency of mortgage providing. Shortage of credit resources generates other problems of agricultural producers, such as a weak hardware, restrictions of introduction of modern technologies and means of production. Low efficiency of a production activity that conducts to decrease in solvency. A solution is association of small-scale farmers in agricultural cooperatives. For activation of this process were made thechanges to

the Law of the Republic of Kazakhstan "About Agricultural Cooperatives" in which the main barriers on creation of agricultural cooperatives in Kazakhstan were eliminated [8].

Table 2 – Credit offer of JSC NUH KazAgro

	Program	Object of crediting	Sum, billion tenge	period	Interest rate	Grace period of repayment
Fund of Financial Support of Agriculture	- Igilik - Bereke - Esinzhay - Kasipker - Yntymak - Yrys - Koldau	- Increase in a livestock of Largely cattle and Small cattle - Fatteningofbirdsandanimals - Replenishment of current assets - Organization and expansion of nonagricultural and agricultural tupes of business	from 3 to 85 billion tenge	from 12 to 85 months	4-6%	From 6 to 12 months
KazAgroFinance	- Financisl leasing of agricultural machinery and equipment - Special programs of leasing - Secondary leasing	Agricultural machinery and equipment	-	From 5 to 10 years	12% - 14,5%	No more than 2 years
Agrarian Credit Corporation	- Agrotechnology - Agrocommerce - Isker - Agroexport - Agrobusiness - Ken dala - Crediting of investment projects ar the expense of means of the borrowed NF RK	Creditingofcredit associations, banks of the second level, LX, IFI for the subsequent financing of agricultural producers	From 100000- to 50 billion	to 144 months	1-19%	to 36 months
KazAgroMarketing	Subsidizes contracts on the credits and leasing only for replenishment of current assets, with period of validity of a loan no more than 1 (one) year. Loans with the nominal rate of remuneration which isn't exceeding 19% per annum in tenge and 10% in foreign currency are subject to subsidizing. Subsidizing consists in decrease in a rate of reward by 7% per annum of tenge and by 5% per annum in foreign currency.					
Note: it is made by authors						

In the new edition of the law it is changed organizational and legal forms of agricultural cooperatives. So, if earlier agricultural cooperatives were created as non-profit organizations, now they are the commercial organizations. This status gives them certain advantages in activity. Besides, for registration of agricultural cooperative three participants are enough, and also participation of legal entities in creation of cooperative is allowed. The democratic principle in management of agricultural cooperative in underlain that is one participant has one voice, regardless of the size of a share and a contribution. Agricultural cooperatives had an opportunity to share profit between participants, the right to subsidizing and other types of the state support. The financial operator on development of agricultural cooperatives isJSC Fund of Financial Support of Agriculture.

As showed the analysis, the main operator of credit resources for farmers in Kazakhstan is JSC NUH KazAgro which shareholder is the state. In the credit market of the country there are no private creditors who could be alternative credit facilities of agriculture. In the developed foreign countries the wide choice of creditors who offer various programs of crediting depending on purpose of the credit and a financial position of the farmer is provided. Agricultural producers are served by branched system of commercial and cooperative banks, insurance companies, other, specialized organizations which are engaged in financial service of the agrarian sphere.

In Kazakhstan there are the prerequisites of creation of agricultural bank. About creation of such bank discussions at the level of the government are conducted. Creation of such bank is offered by merge of JSC Agrarian Credit Corporation to the existing credit associations [10].

In our opinion, the most interesting option of crediting is creation of cooperative bank. 75% of the agricultural credit fall to their share in France, in Germany – 44% and in the USA – 26% [9]. Successful functioning of cooperative banks in these countries is provided at the expense of two factors: unities of the relations of cooperative property from top to bottom and unities of system of functional communications. It is necessary for the state to create necessary conditions for existence of such bank. One of conditions is application of low interest rates for the agricultural credits. It is reached not only by policy of subsidizing of interest rates by the state that is applied and in Kazakhstan, but also by possibility of attraction of cheap investments into the capital of bank. For attraction of such investments specialized banks have to be created with the assistance of the state with big own capital. An indispensable condition is also the state guarantees to investors. In some countries the system of tax privileges is applied to stimulation of investments into the securities issued by agricultural banks. It raises possibilities of attraction of foreign investments.

Conclusion

The state support of crediting of agriculture is insufficiently effective and needs improvement. Thefactorscontaininggrowthofcreditingofagricultureare: highbranchrisk, low level of solvency and absence of mortgage providing agricultural producers.

For the purpose of increasing of availability of credit resources to agricultural producers is offered the development of agricultural cooperatives. It will raise possibilities of agricultural producers in preferential crediting, in the bank credits, and also in receiving leasing. Besides, creation of cooperative bank will promote development of the competitive environment in the credit offer and will expand investment opportunities attraction of the capital in financing of agriculture.

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ГОСУДАРСТВЕННАЯ ПОДДЕРЖКА КРЕДИТОВАНИЯ СЕЛЬСКОГО ХОЗЯЙСТВА В КАЗАХСТАНЕ

Аннотация. В данной статье исследованы проблемы доступности кредитных ресурсов для субъектов в сельском хозяйстве. На основе экономико-статистических методов был проведен анализ кредитования сельского хозяйства в Казахстане. Результаты анализа показали, что финансирование сельскохозяйственных

предприятий имеет тенденцию роста, но в основном за счет льготного кредитования, предоставляемого НУХ АО «КазАгро». Однако, круг заемщиков, которые могут воспользоваться кредитным предложением холдинга, ограничен, несмотря на разнообразные финансовые инструменты. С целью повышения доступности кредитных ресурсов для сельхозтоваропроизводителей нами предлагаются следующие рекомендации. Во-первых, необходимо развитие сельхозкооперативов и внедрение эффективного механизма страхования в сельском хозяйстве. Эти меры помогут повысить уровень кредитоспособности заемщика, снизить отраслевой риск сельскохозяйственного производства и возможности предоставления залогового обеспечения в виде земли или имущества.Во-вторых, учитывая, что в Казахстане практически отсутствуют частные кредиторы и нет условий для их эффективного функционирования, предлагается создание в Казахстане кооперативного банка. Это будет способствовать развитию конкурентной среды по кредитному предложению и расширит инвестиционные возможности для привлечения частного капитала в финансирование сельского хозяйства.

Ключевые слова: кредит, сельское хозяйство, сельскохозяйственный кооператив, кооперативный банк.

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ҚАЗАҚСТАНДААУЫЛШАРУАШЫЛЫҒЫНКРЕДИТТЕУМЕМЛЕКЕТТІККӨЛДАУ

Аннотация. Осы мақалада біз ауыл шаруашылығындағы субъектілер үшін несие ресурстарының қолжетімділігі мәселелерін зерттедік. Зерттеу жүргізу үшін экономикалық және статистикалық талдау әдістері пайдаланылды. «ҚазАгро» ұлттық басқарушы холдингі арқылы мемлекеттік жеңілдікті несиелендіру есебінен Қазақстанда ауыл шаруашылығын несиелендіру үнемі өсіп келеді. Несие өнімдерінің алуан түрлілігіне және несие берудің жеңілдікті шарттарына қарамастан, холдингтің несиелік ұсынысын қолдана алатын қарыз алушылар шеңбері шектелген. Ауыл шаруашылығы тауарларын өндірушілер үшін несие ресурстарының қолжетімділігін арттыру,біріншіден, ауыл шаруашылығы кооперативтерін дамыту және ауыл шаруашылығында сақтандырудың тиімді механизмін енгізу қажет. Екіншіден, Қазақстанда жеке кредиторлар жоқ және олардың тиімді жұмыс істеуі үшін жағдай жоқ. Сондықтан, Қазақстандағы кооперативтік банк құру ұсынылады, ол несиелік ұсыныстың бәсекеге қабілетті ортасын дамытуға және ауыл шаруашылығын қаржыландыруға капитал тарту үшін инвестициялық мүмкіндіктерді кеңейтуге мүмкіндік береді.

Түйін сөздер: несие, ауыл шаруашылығы, ауылшаруашылық кооператив, кооперативтік банк.

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TRENDS OF SMALL AND MEDIUM-SIZED BUSINESS DEVELOPMENT IN KAZAKHSTAN

Abstract: This article monitors the development of entrepreneurship at the present stage of management, on its basis the main problems in the sphere of legislation of tax and financial-credit systems are revealed, and prospects for development of directions for improving small and medium-sized businesses are determined. The author notes the role and place of entrepreneurship in the socio-economic development of the state, identifies the interests of economic entities in the implementation of entrepreneurial activities, as well as describes problems that impede the effective functioning of the business sector

Keywords: development tendencies, state support, small business, SMEs.

Introduction. World experience shows that without a free market economy, without an independent producer, without entrepreneurial activity, the prosperity of society is impossible. The formation of small and medium-sized market structures in all sectors and branches of the country's economy, without exception, meets the world economic tendencies of economic processes, as in all countries of the world in the small business sector, there is a significant number of small enterprises of various profiles. Entrepreneurial activity (entrepreneurship) is the most important element of any market economy since it provides economic growth, production of a growing mass of various goods designed to satisfy quantitatively and, more importantly, qualitatively changing needs of society, its various strata and individuals. This is the driving force behind the development of the modern market economy, so it is important to understand the various aspects of entrepreneurship as a socio-economic phenomenon.

Small business provides high efficiency, due to the necessary mobility, creates a deep classification and cooperation under market conditions. Secondly, it is able not only to fill the niches that are formed in the consumer sphere but also to pay them back quickly enough. Thirdly, to make an atmosphere of obvious competition. Fourth, this is the most important and main thing, without which a market economy is not possible in fact, it creates the necessary atmosphere and spirit of entrepreneurship. The importance of entrepreneurship lies in the fact that while small businesses are fiercely competitive for survival in the market, they are forced to constantly develop, improve and adapt to the current market conditions, because in order to survive, means are needed to exist and they are obliged to be better than others in order to maximize profits [1].

In Kazakhstan, the development of entrepreneurship is one of the priority directions of the state's economic policy, and the Government strives to form a middle class and a competitive dynamic business community focused on the creation of new high-tech industries with the greatest added value.

Small enterprises are mobile, and therefore feel most confident in the production of goods and services, where supply and demand depend on the changing range and taste of consumers. Small enterprises and, in general, small business have taken their place in economic activity, which is maximally tentative to regional and local needs [2].

Micro-entrepreneurship, reacting quickly to changes in market conditions, gives the market economy the necessary flexibility. A significant contribution is made by the small business in the formation of a competitive environment, the implementation of a breakthrough in a number of important areas of scientific and technological progress, and it cannot be forgotten that small enterprises have less impact on the ecological situation.

Currently, the greater dependence of the national economy as a whole and individual entities on world markets is a negative consequence of the global crisis.

At the same time, the greatest threat to the economy of Kazakhstan was the continued fall in world oil prices, which led to a drop in industrial production, increased unemployment, increased inflation and reduced consumption.

Results of the study - To date, systematic measures are being taken in Kazakhstan to develop the SME sector. The Unified Business Support Program "Business Roadmap - 2020" operates, which determines the key directions of the state policy in the field of increasing the private entrepreneurial initiative. An institutional framework has been created, including an extensive system of state and non-governmental organizations. However, it should be noted that in the context of a slowdown in the economic growth and difficult economic conditions in the external environment, there is a need to transform the system of support and development of business. At the same time, the adaptation of the state strategy to new conditions requires a detailed and systematic study of the environment in which entrepreneurial activity is realized. In this regard, the urgency of studying the entrepreneurial climate or the so-called business climate is growing. Business climate, reflecting the quantitative and qualitative indicators of the business environment, is the determining factor of entrepreneurial activity.

The development of small and medium-sized entrepreneurship which is the main source of employment, attracting investment, the foundation of building a competitive economy is one of the main priorities of the Ministry of National Economy.

Work in this direction is carried out according to three system blocks. They are:

1. Improvement of state regulation and improvement of business climate;
2. Expanding the access to finance and improving support measures;
3. Removal of industry barriers.

In the direction of improving the state regulation and improving the business climate, a corresponding draft law has been prepared, which turned out to be very voluminous, contains about 1000 amendments, providing for changes in 100 laws and 13 codes.

The draft law provides for the reform of state control and supervision, the reduction of onerous reporting by entrepreneurs, the reduction of frontal business costs, the exclusion of exclusive rights of market entities that impede the development of competition, and the improvement of Kazakhstan's position in the World Bank's Doing Business rating.

The next important direction is to increase the availability of business financing. Here, the key support tools are the Single Business Support and Development Program "Business Road Map 2020", the Program for the Development of Productive Employment and Mass Entrepreneurship, as well as credit lines of international financial organizations.

Within the framework of the Unified Program for Business Support and Development "Business Road Map 2020", over 192 thousand entrepreneurs and people with entrepreneurial initiative were covered by support measures in 2017, which is 10% more than in 2016. In 2017 the economy of Kazakhstan was influenced by the trends formed in 2015, as global economic trends continue to have a negative impact on the country's economic development. Nevertheless, the measures taken by the Government to support the economy in the period of high volatility of world oil prices and a reduction in consumption ensured GDP growth at the level of 1.1%. One of the key factors in the economic growth was an increase in investment activity. The investment volume in the fixed capital increased by 5.1% to 7.7 trillion. tenge (approximately $ 22.9 billion). The net inflow of foreign direct investment in 2016 exceeded $ 14.3 billion, and in comparison with the same period in 2015 increased in 4.2 times. In 2016, foreign trade turnover fell to $ 61.9 billion, but the positive trade balance remained at the level of $ 11.6 billion [3].

Today, SME forms 25% of the value added and provides employment to 37% of the population in Kazakhstan, while in most OECD countries these figures are 57% and 60-70% respectively. At the same time, the majority (60%) of small and medium-sized enterprises operates in sectors that produce goods and services with the low added value. On the scale of the national economy, the popularity of entrepreneurship in the Republic of Kazakhstan is increasing, but the pace of efforts is quite small - the levels of entrepreneurial activity in Kazakhstan are half the world average (63% of GDP and 47% of the number of employees).

Among the regions, the greatest influence of SME in the formation of a gross regional product is observed in Astana - 46% of GRP, in West-Kazakhstan region (40%) and in Almaty (29%).

In 2018, in ranking Kazakhstan is near China (34), Russia (35), Slovenia (37) and Belarus (38). Kazakhstan outperforms Hungary (48), Belgium (52) and Italy (46). Kazakhstan developed cadastral plans accessible to the public through the e-government website, introduced legislation that promotes transparency, clarified corporate governance laws, reduced customs costs and simplified the customs clearance procedure.

Table 1- Kazakhstan in the World Bank "Doing Business" ranking

Indicators	2017 ranking	2018 ranking	Improvements/Impairments
Establishment of enterprises	45	36	+9
Dealing with Construction Permits	22	41	-19
Connection to electronic networks	75	70	+5
Registration of property	18	17	+1
Borrowings	75	77	-2
Taxation	60	50	+10
International trade	119	123	-4
Contract performance security	9	9	0
Resolving Insolvency	37	39	-2
Source: World Bank Report "Doing Business 2018"			

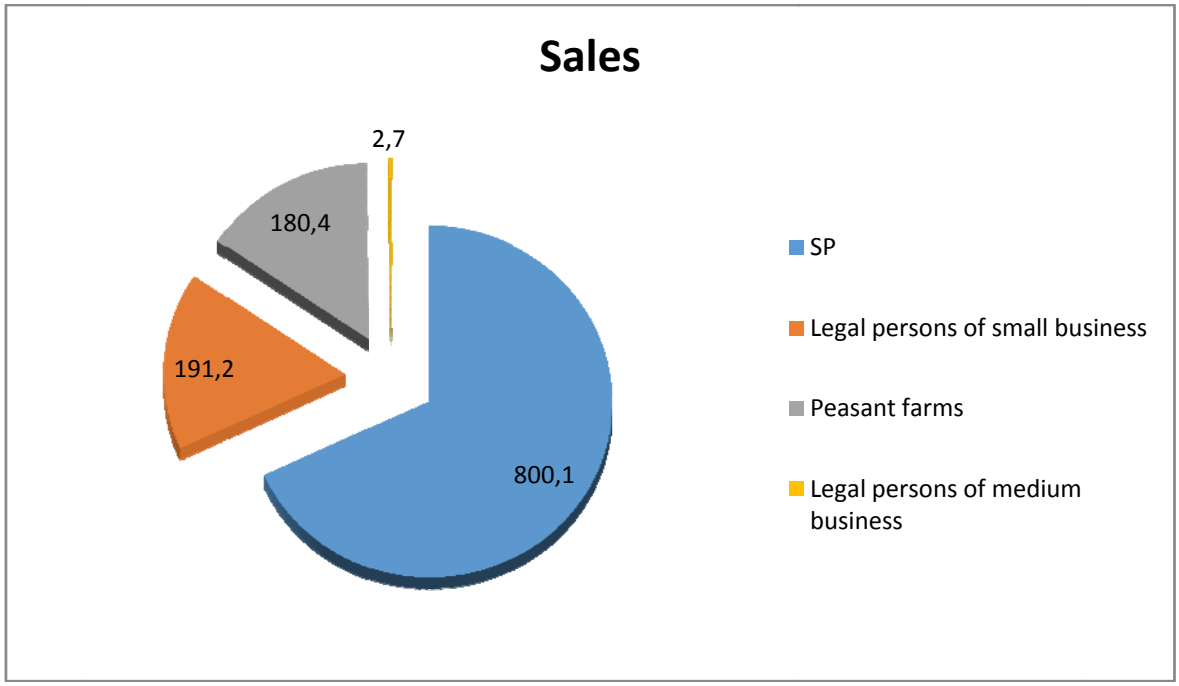

Figure 1- Number of SMEs at 2017/1 (thousand units)

In the SME structure, there is a traditional domination of subjects of individual entrepreneurship, engaged in commercial activities and spheres that do not require high qualification. At the same time, the world trend is the transition to the production with high added value, the introduction of mechanisms for innovative, efficient production ("Kazakhstan 2050").

As of the end of January 2017, 800,000 sole proprietors operate in the Republic of Kazakhstan, accounting for 68% of SMEs. For a year their quantity was reduced by 15%. Almost half (47%) of SP are engaged in trade [3].

As the Asian Development Bank notes, a sole proprietorship in Kazakhstan demonstrates low productivity. The annual output per employee in the SP is $ 3 thousand, while in small and medium-sized enterprises - $ 27 thousand.

For the year, the number of small enterprises (legal entities) increased by 8% and amounted to 191 thousand units. Most of the small businesses are concentrated in the sectors of trade - 30% and construction - 16%.

Since 2015, there has been an active growth in SME lending. The number of loans issued by banks increased in 2.3 times since 2014. Compared to January last year, the volume of loans increased by 29% and amounted to 3 trillion tenge. The direction of loans reflects the main activities of enterprises: trade (37%), construction (13%), industry (13%) and other industries not connected with the main sectors of the economy (24%).

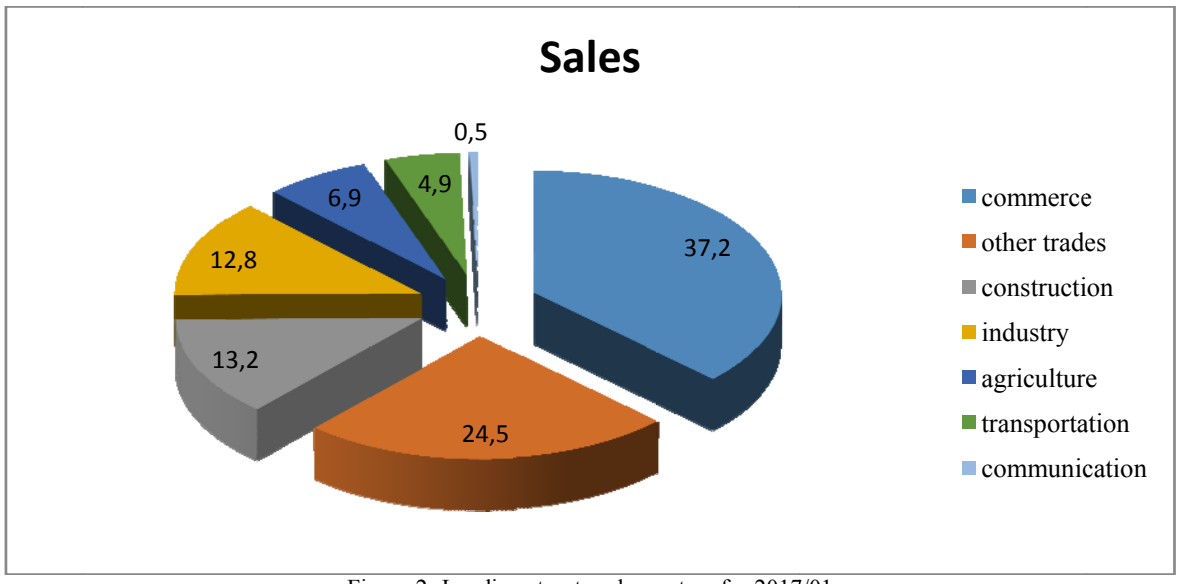

Figure 2- Lending structure by sectors for 2017/01

In addition to well-known state programs, loans from MFOs for the period up to 2020 were also actively attracted to the development of SMEs from 2015 to 2017. This year, the implementation of the third tranche of $ 200 million under the ADB project [4].

The project is aimed at increasing the availability of SME financing, increasing the number of borrowers by more than 20% and the number of loans issued by 2020. Also including a gender policy so that at least $ 50 million will go to lending to women's entrepreneurship. Also, at least $ 120 million will be allocated for lending to enterprises outside Almaty and Astana.

This year the World Bank (IBRD) will allocate an additional $ 9.24 million for the SME competitiveness project. The aim of the project is to strengthen government programs and increase the competence of SMEs [5].

At the moment, a vendor development program is being developed, the role of which will be to increase market ties for SMEs with large local and multinational corporations in the oil and gas, railway and metallurgic sectors. Within the framework of the project, a team of specialists from the KIID will be provided with modern market tools for the development of clusters, including training and equipping programs according to the SPIID (state program of the industrial-innovative development). Also, online platforms will be developed for the purchase of invoices and verification of SME receivables, which will also increase an access to business financing.

By the end of the project, it is planned to increase the number of "accredited suppliers" for large companies - from zero in 2015 to 200 in 2019. The percentage of SMEs involved in improving management and business practices will increase, from 5% in 2015 to 75% in 2019.

However, according to the ADB, only 19% of SMEs receive loans, while the rest refinance their income or take loans from other sources. This is due to the fact that most enterprises have a bad credit history or do not have the necessary documents.

Discussion of results - An important factor affecting the economy of Kazakhstan is the level of inflation. In 2015, the Kazakhstan national currency - tenge - depreciated by 45% due to the introduction

of a floating exchange rate. However, this decision allowed to keep the inflation rate in 2016 at the level of about 8.5%, determined in the monetary policy of the National Bank. One of the main economic consequences of the introduction of the floating exchange rate of tenge was the decrease in consumption by the population due to the decrease in consumer confidence. For the first quarter of 2018, 3.7 thousand small legal entities were liquidated, which is 2.5 times more than in the same period last year - 1.5 thousand. Basically, economic partnerships cease their activity, for a year their number has decreased by 1.9 thousand [6].

Table 2- Liquidated small legal entities (units)

	2018/1	2017/1	Прирост
Business partnership	3049	1153	164.4%
Governmental enterprises	63	34	85.3%
Incorporated enterprise	48	13	269.2%
Other legal organizational forms	518	279	87.7%
Total	3678	1476	149.2%

In the context of the regions, the largest outflow of small business in the first quarter of 2018 was recorded in Almaty - 1.7 thousand versus 324 companies a year earlier. Further, South-Kazakhstan region - 290 liquidated small businesses, a year earlier - 124. Three anti-leaders are closed by the East-Kazakhstan region - 236 small legal entities were liquidated for January-March 2018 (January-March 2017 - 147 companies). In the capital the number of liquidated small businesses also increased - they became 213 fewer, and this is 30 liquidated enterprises more than in 2017. The number of liquidated small legal entities has decreased only in Atyrau region - 31 companies against 40 than in 2017. The main outflow of small businesses was concentrated in the wholesale and retail trade, repair of cars and motorcycles - 1.4 thousand (38.4%). Further, construction - 290 companies (7.9%). The number of liquidated small enterprises in the sectors of professional, scientific and technical activity and manufacturing industry was 262 and 252, respectively (specific weight - 7.2% and 6.9%). The share of the five listed sectors is 66.1% or 2.4 thousand liquidated small businesses.

In addition to the already liquidated small legal entities, 4.8 thousand small businesses are in the process of liquidation (a year earlier - 4.3 thousand). In Almaty, there is the largest number of entrepreneurs who leave small business - 825. However, in a year their number decreased, since last year in the process of liquidation there were 929 small businesses. In Kostanai region, on the contrary, the number of those who want to abandon the activity of small businesses is growing - 727 companies, against 670 last year. The TOP-3 anti-leaders is closed by Karaganda region - 513 small businesses in anticipation of liquidation, a year earlier, their number was 670 units [7].

Conclusions - The analysis of trends in small business shows that the development of this sector of the economy has a dynamic and progressive nature and brings its positive results, becoming a factor in reducing social tension and the basis for ensuring employment. Thus, the entrepreneurial structure increasingly gives the economy the necessary flexibility, becomes a decisive factor in its development. By creating new enterprises and working places, small entrepreneurship provides employment for the population, saturates the market with a variety of goods and services.

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ҚАЗАҚСТАНДАҒЫ ШАҒЫН ЖӘНЕ ОРТА БИЗНЕСТІ ДАМЫТУ ТЕНДЕНЦИЯЛАРЫ

Аннотация: Мақалада шарауашылық жүргізудің қазіргі сатысындағы кәсіпкерліктің даму жағдайына мониторинг жүргізілген, осының негізінде салық және қаржы-несие жүйесі заңдылықтары аясындағы негізгі мәселелер көтерілген, сондай-ақ шағын және орта кәсіпкерлікті дамыту алғышарттары анықталған. Автор мемлекеттің әлеуметтік-экономикалық дамуындағы кәсіпкерліктің орны мен рөлі атап көрсетілген, кәсіпкерлік қызметті жүзеге асырудағы экономикадағы субъектілердің мүдделері сәйкестендірілген, сондай-ақ, кәсіпкерлік қызметтің тиімді қызмет етуіне кедергі жасайтын негізгі мәселелер сипатталған.

Кілт сөздер: даму тенденциялары, мемлекеттік қолдау, шағын бизнес, ШОБ.

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ТЕНДЕНЦИИ РАЗВИТИЯ МАЛОГО И СРЕДНЕГО БИЗНЕСА В КАЗАХСТАНЕ

Аннотация: В данной статье проведен мониторинг развития предпринимательства на современном этапе хозяйствования, на его основе выявлены основные проблемы в сфере законодательства налоговой и финансово-кредитной систем, а также определены перспективы в части развития направлений совершенствования малого и среднего предпринимательства. Автором отмечена роль и место предпринимательства в социально-экономическом развитии государства, идентифицированы интересы субъектов экономики в реализации предпринимательской деятельности, а также описаны проблемы, препятствующие эффективному функционированию предпринимательского сектора

Ключевые слова: тенденции развития, государственная поддержка, малый бизнес, МСБ.

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THE DEVELOPMENT OF FUZZY MODELS FOR ANALYSIS OF EDUCATIONAL ACTIVITIES

Abstract. The article presents a model of fuzzy quality management of higher education as the main factor of competitiveness for further integration into the model of intellectual control system of educational activities. The present work is concerned with modeling and monitoring the quality of high education system using fuzzy techniques. Design of controllers using conventional methods for that kind of systems is not easy due to absence of a systematic theory behind it. In such cases, an approach based on the use fuzzy logic for identifying the risks of deterioration of quality teaching and administration based on the input output data have been shown to be attractive. The data obtained as a result of monitoring are presented to the administration of the educational institution for strategic and operational decision-making.

Keywords: fuzzy mathematical model, indicators, fuzzy rules, aggregation, artificial intelligence, prediction, membership functions.

Difficulties in the development of higher education are partly explained not only by the results of internal indicators, but also by the effects of external influences of the labor market. A separate problem of professional training is the lack of an effective system for monitoring its quality and effectiveness. The main difficulty of monitoring the quality of educational services is the weak formalization of many assessments of the quality educational activities and the lack of standard monitoring procedures (which evaluate a standard set of license and accreditation indicators) for the comprehensive assessment. Analysis of the work on the study of factors affecting the quality of university activities is area the theory of fuzzy sets and fuzzy logic with the possibility of the transition from the classical probability models and expert assessments to fuzzy-multiple descriptions.

The fuzzy logic provides a means of converting a linguistic control strategy based on expert knowledge into an automatic control strategy. The ability of fuzzy logic to handle imprecise and inconsistent real-world problems has made it suitable for a wide variety of applications.

To achieve the goal, the following tasks were set:

- identify factors that affect the competitiveness of the educational institution;
- develop a fuzzy model of quality management of educational services;
- implement the developed model on a concrete example;
- evaluate the results and prospects of further research.

Construction of fuzzy model: Description of input and output variables

When constructing a model for assessing the quality of the work university, it is advisable to classify the input variables and, based on it, construct an output tree that defines a system of nested smaller knowledge statements. Thus, the presence of mathematical means of reflecting the fuzziness of the initial information allows us to construct a model adequate to reality, in which a fine-tuning of the fuzzy model is carried out by training it on the basis of experimental data. The final evaluation of the model, showing the quality of the department is indicated by the letter - R (results). R∈ [0.100]. The greater the value of this criterion, the higher the leading positions of the university in the market of educational services.

The main indicators of learning activities that affect competitiveness, and the change of which is described with the help of clear mathematical functions, are quantitative indicators. Denote them by X1, ..., Xn, then the final evaluation of the university model will represent a functional mapping of the form:

$$X = \{X_1, X_2, \dots X_n\} \rightarrow R \in [0,100]$$

For a sufficiently large number of factors, it is convenient to represent them in the form of a hierarchical tree (Figure 1). Elements of a tree are interpreted as follows:

- the root of the tree - the competitiveness of the educational institution (R);
- terminal vertices - partial influencing factors (X_i, i=1..9)
- nonterminal peaks - enlarged influencing factors - (Y_1, Y_2, Y_3, R)

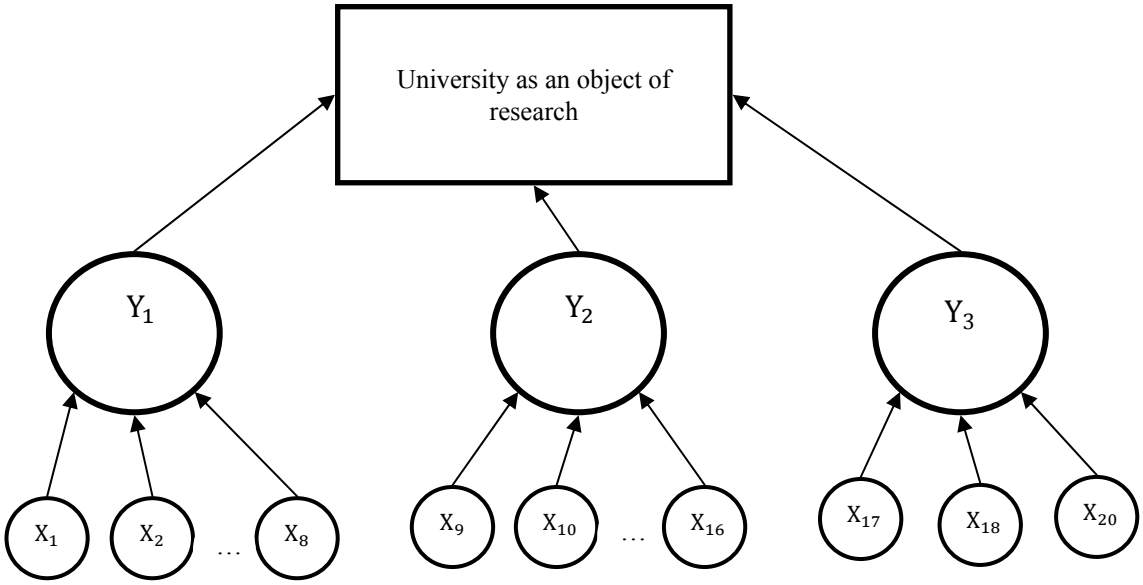

Figure 1 – a hierarchical representation of university activities

Table 1 – description of indicators

Symbol	Description of indicators
Y_1	Educational-methodical work
X_1	Active educational programs in English
X_2	Active joint educational programs or dual diploma programs
X_3	Position of the specialty in the QS ranking by areas (directions) of preparation
X_4	Proportion of employed graduates
X_5	Specialties of VOUD, the average score for which is more than 60% of the maximum points
X_6	The level of the teaching staff
X_7	Increase (in%) of the number of students compared to the previous year (1% above the threshold level of 5%)
X_8	Average assessment of teachers through the questionnaires of students
Y_2	Research work
X_9	The number of articles published in English-language scientific journals of KazNU together with authors from the far abroad with the Index of Hirsch at least 3 in the Scopus database
X_{10}	The number of articles published in English in the series of the Bulletin of KazNU named after al-Farabi
X_{11}	The number of articles published in scientific journals, recommended by KKSON and the journal "Aikap"
X_{12}	Number of security documents received
X_{13}	The volume of research funding from industry, business and other development institutions (household contracts), mln.tg
X_{14}	The volume of grant, program-targeted financing of scientific research, mln. Tenge
X_{15}	The number of articles (students, undergraduates and doctoral students) published in the journals indexed in Scopus
X_{16}	Number of created student start-up companies
Y_3	Social and educational work
X_{17}	Organization of educational events in the framework of innovative projects (Ainalady nrlandir, Greenkampus, 100 kitap, Cult of a healthy body, etc.)
X_{18}	The volume of student scholarships established by graduates and university partners, mln.tg
X_{19}	Number of students-winners of creative competitions, sports competitions
X_{20}	Number of image publications about the achievements of KazNU

As an algorithm for fuzzy logic inference, the Mamdani algorithm [2] is used. At the first stage, the base of rules of fuzzy inference systems is formed. A set of rules was generated based on possible combinations of fuzzy statements in the premises and conclusions of the rules, according to which the maximum number of rules in the database is determined by the following ratio: $N = N_{x_1} \cdot N_{x_2} \cdot \ldots \cdot N_{x_m} \cdot N_y$, where $N_{x_1} \cdot N_{x_2} \cdot \ldots \cdot N_{x_m} \cdot N_y$, – number of membership functions for specifying input and output variables [3]. Since the initially formed rules base is redundant - with the same assumptions and different conclusions, the set of rules was optimized on the basis of expert information, resulting in the formation of a base of 27 rules. Expert fuzzy knowledge bases are given in Table 3. Elements of antecedents of fuzzy rules are related by the logical operation AND, the weight coefficients of each of the rules are equal to 1.

Table 2 – Translation from a quantitative index to a fuzzy parameters

Indicators		Fuzzy parameters		
		low	middle	high
X_1	Active educational programs in English	Absent	1≤x<3	More than x≥3
X_2	Active joint educational programs or dual diploma programs	Absent	1≤x<3	More than x≥3
X_3	Position of the specialty in the QS ranking by areas (directions) of preparation	More than x>50	10<=x<50	less than x< 10%
X_4	Proportion of employed graduates	Less than x<50	50≤x<75%	More than x≥ 75%
X_5	Specialties of VOUD, the average score for which is more than 60% of the maximum points	Less than x<30	30≤x<60%	More than x≥60
X_6	The level of the teaching staff	Less than x<75	75≤x<90%	More than x≥90
X_7	Increase (in%) of the number of students compared to the previous year (1% above the threshold level of 5%)	Less than x<10%	10≤x<15%	More than x≥15
X_8	Average assessment of teachers through the questionnaires of students (score)	Less than x<2	2≤x<4	More than x≥4

Based on the study and analysis of materials of domestic and foreign scientists [4, 5, 6, 7] on the development of assessments of the quality of educational services authors made the following conclusions regarding the methodological principles that are necessary take into account when developing a rating:

- the principle of systemic nature, which requires both the interconnection of indicators in the model, so that this connection makes sense.

- the principle of complexity, which means that the model should display various aspects of the educational activity of the institution.

- principle of normative model. Its application in the model is based on the fact that

growth rates of indicators characterizing various aspects of educational the activities of the institution are in a certain relationship with each other. Wherein it should be noted that the objective of the normative model is to achieve state of the educational institution, which for him is the most optimal.

Developed by the authors in this study, the methodology of analyzing and evaluating the quality of educational services, these principles implements, taking into account various aspects (options) of educational activities, such as the quality of teaching, the quality of students' learning and profitability, and the social-educational work of educational activities.

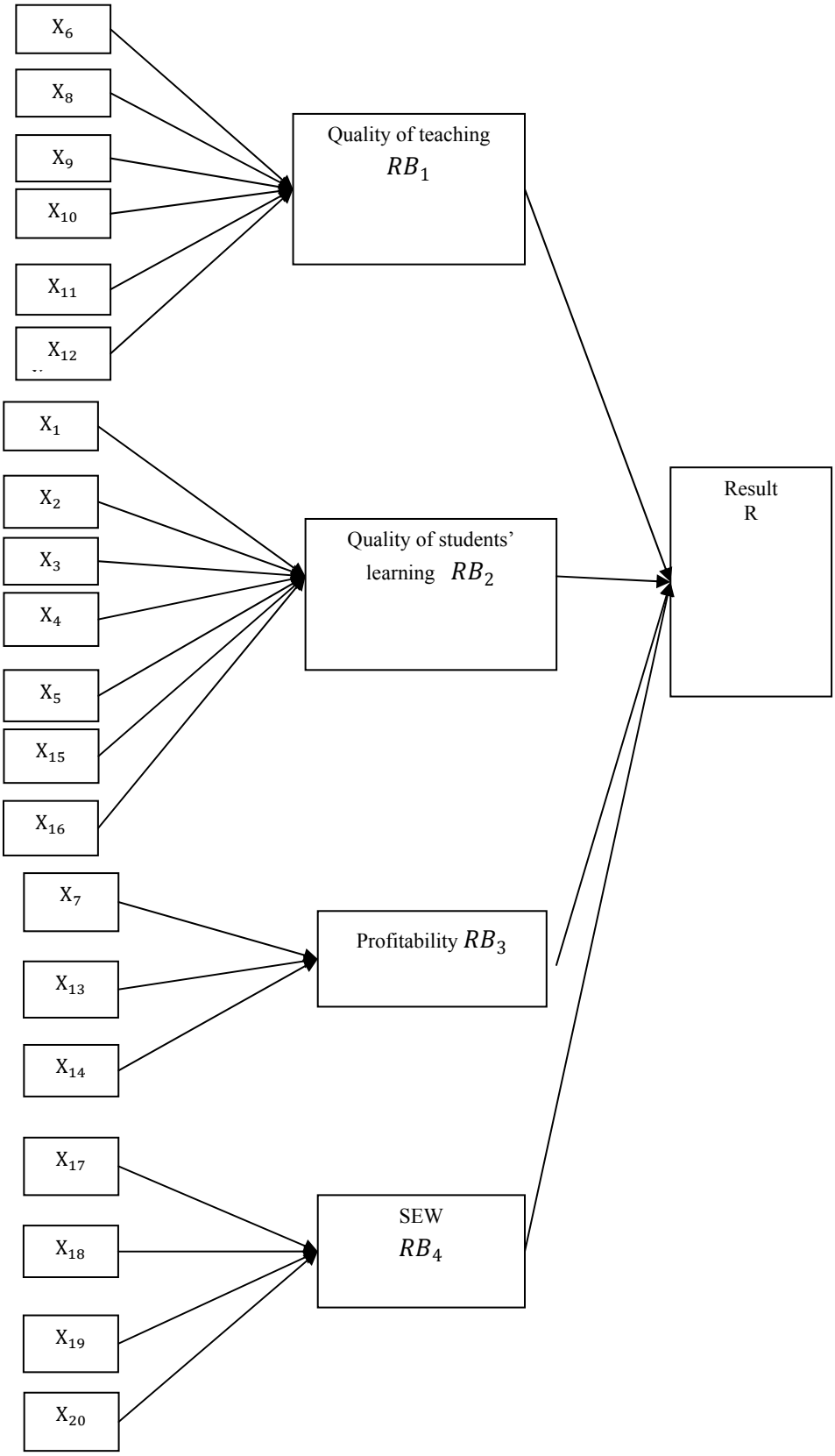

Figure 2 – A new method of indicators' classification

Based on suggested new method of classification of university indicators (figure 2) , we can make a fuzzy rule for the integrated value of R in the table 3.

Table 3 – expert fuzzy knowledge bases for the integrated result R

№	RB1	RB2	RB3	RB4	R
1	Low	Low	Low	Low	Low
2	Low	Low	Middle	Low	Low
3	Low	Low	High	Low	Low
4	Low	Middle	Low	Low	Low
5	Low	High	Low	Middle	High
6	Low	Middle	Middle	LOW	Low
7	Low	Middle	High	Middle	Middle
8	Low	High	Middle	High	Low
9	Low	High	High	High	Low
10	Middle	Low	Low	High	Low
11	Middle	Low	Middle	Middle	Middle
12	Middle	Low	High	Middle	Middle
13	Middle	Middle	Low	Low	Middle
14	Middle	Middle	Middle	Middle	Middle
15	Middle	Middle	High	Middle	Middle
16	Middle	High	Low	Low	Middle
17	Middle	High	Middle	High	High
18	Middle	High	High	High	High
19	High	Low	Low	Low	Low
20	High	Low	Middle	Low	Low
21	High	Low	High	Low	Low
22	High	Middle	Low	Middle	Middle
23	High	Middle	Middle	Middle	Middle
24	High	Middle	High	High	High
25	High	High	Low	Low	Middle
26	High	High	Middle	High	High
27	High	High	High	High	High

Expertise determines the priority of the above blocks of indicators, based on the interests of the evaluating entity.

Based on the preferences of the interested party, ranking of the scores on the blocks of indicators is made, that is

$$RB_1 > RB_2 > RB_3 > RB_4$$

where RB_i– Quality assessment for one of the above four blocks of indicators; > – the preference of the previous block of the indicator before the next one.

Table 4 – Weights of each blocks of indicators

№	Indicator Block	weight μ_i
1	Quality of students' learning	0,5
2	Quality of teaching	0,3
3	Profitability	0,15
4	Social and educational work	0,05

For the analyzed university, the value of its rating will be determined by the formula:

$$R = \mu_1 * RB_1 + \mu_2 * RB_2 + \mu_3 * RB_3 + \mu_3 * RB_3$$

Where R – university rating; μ – weight index; RB_i– quality assessment by groups of indicators.

Table 5 - Classification of rating ratings of educational institutions:

State	Value of rating
High	85≤R≤100
Middle	65<R<85
Low	0≤R≤65

The membership functions for input variables were constructed using the method of statistical processing of expert information, and for the output variable-based on the paired comparisons method [4]. In the construction, the following piecewise linear membership functions were used-triangular, and trapezoidal, which are depicted in Fig. 3.

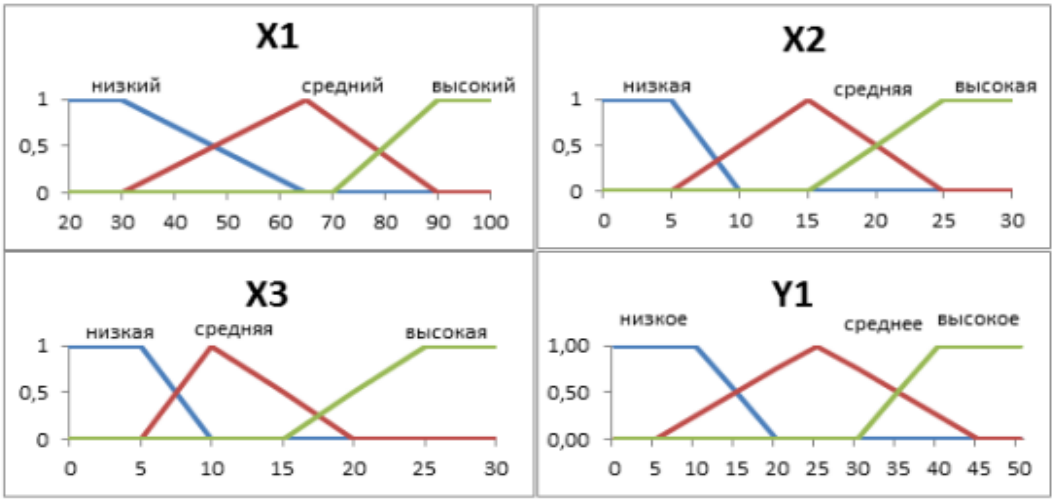

Figure 2 – Membership functions of linguistic variables

With the help of aggregation, the degrees of truth of the conditions of each of the rules of fuzzy products were determined, and paired fuzzy logical operations (min-conjunction and max-disjunction) were used. Those rules, the degree of the truth of the conditions of which is different from zero, are considered active and are used for further calculations.

Activation of subcontracts in fuzzy rules of products is carried out by the method of min-activation, accumulation of conclusions-by combining fuzzy sets, defuzzification of output variables by the method of the center of gravity.

Model of fuzzy quality management of educational services is built on the basis of expert knowledge, therefore, it is necessary to train the model on experimental data to ensure reliable results, and to assess the adequacy of the model constructed. To learn the fuzzy model, 100 pairs of experimental data "inputs-output" were used. The parameters of the term membership functions were adjusted in such a way that the root-mean-square error was minimal [5].

The center of gravity (CoG, COG, Cent of Gravity) or centroid area is calculated by the formula:

$$y = \frac{\int_{Min}^{Max} x \cdot \mu(x) dx}{\int_{Min}^{Max} \mu(x) dx},$$

Where y is the the result of defuzzification; x is the variable corresponding to the output linguistic variable W; $\mu(x)$ - the fuzzy set belonging to the output variable w after the accumulation step; Min and Max are the left and right points of the interval of the carrier of the fuzzy set of the considered

output variable w. In defuzzification by the center of gravity method, the usual (not fuzzy) value of the output variable is equal to the abscissa of the center of gravity of the area bounded by the curve of the membership function of the corresponding output variable.

Results

The developed model allows predicting the indicator of the quality of educational services. The constructed model will allow the university administration to determine the corresponding values of the influencing factors with the purpose of providing the necessary level of quality of educational services, thereby providing for itself a leading position with high competition.

The prospect of further research is the development of a fuzzy model using the Matlab environment, as well as increasing the level of complexity of the model with the addition of such factors as the quality of information technology, the quality of patents, textbooks and the quality of educational programs and the further integration of university management into the model.

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ЖОҒАРҒЫ ОҚУ ОРНЫНЫҢ САПАСЫН ТАЛДАЙТЫН ФАЗЗИ МОДЕЛІН ҚҰРАСТЫРУ

Аннотация. Берілген мақалада жоғарғы оқу орнының білім беру сапасын талдайтын нақты емес фаззи моделі құрастырылған. Бұл модель жүйенің сапасын бақылауға көмектеседі. Қарастырылатын жүйені сипаттайтын кіріс және шығыс параметрлер жөнінде мағлұматтың толықтай болмауына байланысты, жоғарғы оқу орнының жұмысын модельдеу күрделі есептердің бірі болып саналады. Бұндай есептерде нақты емес фаззи моделін қолдану есептің шешімі болуы әбден ықтимал. Модельді бақылау нәтижесінде алынған деректер жоғарғы оқу орнының басшылығына беріледі.

Түйін сөздер: нақты емес фаззи моделі, көрсеткіштер, фаззи ережелері, агрегациялау, жасанды интеллект, жорамалдау, мүшелік функциясы.

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РАЗРАБОТКА НЕЧЕТКОЙ МОДЕЛИ ДЛЯ АНАЛИЗА ОБРАЗОВАТЕЛЬНОЙ ДЕЯТЕЛЬНОСТИ

Аннотация. В статье разработана модель нечеткого управления качеством высшего образования как основного фактора конкурентоспособности для дальнейшего использования и интеграции в модель интеллектуального управления учебной деятельностью. Настоящая работа посвящена моделированию и мониторингу качества системы высшего образования с использованием нечетких методов. Построение модели университетской деятельностью является одним из сложных задач из-за отсутствия полных знаний о входных и выходных параметрах. В таких случаях подход, основанный на использовании нечеткой логики, для определения рисков ухудшения качества обучения и администрирования является адекватным и самым подходящим. Данные, полученные в результате мониторинга, будут представлены руководству учебного заведения для принятия стратегических и оперативных решений.

Ключевые слова: нечеткая математическая модель, показатели, базы нечетких правил, агрегирование, искусственный интеллект, прогнозирование, функция принадлежности.

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COMPARATIVE STUDIES OF THE INTERNATIONALIZATION OF HIGHER EDUCATION: BENCHMARKING ANALYSIS OF EUROPEAN, KAZAKH AND CHINESE UNIVERSITIES IN THE FRAMEWORK OF THE ERASMUS+ PROJECT

Abstract. This article describes the main comparative research approaches of the process of internationalization of higher education and the results of benchmarking analysis of internationalization strategies and practices in 11 European, Kazakh and Chinese universities involved in Erasmus+ "Welcome: towards the incoming international University communities" project. In many countries, benchmarking is used to assess the quality of internationalization along with other tools. Comparison and identification of success stories and best practices are key aspects of benchmarking aimed at improvement and development. The scholars note that universities need a way to monitor internationalization and collect information on a continuous basis. The results of the study confirm the increasing importance, diversity, and complexity of strategies and practices of internationalization in European, Kazakh and Chinese universities.

Keywords: benchmarking analysis, internationalization, academic mobility, higher education, strategy.

The growing interest in the internationalization of higher education comes from a number of reasons. Firstly, the process of globalization of the economy and labor markets has pushed the demand for competent employees with foreign language skills and possession of intercultural skills. As the global economy becomes more interconnected, multilingualism and intercultural skills take on greater and greater importance on a global scale. Secondly, the export of educational services has become one of the sources of income for higher education institutions and national economies in many countries. The advantages of internationalization of higher education are obvious: improving the quality of training, joint research projects, implementation of international quality standards and expansion of international cooperation. However, along with these positive facts, there is skepticism about the quality, effectiveness, and relevance of education and research in the context of international cooperation, and mounting concerns about inequality and marginalization. While internationalization supporters generally agree with the importance and necessity of this process in universities, the internationalization strategies vary considerably in format and content (Aigner, Nelson, and Stimpfl, 1992; Lian, 2003). Among the various strategies in different countries, there are common in nature and content and approaches used by higher education institutions. A number of authors suggest that the most frequently used internationalization strategies include student exchange programs, the internationalization of educational program, foreign internship programs, recruiting of foreign students, academic mobility programs for teaching staff and personnel; international publication of articles and reports (Knight, 1997; Francis, 1993; Lian, 2003; McKellin, 1998; Henson&Noel, 1989 ; Holzner&Greenwood, 1995).

The modern research uses the definition of internationalization given by J. Knight as "the process of integrating an international, intercultural or global dimension into purpose, functions, and delivery of postsecondary education" (Knight, 2003). The reason that this definition is most acceptable is its completeness, which allows to connect all possible international dimensions with key concepts of higher education. Knight (2005, 2008) argues that internationalization revolves around two main components: internationalization within the campus - actions taken in the local context of the institution and focused on curriculum and internationalization abroad - activities outside the campus. These components do not exclude each other, but are closely intertwined in policies and programs of higher education.

The international dimension of higher education is widely promoted in many countries at the national and institutional levels. The national level has a significant impact on the international dimension of higher education through policies, financing, programs and regulatory frameworks. At the same time, the real process of internationalization takes place at the institutional level (Knight, 2004). To a certain extent, the institutional level is a mirror reflecting the national policy. More and more higher education institutions are becoming independent actors in the process of internationalization. According to the 3rd global survey by the International Association of Universities (Knight, 2003), based on the analysis of the questionnaires of 745 universities from 115 countries, 78% of universities believe that in recent years the importance of internationalization has increased. Despite the fact that each institution has its own unique approach to improving the internationalization, most strategies share common features: (1) internationalization is reflected in the mission of the university; (2) the availability of a reward scheme of study abroad by providing financial assistance and developing new partnerships with universities abroad; (3) increase in the number of foreign students on campus; (4) the internationalization of the educational program; (5) encouraging the success of teaching staff and researchers in internationalization through participation in academic mobility programs; (6) compulsory foreign language skills as a requirement for graduates (Engberg and Green, 2002). Compared with the early 1990s, when studies suggested that internationalization could be clearly delineated (Teichler, 1999), the research on internationalization in higher education is now generally more closely related to other topics (for example, governance, policy, financing etc.), which leads to an increase in the blurring or multidimensionality of the topic itself and is characterized by an unclear differentiation of the concepts.

In the studies, there are two different approaches to assessing the internationalization: quantitative and qualitative. The quantitative approach allows for institutional comparisons by determining the level of internationalization of a particular institution, so this approach uses measurable indicators to assess the internationalization (Lian, 2003; Snellman, 1995; Horn, Hendel, and Fry, 2007). Unlike the quantitative approach, the qualitative ones are used for self-improvement, and not for comparison with other higher education institutions (Knight, 2002) and therefore the results of institutional correspondence to the internationalization, evaluated using a qualitative approach, usually remain confidential (Horn, Hendel, and Fry, 2007).

In 2009, the EAIE published the document “Measuring the success of what we do” under the editorship of H. de Wit. The introduction indicates that the issue of evaluation and measurement is becoming more urgent for inclusion in the agenda of professionals in the field of internationalization of higher education. International rankings of higher education institutions are a widely discussed example of how the measurement began to influence the development of higher education. The call for accountability by students, teachers, deans, university administrators and national authorities, and the call for quality assurance are the important issues on the agenda of higher education in general, and this includes the process of internationalization, including educational programs. Accreditation, ratings, certification, audit and benchmarking have become key issues on the international agenda of researchers and practitioners in higher education.

Benchmarking, along with other tools, is currently used to assess the quality of internationalization. Comparison and identification of the best practices are two key aspects of benchmarking aimed at improving and developing. Knight (2008) concludes that "institutions need a way to monitor internationalization and collect information on an ongoing basis. Universities often spend too much time describing the status of internationalization in diffused terms. More accurate indicators of specific aims and objectives will help to obtain the information needed to analyze the strengths and areas requiring improvement. With the help of the collected information, HEIs can move to a more important step in the analysis - how to preserve the advantages and improve the weaknesses in order to achieve the goals of internationalization. This, in turn, precedes the analysis of the results and the impact of the efforts made on internationalization."

Methodology and results of benchmarking analysis

Conducted within the framework of the Erasmus+ project "WELCOME: Opening to meet new international university communities (2016-2019)" benchmarking analysis was aimed at evaluating the process of internationalization in each university, taking into account the internal and external context, as well as comparative analysis of participating universities by region. The WELCOME project consortium

consists of 12 partners: 6 European universities (Instituto Superior Técnico, Universitat Politècnica de Catalunya, Universitat Rovira Virgili, Université de Perpignan, Royal Institute of Technology and Tallin Institute of Technology4 Kazakhstani universities (Narxoz University, Karaganda State Medical University, Gumilyov Eurasian National University, Kazakh University of Economics, Finance and International Trade) and 2 Chinese universities (Beihang University, Tongji University). This project is funded with the support of the European Commission.

The main aim of the project is to increase the international level of Kazakh and Chinese higher educational institutions through the implementation of strategic and marketing tools to attract foreign students, teachers, and scholars. Objectives of the project: study of the strategy and practice of the internationalization of universities; creation of a portal of Kazakhstani and Chinese universities on internationalization; creation of service-oriented offices of international cooperation at universities; training of employees of the offices of international cooperation; development and implementation of strategic and marketing plans for internationalization at the institutional level.

The general methodology and questionnaire were developed by a group of Instituto Superior Técnico, who is responsible for the evaluation work package and are approved by the coordinator of the Universitat Politècnica de Catalunya project. The online survey was conducted in April-June 2017 using the Lime Survey platform. The final report on the basis of data collected and submitted by each university was posted on the project website http://welcomeproject.net/index.html

The study focuses on the main aspects of internationalization in a total of 90 indicators: figures and facts (12); structures and models of internationalization (21); academic training (17); services for the support of students (9); international recognizability (10); marketing and communications (21). In this article, some of these indicators are listed.

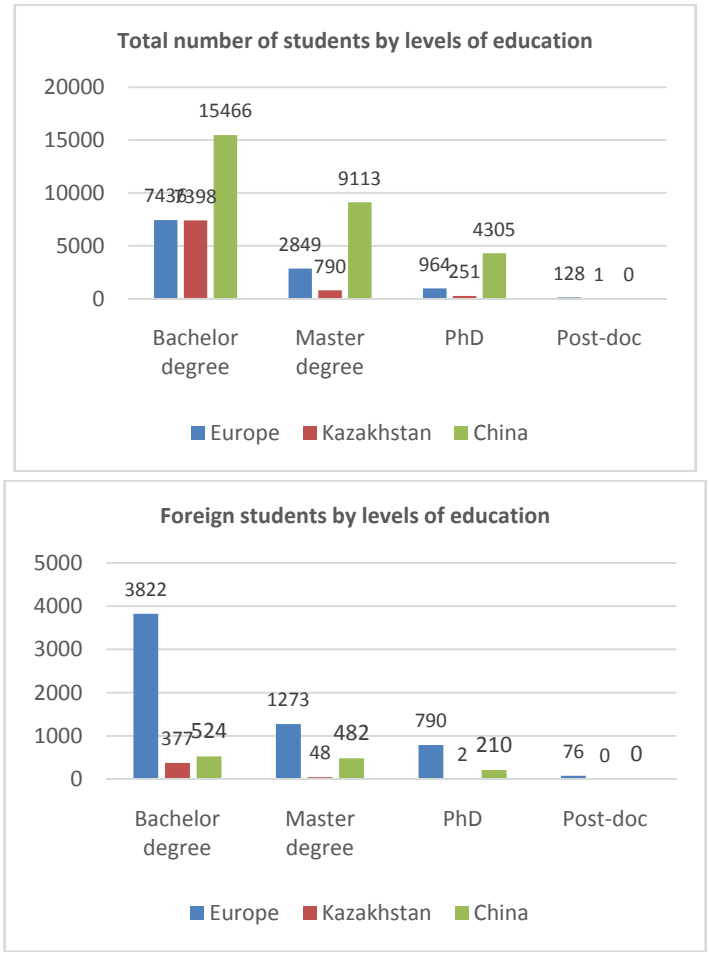
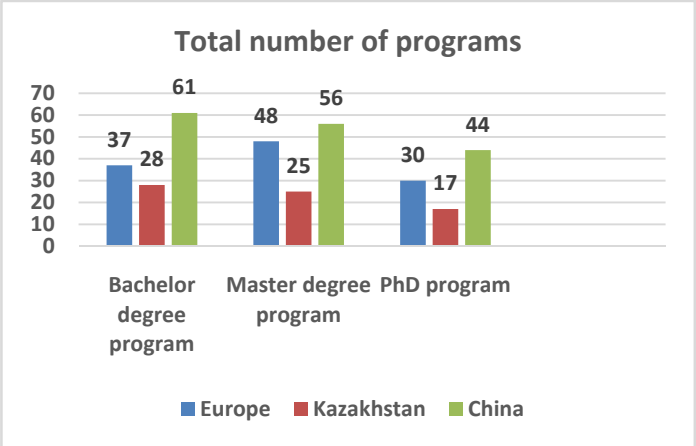


Figure 1 - Number of students by levels of education

Figure 1 presents data on the total number of students and foreign students by levels of education in the WELCOME consortium. The analysis shows that in Chinese universities the highest level of students at the bachelor degree level (n=15466), master degree level (n=9113) and doctoral program (n=4305), while in European universities - a high level of postdoctoral students. In addition, it is the largest number of foreign students involved in the European bachelor degree programs (n=3822), master degree programs (n=1273), PhD programs (n=790) and post-doctoral studies programs (n=76). These indicators are significantly different from those recorded in Kazakh and Chinese universities. The number of bachelor degree students in all three levels prevails in all three regions: in Europe (n=7436 students), in Kazakhstan (n=7398) and in China (n=15466), as well as foreign students at bachelor degree (Europe=3822; Kazakhstan=377, China=514).



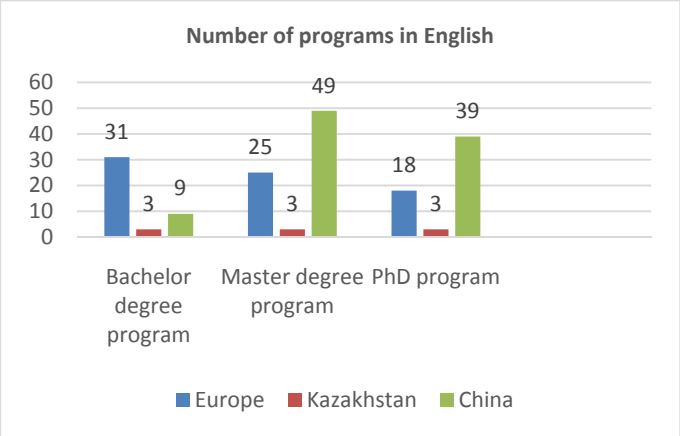


Figure 2 - Number of programs by levels of education

As for the number of programs offered by the universities in the consortium, it can be seen the figure 2 that the Chinese universities are on the first place (bachelor degree programs = 61, Master degree programs = 56, PhD = 39). They also have high rates of programs in English, which are comparable to European universities. It is worth paying attention to the low indicators in bachelor programs in European (n = 2), Kazakh (n = 3) and Chinese (n = 9) higher education institutions, considering the information in figure 1, which states that the bachelor's levels comprise the largest number of students in three regions. Kazakhstani universities have the lowest number of programs in English, regardless of the level of education, which is an unfavorable factor for attracting foreign students.

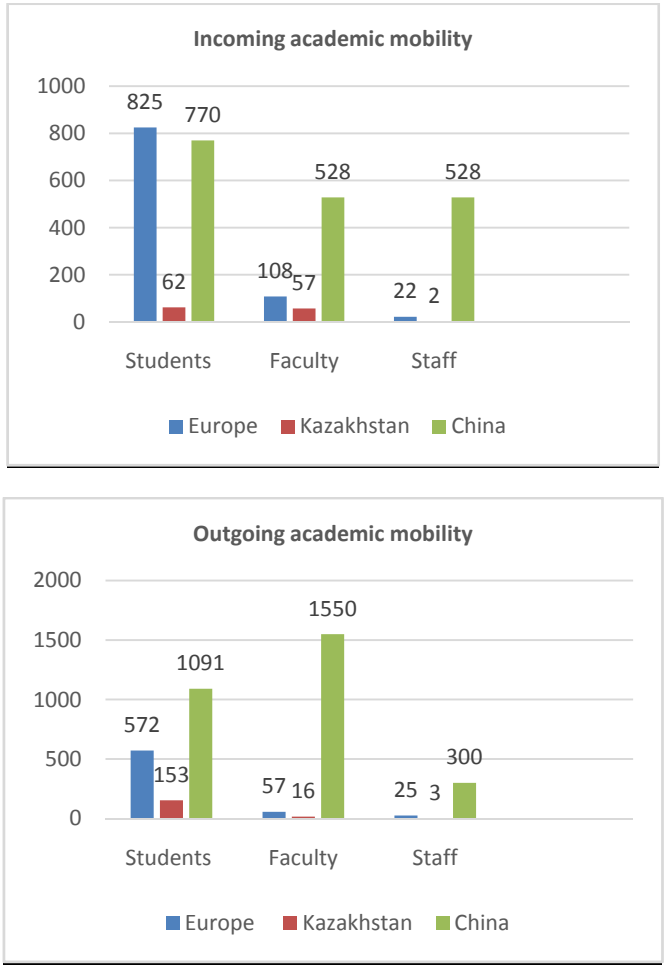


Figure 3 - Incoming and outgoing academic mobility of students, faculty, and staff

Taking into account the information presented in Figure 3, it can be noted that in European universities it is the highest indicator of incoming academic mobility of students (n=825), and in China - the highest mobility of faculty and staff (n=528). According to the outgoing academic mobility, Chinese universities are leading in all categories: students (n=1091), faculty (n=1550) and staff (n=300).

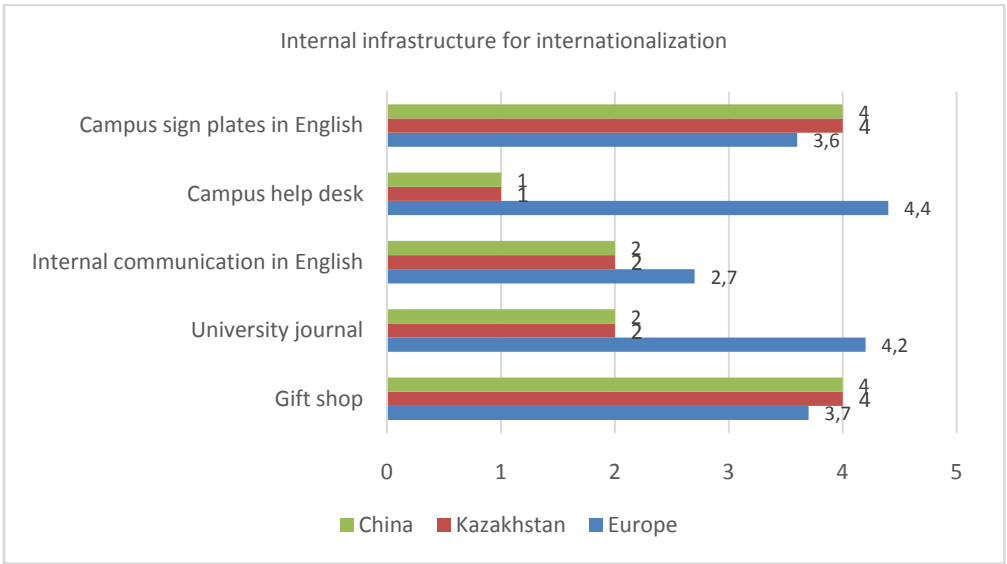


Figure 4. Internal infrastructure for internationalization

The universities evaluated the internal infrastructure of universities according to the scale from 1 (very bad) to 5 (very good) in several directions. The university information journal was marked by European universities (4.2 points), in China and Kazakhstan, they received low scores (2.0 points). Although internal communications in English on campus were estimated positively by the European universities (2.7 points), they are an area that requires additional efforts to improve, as well as in China and Kazakhstan (2.0 points). The availability of campus help desk was noted by the European universities (4.4 points), while in Chinese and Kazakh universities this indicator is insignificant (1.0 point).

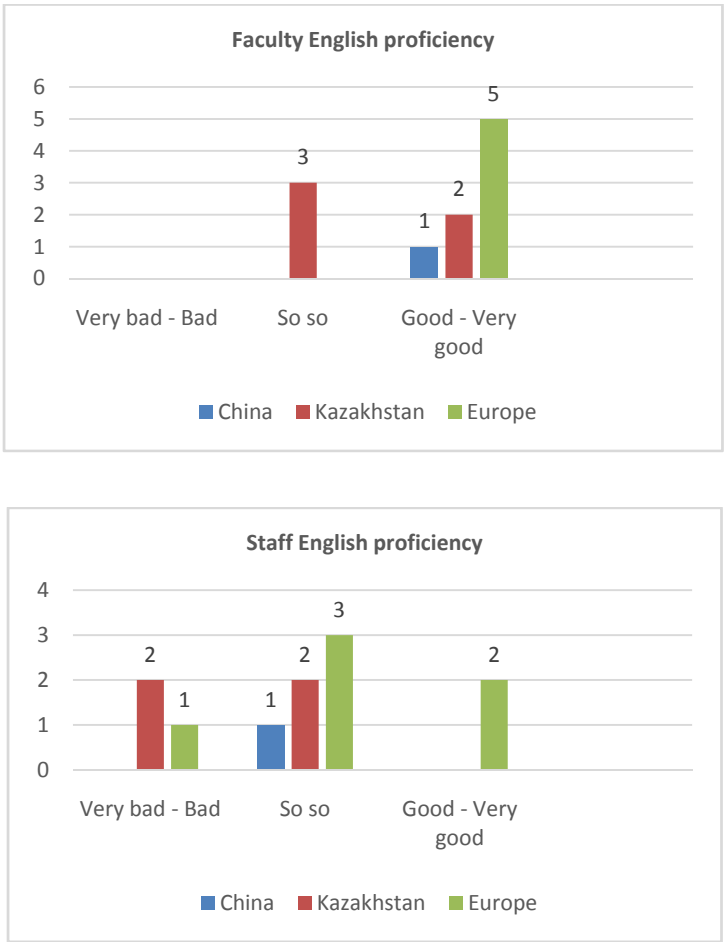


Figure 5 - English proficiency among faculty and administrative staff

Figure 6 shows respondents' answers regarding the communication skills of staff in English. In all three regions, faculty, administrative and technical personnel need to strengthen their English language skills, especially given the fact that they are all in direct contact with foreign students. In three regions most universities offer English language courses for beginners and advanced students, the main beneficiaries are primarily teachers and administrative staff. From the survey, it was found out that only 50.0% of students of the Kazakh universities are covered by the English language courses, while the language proficiency is the main condition for the development of academic mobility.

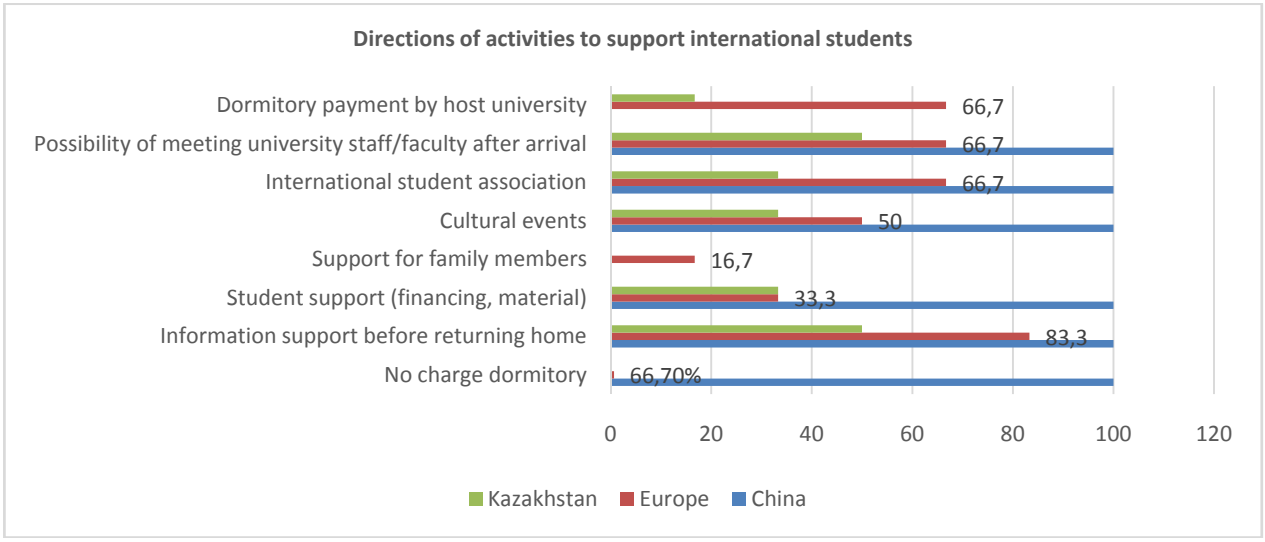


Figure 6 - Activities to support foreign students

Figure 6 presents the main services and activities to support foreign students in higher education institutions of the three regions. Information and support before returning home (China=100%, Europe=83.3%, Kazakhstan=50.0%) and the opportunity to meet with university teachers or staff on arrival (China=100%, Europe=66.7%, Kazakhstan=50.0 %) - the universities of three regions offer these two events for their foreign students. Next are the availability of an international student association, cultural events and free accommodation in dormitory.

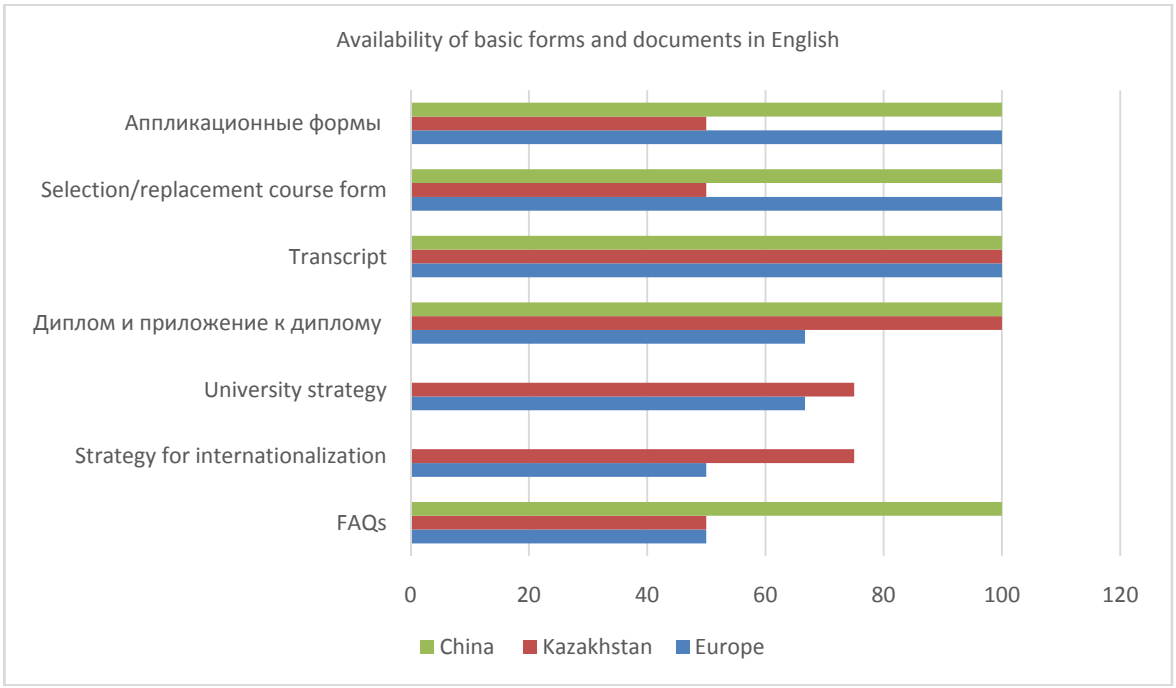


Figure 7 - Availability of basic forms and documents in English

Bilingual documents are the defining tools for the integration of foreign students and teachers, setting the framework for belonging to the university. Figure 8 shows the data from which it can be seen that all members of the consortium have transcripts, diplomas and supplements, application forms in English.

Conclusions and lessons learned from benchmarking analysis

Benchmarking analysis of European, Chinese and Kazakhstani universities shows that differences and similarities in internationalization strategies are conditional upon the peculiarities of regional and national contexts. On the selection and attraction of foreign students, Chinese and Kazakh universities need to work out strategies at all levels: bachelor, master, PhD. To meet this goal, it is advisable for Kazakh universities to focus on developing and implementing programs in English as a whole, and for Chinese universities to introduce bachelor degree programs in English. Bachelor degree students are the largest group in all three regions, therefore it is important to improve the attractiveness of academic mobility at the bachelor's level by developing scholarship programs. Such steps can be a starting point for change, as the indicators in China and Kazakhstan are much lower than the European ones at this stage. Every student, employee or teacher who comes in the framework of mobility, should be considered as a potential and unofficial ambassador and promoter of the university and the country.

Agreements on cooperation, membership in international associations and participation in rankings are significant aspects that are important to take into account in Chinese and Kazakhstani universities. With effective use, they can make a positive contribution to the process of internationalization and the international reputation of universities. Promotion in the international space, including the recruiting of students, refers to the responsibility of marketing management in universities. It is noteworthy that in the presence of marketing and communication strategies and plans, they are not aimed at international promotion and internationalization of universities.

Internationalization is the aim and commitment to ensure it should be global for all academic and administrative departments of the university. Measures for internationalization within the university on campus should be carried out and supported by all units, not just by the international department. In this regard, it is important to provide training in working in a multicultural international environment, to encourage the participation of staff and faculty, and to make English language courses available to all.

All higher education institutions were asked to identify one most important change or improvement in the model of internationalization: Chinese institutions noted the need to strengthen internationalization at the school and faculty levels; Kazakhstani institutions pointed out the need to increase the number of foreign students, improve international marketing and create a common model for the implementation of the internationalization process; European universities noted the need to increase the budget, awareness of the importance of internationalization, a clear division of responsibilities between various stakeholders in universities.

How was the benchmarking analysis useful for universities? First of all, it is an opportunity to get a clearer picture of the current situation of our own strategy and processes of internationalization compared with higher education institutions in other regions of the world. Secondly, universities have the opportunity to observe trends and problems in internationalization, which result from comparative analysis. BThirdly, to learn from the best practices and gain experience of other universities. Fourthly, in the case of comparison with universities from other regions, study participants can learn about the opportunities and problems of cooperation. Fifthly, focus on further development and improvement.

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ЖОҒАРЫ БІЛІМ БЕРУДІ ИНТЕРНАЦИОНАЛИЗАЦИЯЛАУДЫҢ САЛЫСТЫРМАЛЫ ЗЕРТТЕУЛЕРІ: ERASMUS + АЯСЫНДА ЕУРОПАЛЫҚ, ҚАЗАҚСТАНДЫҚ ЖӘНЕ ҚЫТАЙЛЫҚ ЖОҒАРЫ ОҚУ ОРЫНДАРЫНЫҢ САЛЫСТЫРМАЛЫ ТАЛДАУЫ

Аннотация. Мақалада жоғары оқу орындары интернационализациясының салыстырмалы талдауларының негізгі бағыттары және Erasmus+ «Welcome: Towards incoming international university communities» жобасының консорциумына кіретін 11 европалық, қазақстандық және қытай университеттерінің стратегиясы мен тәжірибесінің бенчмаркинг-талдауының нәтижелері баяндалған. Қазіргі таңда бенчмаркинг өзге де құралдармен қатар интернационализацияның сапасын бағалауда қолданылады. Алғы тәжірибелерді салыстыру және анықтау бенчмаркингтің жетілдіру және дамытуға бағытталған негізгі екі басты аспектісі болып табылады. Зерттеушілердің айтуынша жоғары оқу орындарына тұрақты негізде интернационализацияны бағалап, ақпараттады жинақтап отыру қажет. Жүргізілген зерттеу нәтижелері европалық, қазақстандық және қытай жоғары оқу орындарындағы стратегия мен интернационализацияның маңыздылығын, әр түрлілігі мен қиындығын растайды.

Түйін сөздер: бенчмаркинг-талдау, интернационализация, академиялық ұтқырлық, жоғары оқу, стратегия.

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СРАВНИТЕЛЬНЫЕ ИССЛЕДОВАНИЯ ИНТЕРНАЦИОНАЛИЗАЦИИ ВЫСШЕГО ОБРАЗОВАНИЯ: БЕНЧМАРКИНГ-АНАЛИЗ ЕВРОПЕЙСКИХ, КАЗАХСТАНСКИХ И КИТАЙСКИХ ВУЗОВ В РАМКАХ ПРОЕКТА ЭРАСМУС+

Аннотация. В статье изложены основные походы сравнительных исследований интернационализации высшего образования и результаты бенчмаркинг-анализа стратегий и практики интернационализации 11-ти европейских, казахстанских и китайских университетов, входящих в консорциум проекта Erasmus+ «Welcome: Towards incoming international university communities». Бенчмаркинг, наряду с другими инструментами, используется в настоящее время для оценки качества интернационализации. Сопоставление и выявление успешных практик являются двумя ключевыми аспектами бенчмаркинга, направленных на улучшение и развитие. Исследователи отмечают, что вузам необходим способ мониторинга интернационализации и сбора информации на постоянной основе. Результаты проведенного исследования подтверждают возрастающее значение, а также разнообразие и сложность стратегий и практик интернационализации в европейских, казахстанских и китайских высших учебных заведениях.

Ключевые слова: бенчмаркинг-анализ, интернационализация, академическая мобильность, стратегия, высшее образование.

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STATE REGULATION OF ECONOMIC RELATIONS BETWEEN KAZAKHSTAN AND CHINA ON THE AGROFOOD MARKET

Abstract. The methodological basis of the article is composed of the Message of the President of the Republic of Kazakhstan N.A. Nazarbayev "Kazakhstan 2050 Strategy", which defines a comprehensive economic pragmatism as the main goal of the new economic policy course that is based on the principles of profitability, return on investment and competitiveness, which determines the relevance of the project. The Message of the President of the Republic of Kazakhstan N.A. Nazarbayev "Third Modernization of Kazakhstan: Global Competitiveness" also includes aspects of the need to create a new industry along with the development of traditional basic industries, to increase their export potential, where Chinese investment plays a significant role. Implementation of these directions lies on the shoulders of local authorities. Realization of Nazarbayev's 5 institutional reforms includes the abolition of sectoral programs with integration of certain sectoral programs into governmental programs, as well as in strategic plans of state bodies. Consequently, it is necessary to create an industrial-sectoral and administrative symbiosis for the effective development of the industry and assessment of its prospects, taking into account the protection and promotion of national economic interests within the framework of international cooperation [Nazarbaev 2012:2].

International practice of special economic zones creation and it's functioning and the role of transnational corporations in development of economic integration was studied. Experience of China's regional economic growth has been highlighted for assessing the possibility of its application within the framework of cooperation. Forecast of development of agricultural production was made. A mechanism for the effective development of agri-food transit on the Western Europe-Western China highway has been developed with taking into account the influence of external factors, which makes it possible to create conditions for stimulating Kazakhstan's integration into international trade. State support measures in production of agricultural and export-oriented products are proposed with consideration of the industry development programs and WTO requirements. Project support and maintenance mechanism is being offered within the framework of "Silk Road Economic Belt" Project. Proposals were made to enhance the role of regional management policy in order to improve the economic efficiency of territories.

Hypothesis. It is expected that the evaluation of state management in the agrarian, sphere within the framework of the development of Kazakh-Chinese cooperation, based on the study of the PRC's approaches in the formation of special economic zones and domestic practice of improving the economy of agrarian sector under the conditions of the "third modernization", will lead to an expansion of exports of agricultural products, transit potential of Kazakhstan, infrastructural development and optimization of industry administration. In addition, taking into account the strategic importance of the country's transport potential, it will allow developing adjacent economy sectors.

Practical importance of work is determined by fundamental and applied nature of the problem under study. Presented methodical and practical materials, which are obtained in the course of studies on improving the state management in the agrarian sphere provide the basis for assessing subsequent stages of effective functioning and development of export opportunities of the industry, integrated projects, reformatting strategic plans and development programs for the territories in terms of key target indicators.

The Study aims to develop methodological approaches and practical recommendations for evaluating state management perspectives in the agrarian sphere within the framework of development of cooperation between Kazakhstan and China.

Keywords. State administration, agrarian sector, export, public-private partnership, infrastructure, inclusive economy.

Introduction

In the modern world, foreign trade activity plays an increasing role in the development of the countries individually and the world as a whole. Statistics show a steady growth in world trade. Foreign

trade is a powerful factor in the development of states in the world space, but at the same time they become dependent on this factor.

The Republic of Kazakhstan occupies a unique natural and geographical location: it borders on the north and west with the Russian Federation, in the east - with China, in the south - with Kyrgyzstan, Uzbekistan and Turkmenistan. The territory of the Republic of Kazakhstan was the main segment of the "Great Silk Road".

Our republic is in favor of creating a modern and efficient economy, attracting new investments, striving to be an equal participant in the world trade process and have the opportunity to influence the formation of international trade rules. In this context, the program "Economic belt of the Silk Road" is similar to the Marshall plan for the restoration of Europe and will allow the realization of economic interests, including. in such a sensitive to external changes in the meteosphere as the AIC. The horizon of this direction is quite large, accordingly, the opportunities of the economy of the republic will also not be limited to the short-term period.

The initiative, entitled "One belt, one way" in scale and scope in modern history is an unprecedented project. On the infrastructure covering 60 countries, it is planned to allocate more than a trillion dollars [Perlez 2017: 1]. The promotion of infrastructure construction, the output of production capacities abroad - all this can quickly create investments that will bring results for economic growth, and also will closely combine the requirements of different countries. This direction will not leave indifferent TNCs or international financial institutions.

In this regard, in order to achieve the goals of expanding the republic's participation in the regional agrarian market, it is necessary to focus on economic efficiency and state support of the industry.

Today in the world economic thought there are two approaches to international trade. The first implies almost complete freedom of trade, carried out without restrictions on the part of the state. The second uses state regulation, state intervention in international trade to promote its growth, taking into account the interests of the national economy, protectionism.

The tendency of the development of the agrarian sector of foreign countries shows that the future of agriculture is behind such structures, where the market organization and the economic interest of the producer are combined. One of the directions is integrated associations and cooperatives. The specific weight of their products is up to 80%, and the quality is much higher than in individual enterprises. In the study by the authors of Ruiz-Garcia L., Steinberger G., Rothmund M., every event in the supply chain of agricultural products, from production to the sale of finished products, parameters of state participation, etc., must contain their own information [Ruiz-Garcia 2010: 112 -121].

Important are the links of individual farm production with related sectors of the economy within the agrarian and industrial complex and outside the agrarian sphere, they are the main element of business. In the author's work, Li said that in order to modernize agrarian business, the state forms an agrarian policy and affects agricultural cooperatives and clusters of processing products of the industry, orienting them on quality production conditions and searching for the advantages of products, setting local standards, taking into account market needs, local brand [Li2012: 7-10].

Of great importance is the development of integration with other spheres of the agroindustrial complex and even branches of the economy. For example, several tens of thousands of Swedish farmers, having pooled their funds through cooperation, buy up controlling stakes in processing enterprises, machine-building firms and even oil refineries and become powerful cooperative-corporate structures working for the interests of farming. It is this direction of development of agricultural cooperation and agro-industrial integration that should be considered strategic for Kazakhstan. The creation of industrial processing on the farms is one of the strategic directions of increasing the efficiency of production. The organization of production and processing of agricultural raw materials directly on farms allows to reduce costs, to reduce losses of products, especially perishable. In the study of the authors of Baruah S., Dutta J., the contribution of nanotechnologies to the probing and degradation of pollutants for the growth of agricultural production was considered [Baruah 2009: 191-204].

At the same time, the Asian region is developing quite actively, but the research does not cover the transformation processes in individual countries, and the role of public administration is to provide financial support measures without taking into account the conditions of innovative development, interconnection and interaction of various factors, taking into account the specific features of economic development in these countries.

The economic system is based on state, collective, private and individual ownership of the means of production. State ownership is represented by large and medium-sized companies of industry, transport, communications, agriculture, there is a public sector is leading. Individual property is represented by family-type enterprises.

Currently, there are 150,000 agricultural cooperatives operating in China, comprising 23 million people. This is almost 10% of all peasant farms. Indirectly, more than 32 million people who are not members of cooperatives receive benefits [Malle 2017: 131].

The agrarian sector is a strategic direction of the development of the republic, in which the effective organization of production and inter-farm relations determines the development of rural areas.

In this regard, state regulation of the industry development should help to ensure a balance between agricultural and industrial production in the social protection of both spheres. And taking into account the ongoing changes in the decentralization of powers and strengthening of the responsibility of the regions for the implementation of economic policy, the emphasis of state administration is shifting to the regions. This allows to increase the initiative and responsibility of the akims of the southern region, where the transport corridor passes, in the formation of programs for their social and economic development, incl. the agrarian sector, and the involvement of available resources. At the same time, one should not forget about the accepted obligations of trade within the framework of the EEC and WTO.

In addition, the process of restructuring world trade and the formation of geopolitical relations directly affects Kazakhstan. On the one hand, this makes it possible to strengthen the measures of state support for the agro-industrial complex and is aimed at regulating measures that have a distorting effect on trade. On the other hand, this is an increase in competition, new challenges and risks. Currently, the socio-economic development programs of the regions of Kazakhstan are not adequately adapted to the ongoing processes due to the static nature of the planning system in the state administration and the disparate activities of potential participants. The region acts as the executor of national tasks in the field of agriculture, including issues of access of imported goods to the domestic market, state support for agriculture, effective use of sanitary and phytosanitary measures is the main priority in the conduct of negotiations. Therefore, a joint initiative of local authorities and business is needed.

The imbalance in economic growth has become a rather serious problem, since a large part of the population does not participate in the growth of global GDP, which makes it unstable. Inclusive economic growth ensures a stable and long-term improvement in the lives of all segments of the population, which stimulates the acceleration of GDP growth [Hausmann 2014: 2].

The implementation of the global project is a long-term plan that will involve present and future generations in enhancing domestic and world economic growth.

In 2000, G7 accounted for 44% of world GDP. While the GDP of the BRICS countries was only 18%, but already in 2016 BRICS reached a parity of 31% -31% with GDP growth forecast of G7 countries, including the USA, 2 times up to 2030. The role of the PRC is key.

Kazakhstan initiates the opportunity to maintain the functioning of its currency both domestically and internationally outside the SWIFT system, based on the US dollar. The situation in which the fate of the national currency depends on another country, can lead to devastating consequences. The development of information and financial technologies allowed Russia and China to create their own system of conducting international trade without the US dollar. The successful launch of the Asian Bank for Infrastructure Investment (ABIA) will also allow the most dynamically developing Asian states to receive investments from a financial institution. In addition, at present the BRICS countries are discussing the creation of a "gold market", in which the initiatives of N.A. Nazarbayev has a good position.

The foregoing predetermined the need for carrying out outlined studies to assess the prospects of state management of the agrarian sphere in the framework of developing cooperation between Kazakhstan and China and forecasting the transit flow of agricultural products. The given project is actual and as consequence of that rates of growth of the foodstuffs in the world are slowed down, and the economic and political components of China are gaining momentum. For example, political communication includes a common understanding of the concept and joint discussion of solutions; infrastructure linkages are aimed at joint infrastructure construction and resource use; uninterrupted operation of trade means common customs duties, joint discussion of rules; circulation of funds include a general floating exchange rate, exchange of information.

Consequently, the integration of the republic's economy is dynamic, but it does not have clear guidelines for state management, and the production structure is impermanent, which forms significant import flows.

Therefore, in the article, the assessment of the prospects for state management of the agrarian sphere within the framework of the development of cooperation between Kazakhstan and China will be viewed as a process that takes into account the current situation and relies on the development programs of Kazakhstan and China. The process governing the transition to international integration of agriculture, implies the ability of all participants to adapt to change. In many cases, the different strategies, institutions and approaches used must also be adapted to the new development environment.

Necessity of carrying out of researches is caused by that the role of a regulator is carried out by the state in the name of local governments by means of working out of the actions providing effective social and economic development of territories.

Material and Methods

The study of problems of public administration in general and the agrarian market, in particular, showed the intertwining of various theories of governance and international relations, which are now being included in the paradigm of globalism and geopolitics by well-known representatives.

Participation of state institutions is the main subject in the field of economic policy, especially in the context of expanding and unifying the rules of international trade. The state as an institution has a certain autonomy from society, but acts on its behalf and in its interests. The constant struggle of states for existence and protection of their interests, markets, commodity producers leads to conflicts in the international system. The way out is the evolutionary development of foreign policy and economic relations by adapting the state to a new distribution of power, for example, by joining strategic alliances.

Therefore, the teachings of George F. Kennan and G. Kissinger, which developed the principles of regionalism, have much in common with geopolitics, which many researchers put in line with other paradigms [Jeremi 1972: 246-247].

The popularity of geopolitics in scientific and near-scientific circles in the 1980s, has experienced a revival thanks to the interest of the proponents of the paradigm of globalism and interdependence that drew attention to the contradictions of international development and the growing inequality in the global economic system [Haushofer1941: 241; Brzezinski 2010: 114].

At present, the issues of effective economy and management began to occupy a predominant role and led to its transition to a new stage of development. Geopolitics studies international politics in a more complex context than realism, taking into account the relationship of society with the economic and geographic features of the region. According to one of the definitions, it is "an analysis of how political systems and structures, from the local to the international level, are influenced by the spatial distribution of resources, events, groups, as well as subnational, national and supranational political entities" [Cohen 1964: 83 -85].

Despite the growth of protectionism, the globalization of markets is already irreversible. In the world economy, there are complex processes of regionalization of trade regimes to the detriment of WTO principles (Transatlantic partnership, regional Comprehensive economic partnership, etc.), "sanctions wars" and increased protectionism. There is a decentralization of economies and power: Brexit (Britain's withdrawal from the European Union), a new US focus, highlighted in Donald Trump's inaugural speech with the words "americanism, notglobalism", etc. Deepening Russia's principal rivalry with the United States and the West is deepening. In 2015, the G-20 countries introduced more than 600 restrictive trade measures. An increasing number of developed countries are limiting the flow of migrants [DraftDecree2017: 1-2]

In this regard, the proposed scenario "One Open World" puts at the forefront the strengthening of the processes of globalization against the backdrop of liberalization, free trade and international integration. Expected growth of developing countries is anticipated with the strengthening of the role of Asian countries. In these favorable conditions, the growth rates of developed countries are expected to be 3.1%, and for developing countries - 5.2% on average per year.

If this scenario is implemented, it is important for Kazakhstan to actively participate in the processes of international integration, especially in the Eurasian region, through deeper integration into the New Silk Road project.

Economic relations between Kazakhstan and China have been actively developing over the 25 years of independence. The total volume of China's investment in the economy of Kazakhstan exceeded 42.8 billion dollars, the volume of lending - more than 50 billion dollars.

The core of the new economic policy of Kazakhstan is the development of infrastructure. The implementation of projects within the framework of "Nyrylyzhol" is aimed at providing an infrastructure basis for economic growth. "

In technological connection with the railway lines Zhetygen-Korgas and Zhezkazgan-Beyneu, the automobile corridor Western Europe-Western China and the Aktau port, the FEZ "Khorgos-East Gate" is an important center for the consolidation and distribution of cargo flows on the New Silk Road and ensures the further integration of Kazakhstan into the world transport and trading systems.

China is a key trading partner for over 100 countries, representing more than 80% of global GDP. The turnover of Kazakhstan with China for the first quarter of 2017 increased by 29%. In particular, exports increased by 33% to $ 1.2 billion. Imports increased by 24% to $ 901 million. In the total volume of international trade, the share of trade with China increased from 15% to 16%. Including the share of exports from 12% to 13%, the share of imports from 21% to 26% (Figure 1).

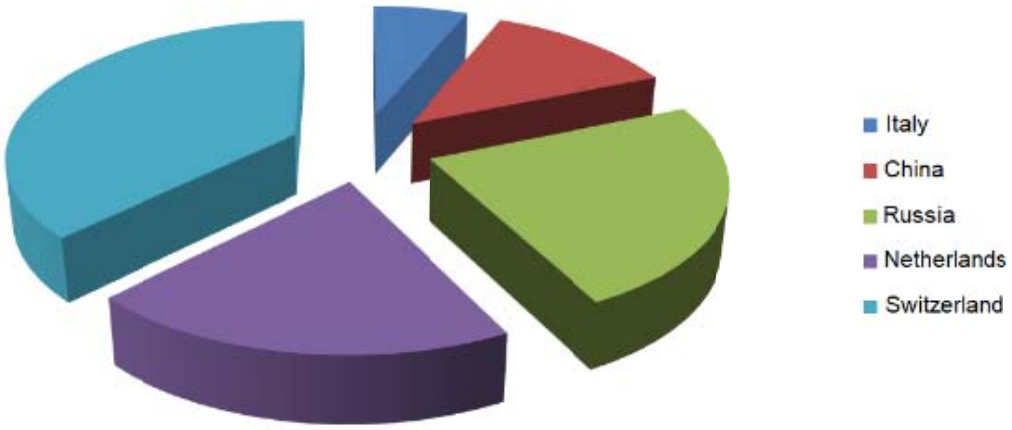

Figure 1 - The share of major trading partners in exports, 2012-2016.

Source: Foreign trade of the Republic of Kazakhstan / Stat.comp. KS MNE RK / Kaz. And Russ. / P. 14

The main exported product is metal products. During the first quarter, metallurgical products were exported to China by 624.7 million dollars, which is 46% more than in the same period last year. Including refined copper was sold at 277 million dollars. (+ 30%) and ferroalloys by $ 254.8 million. (+ 76%).

The list of the most actively exported goods included oil and oil products - $ 155.4 million (not exported in the first quarter of 2016) and radioactive chemical elements - $ 137.5 million (+ 34%).

The main imported goods from China are telephone sets and computers. Thus, for the first quarter of 2017, the import of telephones increased by 47% and amounted to $ 101.2 million. Imports of computers and other computer equipment increased 2.3 times to $ 34.2 million.

Also, as humanitarian aid, import deliveries of machinery and equipment to the RK from China were made in the amount of $ 85.5 thousand.

Goods flows of agrarian products between Kazakhstan and China make up --- a part of the whole volume and have a steady tendency to growth. The list of agricultural products is represented by products of animal and vegetable origin, ready-made foodstuffs: live animals, meat and edible meat offals, fish and crustaceans, mollusks and other aquatic invertebrates dairy products; eggs of birds; honey natural; root crops and tubers, fruits and nuts; peel of citrus fruits or melon peels; Coffee, tea, mate, or Paraguayan tea, spices; products of flour-and-cereals industry; malt; starches; inulin; wheat gluten oil seeds and fruits, medicinal plants and plants for technical purposes; straw and cake, raw shellac natural; gums, resins and other vegetable juices and extracts of fats and oils of animal or vegetable origin and products of their cleavage; ready-made edible fats; animal waxes, etc. (Table 1).

Table 1 - The main indicators of Kazakhstan's foreign trade for 2012-2016

Country	Year					Change for 2012-2016 years.
	2012	2013	2014	2015	2016	
TOTAL, including:	100,0	100,0	100,0	100,0	100,0	
CIS countries	8,9	8,2	7,6	8,5	8,1	
Other countries	91,1	91,8	92,4	91,5	91,9	
Europe	55,1	54,9	58,3	56,4	55,9	
EU countries	50,3	50,2	53,2	51,6	50,4	
China	19,9	20,9	17,2	17,4	16,3	
Source: Customs statistics of foreign trade for 2012-2016. / Stat. Comp. COP of the MNE RK						

In recent years, China has begun to create "green customs corridors" for agricultural products with Kazakhstan and other countries. The full use of special channels for customs clearance makes it possible to deepen bilateral and multilateral trade and economic ties, to enrich the development of friendly cooperation, as well as to build and strengthen the platform of interconnectedness and regional trade cooperation within the framework of the "Belt and road".

Experts believe that with the opening of the "green corridors", it will be able to issue customs documents for agricultural products at checkpoints in short time, which will reduce the time of stay of the goods in the port. At the same time, the construction of agricultural bases, the creation of favorable conditions in the field of transport and storage, concessional lending, as well as maintaining the balance of export-import trade are planned on a larger scale between China and Kazakhstan, Tajikistan, Kyrgyzstan and other countries.

Strengthening inter-state relations through the establishment of the Kazakh-Chinese investment Fund. Its equal participants are the Chinese-Eurasian Fund for economic cooperation and JSC "national managing holding "Baiterek". The Fund intends to invest in infrastructure, mining and processing industries, energy, logistics, agriculture, information technology, etc.

The participation of Kazakhstan in the "Summer Asian Davos" in China was an important event aimed at studying the economies of the region of Southeast Asia. The issues of ensuring economic growth through sustainable development, the tasks of post-crisis development, new markets in the Asian region, trends in international capital markets and other topical issues of future global economic growth were raised and discussed here.

As a result of the development of economic relations, the Kazakh-Chinese economic policy is aimed, first of all, at the development of measures promoting the activation of regional production of domestic products, as well as increasing its export potential.

Thus, the list of government programs of Kazakhstan was supplemented by the program "National Export Strategy". In accordance with it, the Central and local Executive bodies have developed an action plan for its implementation in accordance with the Rules of development, implementation, monitoring, evaluation and control of the Strategic development plan of the Republic of Kazakhstan, state and government programs, strategic plans of state bodies, programs for the development of territories, as well as the development, implementation and control of the Forecast scheme of territorial and spatial development of the country.

The current development of exports consists of several directions, the development of which improves the possibilities of public administration in the agricultural market, maintaining business initiatives of agricultural producers and their associations, taking into account the potential of Kazakhstan through the introduction of elements of the Fourth industrial revolution [Actionplan 2017:1-4]:

- strengthening the institutional framework to support exporters (expansion of the functions of the electronic information resource Export.gov.kz in order to create a "single window" for exporters, on the principle of localization of electronic services);

- provision of financial and non-financial support measures for exporters (ensuring the growth of the number of exporters who received financial and non-financial support measures by increasing the capitalization of KazakhExport and advising exporters on export promotion);

- improvement of customs procedures (simplification of the procedure for issuing certificates of origin, etc.);

- development of transport and logistics infrastructure (creation of an electronic interactive map of transport and logistics routes of the Republic of Kazakhstan and the EAEU countries with the indication of the main freight forwarders and operators of the transport market, as well as taking into account the possibility of determining the optimal route by cost and time for transportation of goods according to their characteristics);

- ensuring mutual recognition of standards and technical requirements for products between the Republic of Kazakhstan and the countries of priority and high interest (making proposals to transfer the information center for TBT/SPS projects notified to the WTO technical regulations of the WTO member countries or changes in them, to which Kazakhstan goods are exported);

- improvement of conditions for the promotion of exports to foreign markets (increase in exports of goods to countries with which agreements on free trade zones have been concluded).

The established Chinese-Kazakhstani Fund for cooperation of production capacities is aimed at cooperation under the program "Digital Kazakhstan 2020", supporting the participation of Chinese telecommunications enterprises.

By the way, Heylunzyan province, Guizhou, Xinjiang and some others work under the program "Three products, one standard", which provides support for agricultural production, the creation of an effective storage and transportation infrastructure and export [Heylunzyan].

Another direction of interstate cooperation in ensuring the effectiveness of trade was the creation of the Kazakh-Chinese terminal in the port of Lianyungang. The work of the transport and logistics terminal is aimed at increasing the export-import and transit potential of Kazakhstan by rail, providing the shortest access to the countries of the Asia-Pacific region and South-East Asia, contributing to the development of trade relations in the region, and creating the possibility of transit from these countries to Central Asia, the Gulf States, Russia, the Caucasus region and Europe through the territory of Kazakhstan [Agreement1995:1-5].

Transit is an important segment of the transportation. A significant part of the total volume of cargo transportation in Kazakhstan is regional transit at the level of 16-17 million tons per year, which indicates its stagnation.

In the total volume of transit, the share of bulk cargo is 77%, of which 64% is for Russia/Ukraine – Central Asia, 13% – for China – Central Asia.

The peculiarity of cargo transportation on the background of the development of cooperation between Kazakhstan and China, which also corresponds to the global trend, is the growth of containerization. Increasing the volume of container transit cargo, improving customs procedures and ensuring road safety are relevant state institutions in the restoration of the transport economy and future economic growth through the use of sustainable development tools.

Kazakhstan, having chosen a reference point to the level of the Organization for Economic Cooperation and Development, is aimed at achieving qualitative economic growth based on improving the competitiveness of business and human capital, technological modernization, improving the institutional environment, as well as minimizing the negative impact of man on nature.

The strategic plan until 2025 is built around seven major systemic reforms and seven priority policies that must be implemented in the economy and social life of the country until 2025.

Ambitious goals can be achieved through rapid, large-scale investment in R&D and innovations, as well as increased domestic competition. In order to attract foreign investment and create a favorable image of Kazakhstan, it is necessary to accelerate the implementation of the OECD recommendations aimed at ensuring the rule of law, increasing the openness of the economy and achieving sustainable development. Under these conditions, the Kazakh-Chinese dialogue and the ongoing financial support measures ensure the dual interests of countries that do not contradict the rules of the World Trade Organization [Agreement 1994:5-7].

Chinese investment is one of the sources that are available in the international market, and all the countries of the region are fighting for this investment. The 51st project, developed for a total of 27 billion dollars, within the framework of the joint program for the development of production capacities, has been completed in 3 and started on 13 projects. In addition, Kazakhstan continues to implement its program of industrial and innovative development. In 2016, the previously introduced projects created products at 2.2 trillion tenge, of which 1.4 trillion or 18% of the total output of the sector as a whole – are in the manufacturing industry [Kasymbek 2017:1].

In the system of industrial development of Kazakhstan, Chinese investments are one of the strategic blocks covering the sphere of transport infrastructure, trade, manufacturing, construction and, of course, agriculture.

Attraction of investments is currently concentrated on the construction and commissioning of the ICBC "Khorgos".

In the field of agriculture, Kazakhstan and China intend to modernize the infrastructure for the accelerated passage of agricultural products along the green corridor at the border crossing point "Bakhty - Pokit". It is planned to actively explore the possibility of cooperation in the production of Halal products and everyday Muslim goods, joint development of markets outside the region. The parties intend to encourage and stimulate the enterprises of the two countries for the joint creation of model agricultural bases in the Republic of Kazakhstan. The amount of investments in the Central area, the construction of which was completed, amounted to 14 billion tenge. The investor was the company "Khorgos-KAT". More expensive object, which is also invested by this company, are shopping galleries, the company will invest in it more than 37 billion tenge.

At the beginning of 2017, there were about 14 thousand joint ventures in the country. In the first 10 countries by the share of the authorized Fund of the Nordic countries took 1st place, Russia-2nd and China-3rd (Fig.2).

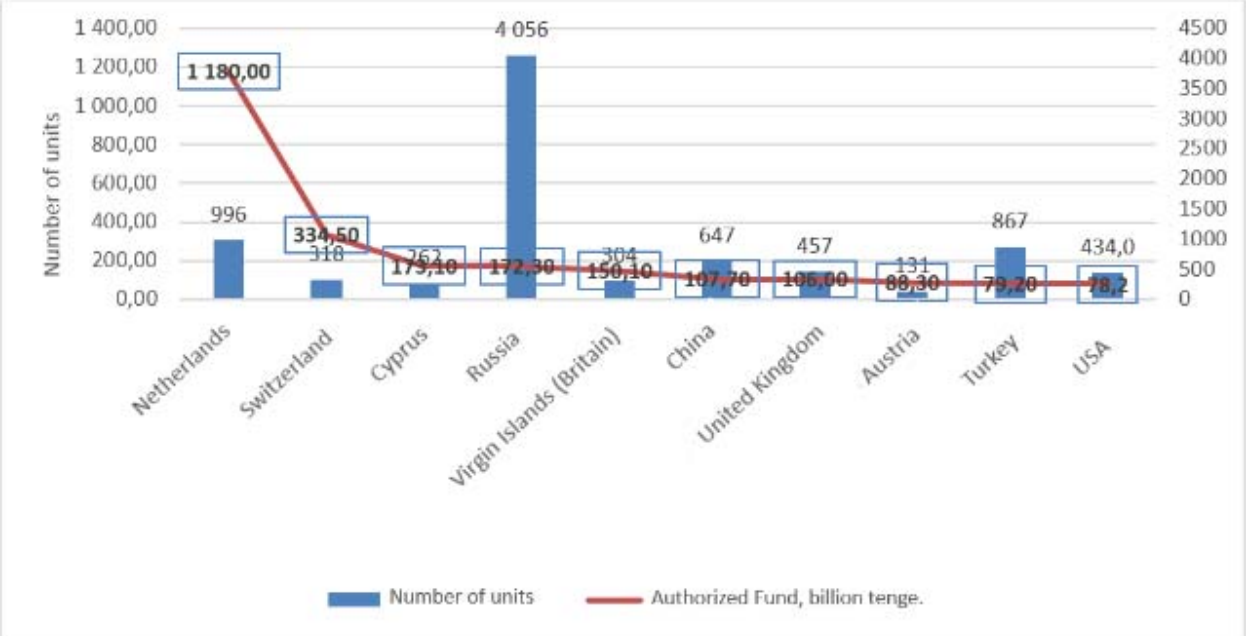

Figure 2 - Top 10 foreign companies in Kazakhstan

Source: Foreign trade of the Republic of Kazakhstan/ Stat.comp. / KAZ. and Rus. lang. / P. 266

The decline in direct investment in the economy of Kazakhstan began in 2013-17% and the situation has not changed dramatically in 5 years.

In China, there are serious financial resources, the placement of which is taken care of by state and business structures. At the same time, the goals of investors from China are shifting from the raw materials sector to the sphere of innovative technologies and the acquisition of well-known brands. Increasingly, Chinese capital goes to companies that introduce new technologies in a variety of industries

and different countries, from automotive and aviation to medical and financial, from Russia to the United States.

The acquisition of sovereign investment Fund ChinaInvestmentCorp (CIC) the shares of Citigroup, Coca-Cola, Visa, Pfizer, Motorola and Apple has given the result - the Chinese capital has enabled these companies to grow steadily even during the global crisis. Therefore, the investment interest in the automotive industry in the country, as evidenced by the acquisition of 51% of the shares of the Kazakh company AllurGroup, also allows to predict the development of this and related market segments.

Chinese investments will definitely contribute to the industrialization of Kazakhstan's economy through the development of production, financial and future projects, real increase of export and transit potential of the industry, and can also be an engine for the dynamic development of the service sector.

The system of training of specialists in China has received international recognition and Kazakhstan takes the first place in the development of scientific and educational potential. Currently, there are 4 Confucius institutes in Kazakhstan, more than 13 thousand Kazakh students study in China, and the number of Chinese students studying in Kazakhstan has approached one and a half thousand.

China-Kazakhstan security cooperation not only creates conditions for the development of China and Kazakhstan, but also makes an important contribution to regional peace and security.

Thus, the state regulation of economic relations between Kazakhstan and China in the agro-food market is actively carried out and is of strategic importance in achieving socio-economic and political goals, as well as the growth of the agricultural economy.

Results and Discussion

This article is an example of the implementation of the new Kazakhstan policy "Nurlyzhol" initiated by the President of Kazakhstan Nursultan Nazarbayev. and contributes to the policy of development of the silk Road economic belt pursued by the President of China Xi Jinping.

The initiative "one belt, one road" involves the active participation of the regional authorities to ensure the developed measures. First of all, we are talking about the priorities of cooperation in the development of transport infrastructure, manufacturing industry, trade, including agricultural products, etc. In particular, projects are envisaged to create transport corridors "China – Kazakhstan – West Asia", "China – Kazakhstan – Russia – Western Europe" and "China – Kazakhstan – South Caucasus/Turkey-Europe", to improve transport infrastructure along the route from the North-West region to the South-East coast of China. In addition, the Plan includes the creation of terminal facilities in the international logistics area, the port of Lianyungang, the construction of a Land terminal station and Inceburun terminal in the port of "Bandar-Abbas". The participation of Chinese enterprises in the special economic zones of "National Industrial Petrochemical Technopark" in Atyrau region, "Khorgos-Eastern gate" in Almaty region is provided.

The first and second directions of the initiative "Economic Belt of the Silk Road" complement the new economic policy of the Head of state N. Nazarbayev - "Nurlyzhol", where special attention is paid to the development of transport and logistics infrastructure and where are implementing 16 projects, 11 of which are aimed at the construction and reconstruction of roads.

The effect of these projects will increase the volume of transit cargo from China to Europe through Kazakhstan, from 16.3 to 18.1 million tons. The implementation of the Economic Belt of the Silk Road project opens up new opportunities for increasing the export-import potential of the two countries and contributes to the deepening of trade, transport and logistics ties.

The process of formation of the Eurasian economic Union and the Economic Belt of the Silk Road creates a new "Eurasian bridge", where the economic corridors "China-Mongolia-Russia", "China - Central Asia - Western Asia" and "China-Indochina" will be developed.

This will cover various spheres and departments, including customs, foreign Affairs, agriculture, transport management, international transport, quarantine supervision, and will allow for unhindered communication on the "Economic Belt of the Silk Road". It also allows us to talk about the prospects of cooperation in the non-oil sector and the economic benefits for Kazakhstan (figure 3).

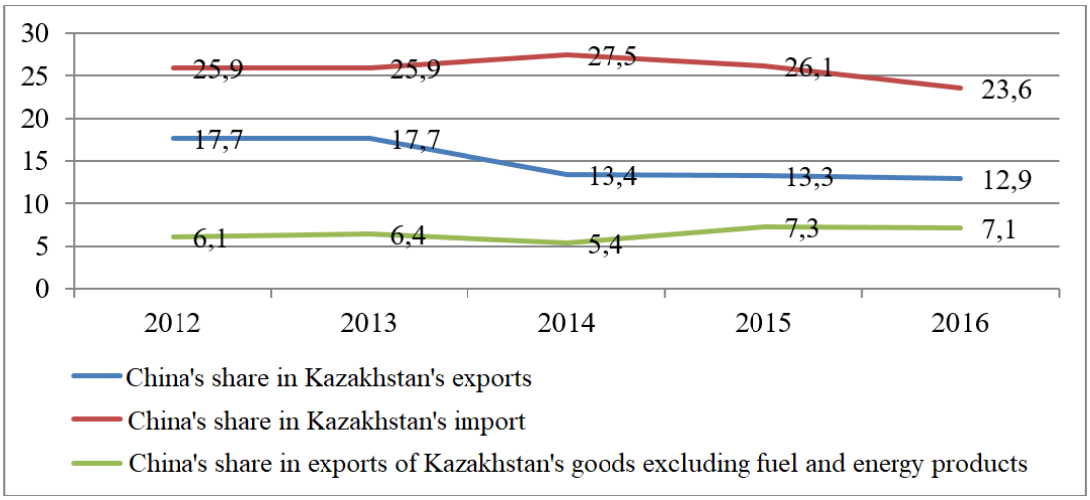

Figure 3-China's Share in Kazakhstan's foreign trade in 2012-2016, %

Source: Customs statistics of foreign trade for 2012-2016 / Stat.comp. KS MNE RK/p. 14-15

Under the circumstances, it is important to assess the prospects of cooperation between Kazakhstan and China and the potential benefits for Kazakhstan. This leads to the following activities:

- study of the establishment and operation of special economic zones and the role of transnational corporations in the development of economic integration. It is important to show the experience of development of economic regions to assess the development of a mechanism for support of programs under the project “Economic Belt of the Silk Road”;
- development of measures of state support for agricultural and export-oriented products, taking into account the development programs of the industry and WTO requirements. It is necessary to make a forecast of agricultural development taking into account the development of export initiatives of Kazakhstan;
- development of a mechanism for the effective development of agricultural transit on the highway Western Europe-Western China, taking into account the influence of external factors, allowing to create conditions for the promotion of Kazakhstan's integration into international trade;
- increasing the role of regional management policy in order to improve the efficiency of the economy of the territories.

Conclusion

This study is based on the data presented in the official sources and development programs, as well as the information presented in the framework of the Kazakh-Chinese dialogue.

The purpose of the study is to try to involve all participants in the production, information and logistics and control units in the process of creating modern conditions for the state management of the industry and the creation of the basis for economic growth in the regions. Evaluation of measures of public administration in the framework of the project "One belt and one road" will help to make this process a long-term basis. The development of the mechanism of state management of the agricultural sector will involve in the process of modernization and other areas of activity.

The mechanism of state management of the agricultural sector in the framework of the development of economic integration associations and the determination of trends can be useful in the development of measures for state support of the agricultural sector.

Social demand and economic interest in the results of economic integration and its assessment are expressed in improving the management of territories and the involvement of the business community in sustainable economic growth (inclusive economy), the development of a mechanism to stimulate the introduction of innovation and modernization of the agricultural sector, improving its quality, the growth of income of producers and improving their living standards. It will also have an impact on the inflow of investment and increase in consumer demand, and in the future, the growth of solvency.

It is assumed that effective regional management will lead to an increase in commodity volumes of agricultural products, the expansion of its markets and partial import substitution, as well as the creation of prerequisites for the development of the infrastructure of the transit zone.

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ГОСРЕГУЛИРОВАНИЕ ЭКОНОМИЧЕСКИХ ОТНОШЕНИЙ МЕЖДУ КАЗАХСТАНОМ И КИТАЕМ НА АГРОПРОДОВОЛЬСТВЕННОМ РЫНКЕ

Аннотация. Методологической основой статьи является Послание Президента Республики Казахстан Н.А. Назарбаева «Стратегия Казахстан-2050», в котором основной целью экономической политики нового курса был определен всеобъемлющий экономический прагматизм на принципах прибыльности, возврата от инвестиций и конкурентоспособности, что определяет актуальность проекта. Послание Президента Республики Казахстан Н.А. Назарбаева «Третья модернизация Казахстана: глобальная конкурентоспо-собность»

также включает аспекты необходимости создания новой индустрии наряду с развитием традиционных базовых отраслей, повышения их экспортного потенциала, где китайским инвестициям отведена значительная роль. Реализация данных направлений лежит на плечах местных органов власти. Реализация 5 институциональных реформ Н.А. Назарбаева включает упразднение отраслевых программ с интеграцией отдельных отраслевых программ в государственные программы, а также в стратегические планы государственных органов. Следовательно, необходимо создать производственно-отраслевой и административный симбиоз для эффективного развития отрасли и оценки его перспектив с учетом защиты и продвижения национальных экономических интересов в рамках международного сотрудничества [Назарбаев 2012:2].

Исследование международной практики создания и функционирования специальных экономических зон и роль транснациональных корпораций в развитии экономической интеграции позволит выделить опыт развития экономических регионов Китая для оценки возможности применения в рамках сотрудничества. Разработка прогноза развития сельхозпроизводства должна быть сопряжена с механизмомэффективного развития транзита агропродовольствия по автомагистрали Западная Европа-Западный Китай с учетом влияния внешних факторов, позволяющий создать условия для стимулирования интеграции Казахстана в международную торговлю. Меры государственной поддержки производства сельскохозяйственной и экспортоориентированной продукции с учетом программ развития отрасли и требований ВТО позволят разработать механизм поддержки и сопровождения проектов в рамках проекта «Экономический пояс Шелкового пути» и повысить роль региональной политики управления с целью повышения эффективности экономики территорий.

Гипотеза. Предполагается, оценка государственного управления аграрной сферой в рамках развития казахстанско-китайского сотрудничества на основе изучения подходов КНР в формировании специальных экономических зон и отечественной практики повышения экономики аграрного сектора в условиях проведения «третьей модернизации» и четвртой промышленной революции, приведет к расширению экспорта сельхозпродукции, транзитного потенциала Казахстана, развитию инфраструктуры и оптимизации администрирования в отрасли. Кроме того, с учетом стратегического значения транспортного потенциала страны, это позволит развить смежные сферы экономики.

Практическая значимость работы определяется фундаментальным и прикладным характером исследуемой проблемы. Представленные методические и практические материалы, полученные в ходе исследований совершенствования государственного управления аграрной сферой, создают основу для оценки последующих этапов эффективного функционирования и развития экспортных возможностей отрасли, интеграционных проектов, переформатирования стратегических планов и программ развития территорий в части ключевых целевых индикаторов.

Ключевые слова. Государственное управление, аграрный сектор, экспорт, государственно-частное партнерство, инфраструктура, инклюзивная экономика.

Целью исследования является - разработка методических подходов и практических рекомендаций по оценке перспектив государственного управления аграрной сферой в рамках развития сотрудничества Казахстана и Китая.

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АГРАРЛЫҚ АЗЫҚ-ТҮЛІК НАРЫҒЫНДА ҚАЗАҚСТАН МЕН ҚЫТАЙ АРАСЫНДАҒЫ ЭКОНОМИКАЛЫҚ ҚАТЫНАСТАРДЫ МЕМЛЕКЕТТІК РЕТТЕУ

Аннотация. Мақаланың әдіснамалық негізі Қазақстан Республикасы Президентінің Н.А. Назарбаевтың Жолдауы «Қазақстан-2050» стратегиясы, онда жаңа бағыттың экономикалық саясатының негізгі мақсаты - кірістілік қағидаттары бойынша кешенді экономикалық прагматизмді анықтау, инвестициялық және бәсекеге қабілеттілігінен қайтару, бұл жобаның өзектілігін анықтайды.Қазақстан Республикасының Президенті Н.Ә.Назарбаевтың Қазақстан халқына Жолдауы. Назарбаевтың «Қазақстанның үшінші жаңғыртылуы: жаһандық бәсекеге қабілеттілік» жаңа саланы құрудың қажеттілігі, сондай-ақ дәстүрлі базалық салаларды дамыту, олардың экспорттық әлеуетін арттыру, сонымен қатар қытайлық инвестициялардың маңызды рөлі бар. Осы бағыттарды іске асыру жергілікті билікке жүктелген. Н.Назарбаевтың 5 институционалдық реформаларды жүзеге асыру бағдарламасы салалық бағдарламаларды мемлекеттік бағдарламаларға біріктіру арқылы кейбір салалық бағдарламаларды жоюды қамтиды. Демек, халықаралық ынтымақтастық шеңберінде ұлттық экономикалық мүдделерді қорғау мен көтермелеуді ескере отырып, саланы тиімді дамыту және оның

перспективаларын бағалау үшін өндірістік-секторлық және әкімшілік симбиоз құру қажет [Назарбаев 2012:2].

Арнайы экономикалық аймақтарды құру және жұмыс істеудің халықаралық тәжірибесі және трансұлттық корпорациялардың экономикалық интеграцияны дамытудағы рөлін зерттее ынтымақтастық аясында қолдану мүмкіндігін бағалау үшін Қытайдың экономикалық аймақтарын дамыту тәжірибесі ерекше атап көрсететді. Ауыл шаруашылық өндірісін дамыту болжамы Қазақстанның сыртқы саудаға ықпалдасуын ынталандыруға жағдай туғызатын сыртқы факторлардың әсерін ескере отырып, Батыс Еуропа - Батыс Қытай автомагистралі бойынша аграрлық азық-түлік транзитін тиімді дамыту механизмі қтар қарастыруы қажет, өнеркәсіпті дамыту бағдарламаларын және ДСҰ талаптарын есепке ала отырып, ауыл шаруашылығы және экспортқа бағытталған өнімдерді өндіруді қолдау қажет. Ауыл шаруашылық және экспортқа бағдарланған өнімдерді өндіруді мемлекеттік қолдау шаралары өнеркәсіптің даму бағдарламаларын және ДСҰ талаптарын ескере отырып. «Жібек жолы экономикалық белдеуі» жобасының аясында жобаларды қолдау механизмін ұсынуға мүмкуіншілік береді. Сонымен қатар аймақтар экономикасының тиімділігін арттыру мақсатында өңірлік басқару саясатының рөлін арттыру бойынша ұсыныстарын әзірлеуге болады.

Гипотеза. Арнайы экономикалық аймақтарды қалыптастырудағы ҚХР тәсілдерін және «үшінші модернизациялауды» жүргізу жағдайында аграрлық сектордың экономикасын көтерудің отандық тәжірибесін зерделеу негізінде Қазақстан-Қытай ынтымақтастығын дамыту шеңберінде аграрлық саланы мемлекеттік басқаруды бағалау болжануда, ол ауыл шаруашылығы өнімдерінің экспортын, Қазақстанның транзиттік әлеуетін кеңейтуге, инфрақұрылымды дамытуға және салада әкімшілікті оңтайландыруға алып келеді, сонымен қатар еліміздің көлік әлеуетінің стратегиялық маңыздылығын ескере отырып, бұл экономиканың іргелес салаларын дамытуға мүмкіндік береді.

Жұмыстың практикалық маңызы зерттелетін мәселенің іргелі және қолданбалы сипатына байланысты. Аграрлық саланы мемлекеттік басқаруды жетілдіру бойынша зерттеулер барысында алынған әдістемелік және практикалық материалдар, өнеркәсіптің экспорттық мүмкіндіктері, интеграциялық жобалар, стратегиялық жоспарларды қайта жоспарлау және негізгі мақсатты индикаторлар бойынша аумақтарды дамыту бағдарламаларының тиімді жұмыс істеуінің және экспорттың мүмкіндіктерін дамытудың кейінгі кезеңдерін бағалаудың негізін құрайды.

Түйін сөздер. Мемлекеттік асқару, аграрлық сектор, экспорт, мемлекеттік-жеке серіктестік, инфрақұрылым, инклюзивті экономика.

Мақаланың мақсаты - Қазақстан мен Қытай арасындағы ынтымақтастықты дамыту шеңберінде аграрлық саланы мемлекеттік басқару перспективаларын бағалаудың әдіснамалық тәсілдерін және тәжіриелік ұсынымдарын әзірлеу.

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THE PROSPECTS OF STATE INCENTIVES FOR ORGANIZATIONAL AND MANAGERIAL INNOVATIONS OF KAZAKHSTAN AGRO-INDUSTRIAL COMPLEX

Abstract. The necessity of Kazakhstan's transition to new methods of state stimulation of organizational and managerial innovations in the agro-industrial complex has been substantiated. It is proved that the scale and complexity of the modern complex of problems of the Kazakh agro-industrial complex does not correspond to the methods of their solution proposed in the current state program of development of agro-industrial complex of Kazakhstan for 2017-2021. The role of specially developed information systems in the formation of clusters is shown. It is established that the key directions of the state stimulation of organizational and managerial innovations in the Kazakhstan agro-industrial complex are, firstly, the integration of small businesses into the supply chains of enterprises of processing enterprises of Kazakhstan agro-industrial complex. Secondly, the introduction of special information systems that ensure the unity of formal and informal rules of business; analytical support for timely and adequate management decisions.

Keywords: agro-industrial complex, organizational and managerial innovations, state policy, clusters.

The President's Address "New development opportunities in the context of the fourth industrial revolution" (2018) has set the following tasks for the enterprises of Kazakhstan agro-industrial complex (AIC):

- setting of production of natural food conforming completely the world standards and ready to be supplied to the global trading networks under the brand "Made in Kazakhstan";
- increase of labor efficiency and export of the refined products in the nearest five years at least by 2.5 times (in average, agricultural products for amount about $3 thousand fall on one employee per year, although in the developed countries this indicator is about $ 50-70 thousands).

To solve these issues, the President aims the processing plants of agro-industrial complex on adopting new "smart technologies" [1], and on more active usage of different organizational and managerial innovations.

The goal of the research is analysis of programs efficiency of the AIC state incentive and search of the most prospective organizational and managerial innovations of processing plants of AIC.

The research technique is based on application of methods of AIC economy scientific foundations analysis, statistic data and information collected earlier by other researches in this field.

The President's Address to Kazakhstan nation "Strategy "Kazakhstan-2050" – new political course of the established State" assumed that already in 2014 more than 80% of food products at local market should represent national foods, it was stated that the social modernization of Kazakhstan is impossible without accelerated development of AIC processing plants, and food industry.

For the years of independence, Kazakhstan has developed ten program documents basing on which the national policy in AIC field has been implemented. However, no one of them was implemented completely – the planned results were not achieved.

Next to last, the ninth in succession program was aimed at improving the enterprises aces to material resources of AIC, at developing the system of the national services provision to AIC enterprises, at

enhancing the efficiency of the state regulation of AIC. The program assumed stimulation of labor efficiency enhancement. It was planned to subsidize the expenses of processing plants enhancing, by this, its attractiveness for the private capital investment. The program did not discuss the direct national investments: the domineering role in the sector was assigned to private business.

The volumes of products output by the AIC processing plants have positive dynamics in recent years. However, as rule, the results are compared with previous year, not with 1990 which level of manufacture, by quite many positions, has not been achieved yet.

About 80% of AIC products are sold in the form of raw materials without refining, the end products of many processing plants of AIC is of low competitiveness. Thus, in the structure of food industry which share decreased more than twice against 1990, 71% falls to production of flour and bakery products, another 10.7% - production of beverages, and the rest part includes all other types of food products.

The manufacture of advanced processing products is not stimulated at all, the share of high-technological spheres reduces and is not able to cover the country demand with its products. Thus, the primitive production cycles domineer in food industry.

The coefficient of actual capacity utilization is low and ranges from 25% in dairy industry to 60% in fruit-and-vegetable canning industry. In comparison with 1990, the volume of production of the most critical products per capita has decreased from 4 to 50 times.

Among the main problems of the food industry are lack of raw materials, lack of large investments into the sector, regular shortage of circulating assets, high loan interest rates, uncompetitiveness of products by price and quality against foreign analogs.

By the level of meat consumption, the Republic fell to the level of 1965, milk – 1958, sugar – 1955, oil – 1976, fruits and berries – to 1960; the annual average consumption of sugar per capita is 18 kg, although the scientifically justified norm is 37 kg.

Despite the drop in production and consumption of food industry products, the volume of food industry goods sale in Kazakhstan increases annually by 5-10%.

The high dependence of Kazakhstan on import of many product types has been formed. Thus, the share of poultry meat import is 49%, sausage products – 50%, condensed and evaporated milk – 74%, cheese and cottage cheese – 58%, sausage products – 43%, confectionery products – 67%, fruit and vegetables preserves – 70% and sugar – 60%.

The “State program of the RK agro-industrial complex development for 2017-2021” plans the improvement of mechanisms on implementing the “State program of industrial and innovative development of the Republic of Kazakhstan in 2015-2019” adopted in 2014 (one of six priority sectors of industrial development of this Program is manufacture of food products).

To ensure equal access to subsidization of the manufactured products, the criteria, thresholds and standards are reviewed considering actual volumes of production, and there is also an opportunity to receive subsidies via incorporation into cooperatives. Further implementation of the investing subsidization program will be based on developing of new edition of “Rules of subsidization on reimbursing a part of costs incurred by AIC entity under the investments”. It is assumed to review the subsidization priority in favor of agricultural cooperatives implementing the projects on milk collecting stations, mini feed-milling plants, purchase of agricultural machines and other to cover more medium and small manufacturers of goods [2].

The improvement of practice of planning and state regulation of processing industry advances by “trial-and-error” method in parallel to modernization of the state management system.

However, the scale of complexity of the problems accumulated by the start of 2017 in Kazakhstan AIC do not correspond at all the ways of its solving proposed by the “State program of the RK agro-industrial complex development for 2017-2021”.

Among these problems are the following:

- low labor productivity level against the world one;
- archaic plant management system characterized by high level of administrative costs;
- underdevelopment of trade and logistics infrastructure, existence of uncontrolled number of mediatory parts, lack of connections between retail enterprises and manufacturers;
- availability of losses and expenses in the system of food products distribution during its movement among the regions of the Republic;

- lack and guaranteed sales markets for small and medium manufacturers;
- lack of organizational, technical and technological capabilities to form large, stable batches for export, etc. [2].

Instability of the world financial system, international and regional political crises, concentration of food resources at developed countries have led to global transformations at the world food market, among which are:

- redistribution of food flows among developed and developing countries;
- transition from the "age of firm low prices" to the period of high price volatility;
- the market shift from the model of limited demand to the model of limited supply.

The main trend of the world food market is further stiffening of reflationary policy on the edge of a trade war between the developed economy countries. The annual review "World Economic Outlook 2017" considers the turn to reflationary economic policy as one of new global threats of the world economy that can lead to a trade war between the developed economy countries [3].

The further improvement of the state protectionism methods that became threats to the national security of the most of the world countries that do not have enough power to ensure its national interests in food provision field is observed.

Under these conditions:

- the competitiveness of AIC processing plants depends significantly on its ability to synchronize the main business-processes and management models on the base of uniform information channels with its suppliers and customers along the whole supply channel;
- the most part of AIC processing plants, formally being autonomous and independent entities of the market, in practice are not self-sustainable and investment-attractive, are not able to develop on the principles of self-repayment and self-financing, participate in inter-industry competition on equal terms and to the full extent;
- the main tendency of AIC development is creation of integration mechanisms that formally are not bounded by fixed property rights, informal associations that include enterprises of all parts of supply chain "production (crop growing and cattle breeding sectors) – processing (food sector) – distribution (wholesale and retail trade)".

The investigations conducted by Kazakhstan [4-7] and foreign [8; 9] authors show that the key problem of AIC is in underdevelopment of small business and mechanisms of its integration into supply chains of processing plants.

According to N.A. Nazarbayev "if earlier the labor productivity at Kazakhstan enterprises per one person was 10-15 thousand dollars, now it is 80 thousand. Under such productivity all large enterprises, want we or not, will shed jobs. That is why I always say that it is necessary to develop small and medium business. Namely there people will find jobs. Development of small and medium business is on the first place in the policy and economy of our country" [10].

The main problems that, in opinion of O. Sabden, impede the development of small business are:

- imperfection of the legislative base in the field of small entrepreneurship (for instance, the laws on small innovative enterepreunership, on self-controlled organizations, commercialization of developments and other have not been adopted yet);
- insufficient governmental support of small enterepreunership;
- insufficient innovative activity of small enterepreunership, commercialization of developments and venture activity;
- problems of human resourcing and training of professionally competent specialists for small enterepreunership, especially in regions, villages;
- inefficiency of existing financial and credit mechanisms of small enterepreunership and taxation system;
- underdevelopment of consultative, informational support of small enterprises, and other [11].

Nevertheless, small business, from almost isolated subsystem of the national economy, in the nearest time, "should become an organic constituent part of integrated production and financial complex… to develop small business in RK it is necessary to create conditions, when large business invites small business enterprises in the process of cluster forming" [11].

Development of small business in Kazakhstan is associated with prospects of cluster forming centers of which should be "anchor investors" – one of the main ideas of the State Program "Hundred concrete

steps to implement five institutional reforms". It is planned "to create joint enterprises with anchor investors – international strategic partners in the priority sectors of economy" (step 56) – transnational companies having successful experience "in production of milk and dairy products" (step 60); "production and processing of meat" (step 61) [12].

In Kazakhstan, cluster analysis of the national economy was conducted more than ten years ago by M. Porter. However, the tasks of economy diversification set within "Kazakhstan cluster initiative" remained unsolved – formation units did not understand and adopted seriously its endogenic nature. Cluster is voluntary self-organizing association of entrepreneurs / network structure of economic agents; in its essence, it cannot be created by administrative will; an obligatory condition for its forming is lack of any external authority and control. The national authorities can create conditions favoring its forming, but cannot manage its activity [13, p.243].

On the one hand, the problem of clusters forming is in controversy between the tasks on enhancing the efficiency of the national economy and interests of people managing this economy. For any top-manager, a perspective of cluster forming in his "control zone" is a real threat to lose a part of his power authority, a part of administrative authority [14].

On the other hand, on the worldwide level we can observe the rush development of economic agent network structures that resulted in appearance of a whole range of qualitatively new approaches to management in business organizations, such as:

- orientation on the national features of the organization culture;
- transition to description of procedures and problems of business-organizations management on the information technologies language;
- distrust growth of managers-experts to recommendations of scientists stipulated by inclusion of the research community into the industry of consulting services;
- refusal from hierarchical structures managed from one center in favor of self-organizing network ones, that stipulated refuse from process approach application;
- refusal from retrospective linear analysis of economic indicators as information base of analytical procurement of management system;
- review of the concept and procedures of strategic management.

According to forecasts of specialists, the competitiveness of companies in the nearest decades will be determined not by technical innovations, new goods, equipment and technologies, but innovative systems of management.

According to M. Porter "in the situation, when sectors borders are remade and new economy sectors appear, the relations with traditional business partners and competitors are formed in a different manner; new prospects are opened to the companies, they encounter with new threats and start to play new roles, a qualitatively new approach is needed to analytical procurement of strategic planning and management in business organizations based on processing of large volumes of data generated by equipment of new type" [15].

Such approach is ensured by adoption of special information systems allowing the information exchange among all active and potential participants of the network; the integrity of formal and informal rules of business; analytical support for making timely and proper management decisions.

To solve first two tasks it is quite sufficient to create the Internet-server where all working materials with detailed classification and accessible to the network participants is published; systems of electron mailing lists (on the base of e-mails and Internet forums) by individual topics of project and subprojects, and information portal that will highlight the activity of the network participants.

To solve the third task – analytical support to make timely and proper management decisions – it is necessary to develop a special information system.

The conducted research allows making the following conclusions:

1. The peculiarity of the state regulation of AIC processing enterprises under the contemporary conditions is that it is directed not onto the market entities, but to its functioning medium, with entrepreneurs reserving the right to make managing decisions independently.

2. Development of AIC processing plants is considered in recent legislative documents not as a process of Kazakhstan manufacturers competitive advantages forming, but qualitatively different – in the context of Kazakhstan social modernization tasks. When the main goal of development – not creation of

competitive enterprises, but work places with high salaries level: the main indicator of the sector enterprises development should not be the volumes of production or growth of business value, but average level of salary.

3. Key courses of the state stimulation of organizational and managerial innovations in Kazakhstan agro-industrial complex are in the following:

- integration of small business into supply chains of processing industry plants of Kazakhstan AIC;
- adoption of special information systems ensuring the information exchange between all active and potential participants of the network; uniformity of formal and informal rules of business; analytical support for making timely and proper managerial decisions.

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ҚАЗАҚСТАН АГРОӨНЕРКӘСІП КЕШЕНІНДЕ ҰЙЫМДЫҚ-БАСҚАРУШЫЛЫҚ ИННОВАЦИЯЛАРЫН МЕМЛЕКЕТТІК ЫНТАЛАНДЫРУДЫҢ БАСЫМДЫҚТАРЫ

Аннотация. Мақалада Қазақстанның агроөнеркәсіптік кешеніндегі ұйымдық-басқарушылық инновацияларды мемлекеттік ынталандырудың жаңа әдістеріне ауысу қажеттігі негізделді. Қазақстанның АӨК қазіргі мәселелері кешенінің ауқымы мен күрделігі олардың шешімін табу бойынша ҚР агроөнеркәсіптік кешенін дамытудың 2017-2021 жж. арналған қолданыстағы Мемлекеттік бағдарламасында ұсынылған тәсілдеріне сәйкес келмейтіні дәлелденді. Арнайы әзірленген ақпараттық жүйелердің кластерлерді қалыптастырудағы ролі көрсетілді. Қазақстанның агроөнеркәсіптік кешеніндегі ұйымдастырушылық-басқарушылық инновацияларды мемлекеттік ынталандырудың түйінді бағыттары анықталды, олар шағын бизнестің Қазақстанның АӨК өңдеуші кәсіпорындардың өндірістік-өткізу

тізбектерімен ықпалдасуымен, бизнесті жүргізудің ресми және бейресми ережелерінің бірыңғайлығын қамтамасыз ететін және заманауи басқарушылық шешімдерінің қабылдауға мүмкіндік беретін арнайы ақпараттық жүйелерін енгізумен сипатталады.

Түйін сөздер: агроөнеркәсіптік кешен, ұйымдық-басқарушылық инновациялар, мемлекеттік саясат, кластерлер.

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ПЕРСПЕКТИВЫ ГОСУДАРСТВЕННОГО СТИМУЛИРОВАНИЯ ОРГАНИЗАЦИОННО-УПРАВЛЕНЧЕСКИХ ИННОВАЦИЙ В КАЗАХСТАНСКОМ АГРОПРОМЫШЛЕННОМ КОМПЛЕКСЕ

Аннотация. В статье обоснована необходимость перехода Казахстана к новым методам государственного стимулирования организационно-управленческих инноваций в агропромышленном комплексе. Доказано, что масштаб и сложность современного комплекса проблем казахстанского АПК не соответствуют способам их решения, предлагаемым в действующей Государственной программе развития агропромышленного комплекса РК на 2017-2021 гг. Обоснована роль специально разработанных информационных систем в формировании кластеров. Определены ключевые направления государственного стимулирования организационно-управленческих инноваций в казахстанском агропромышленном комплексе, которые заключаются в интеграции малого бизнеса в производственно-сбытовые цепочки предприятий перерабатывающих предприятий казахстанского АПК; и во внедрении специальных информационных систем, обеспечивающих единство формальных и неформальных правил ведения бизнеса, аналитическую поддержку принятия своевременных и адекватных управленческих решений.

Ключевые слова: агропромышленный комплекс, организационно-управленческие инновации, государственная политика, кластеры.

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STUDYING OF DEMOGRAPHIC HISTORY AND POLICY OF KAZAKHSTAN ON THE BASIS OF POPULATION CENSUS MATERIALS: PROBLEMS AND PROSPECTS

Abstract. The complex research of materials of population censuses of Kazakhstan during the Soviet and Post-Soviet periods of the 20-th century, with their features as the historical source on studying of history of the population, taking into account regional features in the conditions of informatization of the society were conducted. Features of formation and evolution of materials of population censuses as historical source on the basis of special classification of indicators in aspect of disclosure of demographic history were researched. By the historical and comparative analysis the comparability of indicators of the population censuses conducted during the Soviet and Post-Soviet periods in Kazakhstan, the providing possibility of studying of changes of the vector of demographic processes for the long period was defined. The main directions on extraction from sources materials of population censuses of potential information with application of an information and communication technology are offered. This article is devoted to the intraregional features of the demographic situation in Kazakhstan during the inter census periods.

Key words: population census, historical source, materials, population, demography, demographic history, demographic processes, demographic situation, population census indicators, intercensus periods.

At the present stage of the development of the society, ensuring demographic safety of the Republic of Kazakhstan, one of the main directions of state policy. With transition of the country to modern type of production demographic holes in gender and age structure of the population, which existence is caused by all large socio-political shocks of the 20-th century, which have led to decrease in demographic potential. The escalating mobility of the population has also significant effect on the current state of the demographic situation in the republic. Regional features of the natural, mechanical and social motion of the population are caused by also natural and geographical conditions, the directions of economy, the historical and cultural heritage developing for centuries. It should be noted that demographic history of Kazakhstan is considered by researchers through a prism of formation of multinational structure of the population in close interrelation with social and economic processes. Interest in problems of demographic development amplifies in the 1950-1960-th years of the XX century, according to historians, with aggravation of problems of manpower, officially treated by the researchers of the Soviet period in the context of formation of "the Soviet person.

In this context changes in social and economic, cultural life of the Kazakh people were considered. According to the developed conceptual approach, changes in social structure of the population, number of city dwellers, transition of nomads to settled life, strengthening of migrations, growth of multinational structure, were estimated from the positive point of view. N.E. Bekmakhanova draws a conclusion about weakness of studying of history of the population of Kazakhstan with insufficient sources [1].

In this regard the problem of the complex research of historical and demographic processes, taking into account regional features of the Republic of Kazakhstan wasn't solved by the modern science, at the same time this problem has not only scientific, but also, first of all, practical value for the development of population policy.

The analysis of this problem supposes to learn the history of the population census of Kazakhstan as one of important problems in studying the history of the population in 20-th century. Changes in

population, age structure, marriage and family structure, and also the demographic processes, reflected difficult and tragic events of the countries.

For this moment materials of population census of the 20-th century still didn't become an object of special source study research. Population census is uniform process of collecting, generalization, assessment, analysis and publication, distribution the demographic, ecological and social data to all persons in the country. Population census is one of the main and very important elements of the system of demographic information. It gives to the population a portrait of its advantage [2].

Transcription materials remain the single source of the level of areas and regions data not only on number, placement and composition of the population on a sex, age, marital status, nationality, education level are provided today, but also on the standard of living of the population, etc. Comparative data analysis of population censuses allows considering not only the level of development of the Kazakhstan's society during the Soviet and Post-Soviet periods, but also efficiency of the political system, public administration, results of the different reforms.

In XX-th century Kazakhstan carries out the complex source of informative reliability, different indicators of this type of statistical observation century. It is necessary to develop new information, technology, historical algorithms for extraction the potential scientific information on demographic, social, educational and professional structure of the population, fixed for the certain date, structurally functional, but also dynamic main subsystem of the Kazakhstan's society [3].

Census materials with data on distribution of the population across the territory, branches of the national economy, occupations, situation, unemployment, migration, etc. depend on the computer technologies; on the other hand, various thematic statistical sources in don't satisfy to the development of modern historical science, research tools and census materials. In this regard the most relevant, in our opinion, is consideration of informative opportunities of such type of sources as census materials as they are the most widely used when carrying out researches in the sphere of historical demography.

The ethnic majority of the country is the ethnic Kazakhs (63.1%), although there are a large number of other ethnicities present as well, such as ethnic Russians (23.7%), Uzbeks (2.9%), Ukrainians (2.1%), Uygurs (1.4%), Tatars (1.3%) and Germans (1.1%). Some minority groups in Kazakhstan, including Germans, Ukranians, Chechens, Koreans, and Meskhetian Turks were deported to Kazakhstan in the 1930-s and 1940-s by Stalin as Russian political opponents [4].

At the end of the 1980s, ethnic Russians were at almost 38% of the population while Kazakhs were in a majority in just 7 of the country's 20 regions. There were also 1 million Germans in Kazakhstan prior to 1991. After the Soviet Union dissolved, most emigrated to Germany. Emigration of Russians and Germans returned indigenous Kazakhs to a majority in the country.

During the post-war decades Kazakhstan experienced a period of considerable natural growth which is also known in demographic history as "baby-boom" effect. Usually, after the baby-boom period occurs the period of decline till the time when these baby-boomers reach the reproductive age, which also happened in Kazakhstan. Since the mid 1960-s a sharp decline of number of births took place till the beginning of 1970-s then followed the period of more or less stable and moderate increase from 1970 until the dismantling of the USSR and then during the post-soviet period the rate of natural growth declined spectacularly, however with the recovery of economy natural growth has resumed its prior Independence level.

In 2010 Kazakhstan was home to over 16.5 million people. This makes it one of the scarcely populated countries among the CIS states as well as in the world. The present size and characteristics of the country's population reflect many of the changes that have occurred in the population over the past century. The dissolution of the Soviet Union led to a dramatic decline in the economic output and living standards throughout the post-Soviet world, including Kazakhstan. The deep economic crisis of the early post-Soviet years was accompanied by no less dramatic drop in fertility and life expectancy at birth, increase of mortality and divorce rates. TFR during 1990-s fell well below replacement level, while decline of life expectancy was more than five years. The first decade of Independence was marked by profound changes in the society related to values, attitudes, behavioral standards and the system itself, which hit many people, especially men, very hard. In some ways this generation of people, who went through the transition period is unique, because not many people witness such abrupt almost in one-day turnover of system of values.

The Independence for the country meant, first of all, breaking down and losing all ties with former Soviet economic partners and secondly, transition from centrally-planned to the market economy. The consequences of such drastic changes and fluctuations for Kazakhstan were experienced as a massive out-migration of non-Kazakh ethnicities, represented mostly by well-educated and high-skilled population, especially from the North, East and Central regions.

During the second decade of Independence, the economic and political situation in the country gradually stabilized and growth resumed. Kazakhstan, richly endowed with oil, natural gas, and other mineral resources, has experienced vigorous economic growth and commensurate rise in incomes and since the 2000-s the country is enjoying fertility enhancement which is most probably related to the population momentum phenomenon and could be temporal in character though. Although the economic recovery was experienced by all regions, the difference in its strength is also present and underlines regional disparity.

Historical demography is the science, which investigates historical prerequisites, regularities and features of development of the population at different stages of the human civilization. Historical approach is important through the evolution of the most demographic knowledge. In demography there are general scientific methods of research are widely applied: the methods of scientific abstraction and ascension from abstract to concrete, comparisons, the analysis and synthesis, induction and deduction, extrapolation and modeling. Using methods of other sciences, demography alters them according to the features between them and methods actually demographic to carry out an accurate limit, studying of the issues of demographic history as an integral part of demographic technique.

More complete demographic picture of Kazakhstan gives the development of the total fertility rate. There are no easily accessible and reliable figures for the period prior to 1960-s. In 1960, at the peak of the post-war population boom Kazakhstan had very high TFR level of well over four children per woman at child-bearing ages. However, after the short period of apex followed a gradual but significant drop of fertility till the late 1970-s. The primary cause of the sustained fertility decline in the county could be attributed to declining family size preferences among ethnic Kazakh population.

At the same time demographic processes are analyzed in sets of people, who have at the same time entered any demographic state. It is necessary to make the characteristic of demographic processes, which give in to a research for this set of people. Basis of the research, presented in this article, are the works of domestic and foreign scientists in the field of the theory and history of historical demography, source study and methodology. In the course of the research the author used the general scientific and concrete historical methods, such as historical and comparative analysis, quantitative methods of research of statistical data, methods of demographic modeling, which are now widespread in the demographic processes. They describe change of the population in general or components of its growth. The method of modeling replaces the method of an experiment, which in demography isn't always possible. It is widely applied to studying of demographic processes in general and also communications with other social phenomena and processes.

Those who immigrate under the quota are promised to be provided with housing, a grant of roughly $120 per family, and assistance in acquiring a residence permit and Kazakh passport and other help. However, in reality the case is somewhat different, usually oralmans have great problems of getting residence permit and identification cards, with housing and finding employment, and etc. The main reasons of such state of matters are legislation related to repatriation and migration, attitude of local people, quality of oralmans themselves i.e. majority of them have no education, no qualification, and also they have language problems, social and climatic behavioral habit differences, and so on. As a result, many oralmans have adaptation difficulties to places of their assignment, allocation and prefer to move to regions with close to their accustomed conditions. Since almost 80% of repatriates came from Uzbekistan then major part of them usually concentrate in southern regions of Kazakhstan with already high population density such as South-Kazakhstan, Kyzylorda, Almaty oblasts, some also go to the west regions, predominantly Mangystau.

Immigration of ethnic Kazakhs influenced not only absolute numbers of Southern oblasts' populations, but also changed the age and sex structure of the latter's. Historically, the South Kazakhstan has been populated mainly by native population and Asian ethnicities with typically high fertility levels and higher share of male population most prone to migration and oralmans only further deepened this

regional specificity in spite of eliminating it as was hoped by the government. As a result, during the second decade of Independence the oil and gas mining oblasts as well as agricultural regions of the South experienced growth of population while industrial Centre, East and agro-industrial north still keep losing their population.

Application of special methods has allowed to open and analyze the population censuses as the registration operations performed by the state, on the one hand, in close connection with the historical situation, changes at various stages of the development of society. The methodological principles were the principles of objectivity, integrity and development. The objective criterion of studying of the past is put in historic facts and historical sources.

During the research the following methodological sources were used:

1) the published and archival materials of a population census;
2) acts and office work documentation of public institutions;
3) collections of documents;
4) periodicals;
5) electronic resources.

Actually, the analysis of methodological sources has shown that they reflect the information on regional features of dynamics of population, changes and allow to achieve research objective.

Need of research of materials of population censuses of the 20-th century as special type of the source, the comparative analysis of informative opportunity, application to modern technologies and demonstration of new opportunity, allows us to define research materials about the population census as the source of studying of demographic history of Kazakhstan.

During the second decade of Independence, the economic and political situation in the country gradually stabilized and growth resumed. Kazakhstan, richly endowed with oil, natural gas, and other mineral resources, has experienced vigorous economic growth and commensurate rise in incomes and since the 2000-s the country is enjoying fertility enhancement, which is most probably related to the population momentum phenomenon and could be temporal in character though. Although the economic recovery was experienced by all regions, the difference in its strength is also present and underlines regional disparity. Due to vastness of its territory the population in Kazakhstan is distributed rather unevenly with the highest density recorded in agricultural regions of the South and far North.

The country's large share of population is still represented by the rural residents and the standards of living between urban and rural settlements were quite sizable before Independence and the difference is not diminishing with the laps of time. Many attempts are being made and programs have been launched since Independence (Aul development program 2003-2005) to improve position of auls and although, the overall situation have taken a turn for the better, but a huge success in the field is still far from the country's reach. As a result, there is an intensive migration from rural areas to urban places. Moreover, the process of urbanization in the country has a diverse from normal character, i.e. it is chaotic and uncontrolled and fueled mainly by unemployment, poor socio-economic situations, but not by the modernization, new job opportunities etc. [5]. Researchers began to reinterpret problems of demography of Kazakhstan, and many of them were considered for the first time. One of problems which couldn't be objectively reflected within the concepts of the Soviet history is the problem of migration of Kazakhs out of the borders of the Homeland, as a result of establishment of the Soviet power [6].

The famous historian G.M. Mendikulova notes that "generally Kazakhs ran on the East - to China, on the South - to Uzbekistan and further - Afghanistan and Iran. Kazakhs small groups began to cross the border with China" [7]. This process, according to G.M. Mendikulova, was followed in Kazakhstan by huge human losses and also leaving of the population (in 1 million 30 thousand) to Russia, Uzbekistan, Turkmenistan, Karakalpakstan, China, Iran, Afghanistan, "from them 616 thousand moved away irrevocably, including about 200 thousands Kazakhs have gone to China, Mongolia, Afghanistan, Iran, and 414 thousands, have returned to Kazakhstan subsequently" [8, P.17].

The Doctor of political science K.L. Syroyezhkin comes to the similar conclusions, focusing attention that "if in Kazakhstan the Kazakh ethnos, owing to its ethnic features and traditional way of life, has appeared under the strongest Russian cultural influence, then in China - under Chinese" [9].

There are slightly more females than males living in Kazakhstan. In 2009 there were 8.4 million females and 7.8 million males, or 930 males for every 1000 females. According to the population pyramid

of the country we can see that this pattern varies significantly by age. Normally more boys are born than girls, for example in 2009 there were 106 boys born for each 100 girls in Kazakhstan. As a result, boys outnumber girls throughout childhood and the teenage years. The number of males relative to females starts to decrease from around age 21 onwards due to differences in mortality rates and migration patterns. At all ages above 25, women outnumbered men in 2009. At older ages, sex differentials in mortality lead to an increasingly female population.

Modern researchers set the tasks of identification of regularities of migrations of representatives of one of the people, the complex analysis of structure and nature of migrations to the city or the country. For the solution of this task in the course of the census the collecting statistical information on the population of the country, organized on uniform statistical methodology in all territory of the state is carried out. A main goal of population census obtains the generalized economic, demographic and social data, concerning all persons, leaving in the country.

During the second decade of Independence the economic situation in the country started to improve positively affecting fertility i.e. people began to feel financially safer with development of economy and many couples, decided to have postponed in 1990-s children, which explains widening bottom of the pyramid. However, it is very much uncertain, how long will last this “positive” fertility trend in the country, since there is a clear upward trend in median age of population, which rose during the last 40 years for four years from 27,7 in 1979 to 31,7 in 2009 and that could be understood as a first sign of ageing population. The increase was more for men than for women, but women have higher median age and the difference between median ages of female urban and rural dwellers is also higher compared to male population.

Kazakhstan is one of the most interesting and specific countries of Asia. So, for example, the possession of many children of families is characteristic of the people of this country, which reflects the demographic situation in the region [10].

The indent in Kazakhstan’s pyramid at around age 60 represents those born during the first half of the Second World War when fewer births took place than usual. In contrast, the spike in the pyramid at ages 45 to 55 reflects the large number of births occurring in the late 1950-s, often referred to as the first baby boom. Smaller number between ages 30-40 relates to decreased fertility of 1970-s. The large bulge in population for those in their early 20s and at around 25 is a result of the high number of births that occurred during the 1950s and 1960s. Similarly, the smaller bulge around ages 5 to 10 represents the children of the small number of women born in the 1970-s.

Demographic processes in Central Asia in 70-80 years have deep historical roots. Prerequisites for many tendencies characteristic during the last period of the show, that five Central Asian republics were administered by the Soviet government. After the War and renewal of the destroyed military economy, since 50-th years the policy directed to involve the population for a plowed land of undigested Kazakh steppes.

In the municipal cities Astana and Almaty the age and sex distribution of population reminds the classical migration age schedule with high proportion of working people between ages 25-35 and their children at very young ages and low proportion of elderly and school age children. Indeed, these two cities are country’s major migrant recipients apart from oil and gas mining regions. Although, southern regions and the two cities seem to have relatively young population structure, however with northern regions’ population constituting almost 40% of the country’s total number of people and with constantly rising share of advanced aged population may have impact on overall situation in the country and Kazakhstan is already well on the way of facing population ageing problems. substantial increase of the Russian-speaking population. In the 60-th years, in connection with the efficient unoccupied population, the numerous enterprises of the light and food industry were created [11].

For years of sovereign development Kazakhstan has strengthened statehood, has lifted economy to qualitatively new level, has put a successful way of modernization of society, providing progress forward. Against the background of the difficult processes taking place in life of Kazakhstan citizens positive shifts appear more and more accurately, negative tendencies in the demographic sphere are gradually overcome. All this allows to claim that there are possibilities of further improvement of a demographic situation in Kazakhstan. It is necessary to define only precisely priorities and to move in those directions which will provide mitigation of present demographic problems [12].

Such diverse age and sex structure of regional population is also might be related to ethnic composition of the population. Since gaining Independence in 1991 the ethnic portrait of the country gradually changed for the benefit of natives i.e. the share of Kazakhs in total population reached 63% in 2010 which owes on the one hand to the massive emigration of non-Kazakhs during 1990's and on the other - to the repatriation programs. Besides, the Asian population residing mainly in western oblasts and in the agrarian south tends to have higher birth rates compared to non-Kazakh population of western, central, eastern and northern regions. There have been taken some measures since the collapse of the Soviet Union (such as relocation of the capital city) to somehow regulate irregular distribution of ethnicities throughout the country, however southern oblasts are still mainly represented by Asian ethnicities such as Kazakhs, Uzbeks, Uigurs etc. while in northern ones their share is often less than half [13].

With what many countries of the world managed to cope completely or at least partially belong to other group of the Kazakhstan problems. Kazakhstan, for example, as well as other former republics of the USSR, is allocated with high mortality from removable causes of death, still considerable infectious incidence, insufficient security of the reproductive rights of the woman and family, low level of reproductive health, backwardness of family planning methods, huge number of abortions, high maternal mortality and so forth. Experience of other countries indicates that with political will and appropriate resources, problems such in principle are solvable already today, they can be quite solved also in Kazakhstan. On the decision concrete, in principle tractable problems priority strategic efforts of society and state also have to be focused [14]. The data on population and its demographic, ecological and social characteristics obtained to implementation of administrative, production, commercial and economic activity.

In the Republic of Kazakhstan was created the Model, which describes desirable condition of the problem of studying of demographic history of Kazakhstan on the basis of population census. Model named "A population census as the source of studying of demographic history of Kazakhstan".

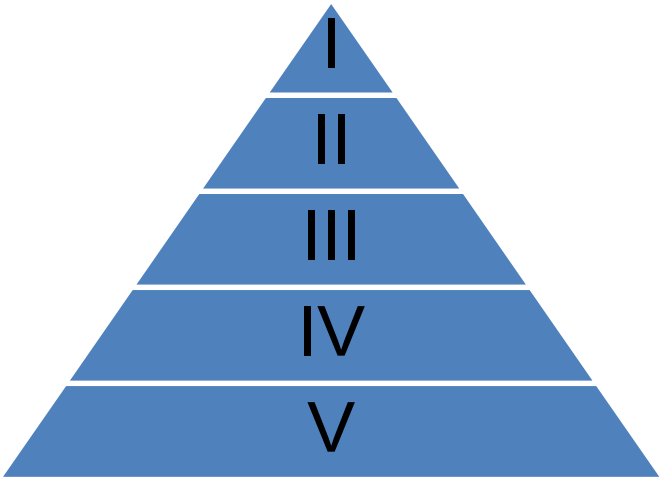

Figure 1 - Model. Population census as source of studying of demographic history of Kazakhstan.

Explanation to the figure 1. Model. Population census as source of studying of demographic history of Kazakhstan:

I-Results of population census of Kazakhstan.

II-Basic principles of carrying out population census of Kazakhstan.

III-Methods of carrying out population census of Kazakhstan.

IV-Historical and Demographic justification of population census of Kazakhstan.

V-Program of population census of Kazakhstan.

Basic principles of carrying out population census of Kazakhstan:

1. Contemporaneity.
2. Uniform program of census.
3. Universal.

4. Self-determination.
5. Confidentiality.
6. Strict centralization of management of census.
7. Regularity of carrying out census.

Methods of carrying out population census of Kazakhstan:

1. poll- this method was conducted in the former USSR;
2. self-notation - this method was applied in some European countries;
3. the mixed (biographical) method (it is actively applied abroad, including the USA) .

The population census of the Republic of Kazakhstan has recorded negative demographic results. Sharp reduction of reproduction, huge migration outflow have led to considerable reduction of population. Ensuring demographic safety requires identification of historical roots of today's problems in demographic process, taking into account the regional features. In the conclusion we would like to note that the most general comparative characteristic of key indicators of demographic structure of the population shows the Kazakhstan's historiography, particularly, historical demography.

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ХАЛЫҚ САНАҒЫ МАТЕРИАЛДАРЫ НЕГІЗІНДЕ ҚАЗАҚСТАННЫҢ ДЕМОГРАФИЯЛЫҚ ТАРИХЫ МЕН САЯСАТЫН ЗЕРТТЕУ: ПРОБЛЕМАЛАРЫ МЕН КЕЛЕШЕГІ

Аннотация. XX ғасырдың кеңестік және посткеңестік кезеңдеріндегі Қазақстанның халық санағының материалдарын жан-жақты зерделеу жүргізілді, онда қоғамның ақпараттандыру жағдайындағы аймақтық ерекшеліктерді ескере отырып, халық тарихын зерттеудің тарихи дереккөзі ретінде олардың ерекшеліктері ашылған. Халық санағының материалдарын тарихи дереккөз ретінде қалыптастырудың және эволюциясының ерекшеліктері, оның негізінде демографиялық тарихты ашып көрсету аспектілері бойынша көрсеткіштердің жіктелуі бірінші рет берілген. Демографиялық процестердің векторларындағы өзгерістерді ұзақ уақыт бойы зерттеуге мүмкіндік беретін тарихи-салыстырмалы талдау арқылы Қазақстанда алғаш рет кеңестік және посткеңестік кезеңдерде жүргізілген халық санағының көрсеткіштері салыстырмалы түрде анықталды.

Ақпараттық-коммуникативті технологияларды пайдаланатын санақ материалдарының көздерінен әлеуетті ақпаратты алудың негізгі бағыттары ұсынылды. Қазақстандағы санақ аралық кезеңдерде демографиялық ахуалдың ішкі аймақаралық ерекшеліктерін зерттеу өзектіленген.

Түйін сөздер: халық санағы, материалдар, халық саны, демография, демографиялық тарих, демографиялық процестер, демографиялық жағдай, халық санағы көрсеткіштері, санақ аралық кезеңдер, тарихи дереккөздер.

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ИЗУЧЕНИЕ ДЕМОГРАФИЧЕСКОЙ ИСТОРИИ И ПОЛИТИКИ КАЗАХСТАНА НА ОСНОВЕ МАТЕРИАЛОВ ПЕРЕПИСИ НАСЕЛЕНИЯ: ПРОБЛЕМЫ И ПЕРСПЕКТИВЫ

Аннотация. Проведено комплексное исследование материалов переписей населения Казахстана в советский и постсоветский периоды XX в., где раскрываются их особенности как исторического источника по изучению истории населения с учетом региональных особенностей в условиях информатизации общества. Освещены особенности формирования и эволюции материалов переписей населения как исторического источника, на основе которых впервые дана классификация показателей в аспекте раскрытия демографической истории. Путем историко-сравнительного анализа впервые определена сопоставимость показателей переписей населения, осуществленных в советский и постсоветский периоды в Казахстане, обеспечивающая возможность изучения изменений вектора демографических процессов на длительный период. Предложены основные направления по извлечению из источников материалов переписей населения потенциальной информации с применением информационно-коммуникационной технологии. Актуализировано исследование внутрирегиональных особенностей демографической ситуации в Казахстане в межпереписные периоды.

Ключевые слова: перепись населения, материалы, численность населения, демография, демографическая история, демографические процессы, демографическая ситуация, показатели переписи населения, межпереписные периоды, исторический источник.

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TWENTY-SEVENYEARSEXPERIENCEOFTHEFORMATION OF LAW-ABIDING STATE IN THE REPUBLC OF KAZAKHSTAN

Abstract. The modern constitutional state is democratic state, where the rights and freedoms of the person are provided, andthe peoplehave the chance to participate in public life.According to Art. 1 of the Constitution of the Republic of Kazakhstan: “The Republic of Kazakhstan approves by itself the democratic, secular, constitutional and social state, in which supreme values are the person, his life, the rights and freedoms”. Our President in the course creation of the constitutional state adhered the principles: people’s sovereignty, rule of the Constitution, equality of all under the law, equality of the state and personal interests, firmness of the rights and freedoms of the person and citizen. Formation of the constitutional state is the long process, depends on the number of factors: level of social, economic and cultural development of the society; formation of the general systems of law; perfection of the law, regulating public life, etc. But, unfortunately, we have to overcome all these difficulties. In the republic the structures of the power are essentially differ from the past. So, the President has beenelected by public elections in the democratic way, all executive power, etc. was reorganized. At the end of 20-th century and the beginning of 21-st century the Republic of Kazakhstan has actively came to the new sides of cooperation with the CIS countriesand world community, based on the principle of state sovereignty.

Keywords:constitutional state, civil society, national identity, Kazakhstan statehood, social justice, welfare of the people, stable state, socially oriented policy, legal system, legal culture.

The legal transformations in the field of economic relations are the heart of the reforms of the legal system. In the difference from the transformations in the political system, they began in our country earlier, during USSR, in the middle of 80-th as the efforts of modernization the juridical mechanisms of the administration of the economic relations. For instance, cooperative movement, the relations of real economic calculation, self-financing, self-government, rent, others. The mistakes and failures have been explained, from our mind, by the weak legal basis, the legal powerless.The foundation of such system in the economic sphere is the Civil Code, which was adopted in the Republic of Kazakhstan in July, 1999, in spite of its elaboration in 1991. The Common Part acts since March, 1995. The Special Part means that the Civil Code works in the whole system. This is the main economic law of the country named “economic constitution”, “the constitution of the market economy”. The breach about 4-years between the introduction into the action the Common and Special Parts of the Civil Code cannot promote to the forming of qualitative legal system in the economy. In general, it will be ideal, when all property and personal relations regulated by the norms of the Civil Code. But it is impossible. There are many acts, substitute the norms of the main economic law, contradicted to it, violated legal requirements.

The next laws were adopted: 1. The Law “About the property”; 2. The Law “About the state support of small business”; 3. The Law “About the protection of environmental”; 4. The Law “About the land”; 5. Ecological Code.

All this laws have their own place and carry out definite role in the legal system. The special meaning has the legislation on bankruptcy and Civil Procedure Code.

The state authority in the Republic of Kazakhstan is divided into legislative, executive and judicial branches, which cooperate among themselves with a system of costs and counterbalances. The new Parliament has two chambers, consisting of the Mazhilis and the Senate. Executive authority is carried out by a system of executive agencies The head of the state establishes internal and external policy. Government implements these policy directives. Judicial authority is subordinated to the Constitution and

the law. The Constitutional Council is allocated from the general judicial system, the circle of powers of prosecutor's office, courts and others vary. When the supreme arbitrator in the state is the President, The Constitutional Council serves as an optimizing body on maintenance of the constitutional legality.

The transformation and modernization of Kazakhstan's society, occurring before our eyes, is not a single action, but rather a long process of changes, unfolding and yielding a clearer vision of the modern, independent Republic of Kazakhstan.

One of the main principles of law-biding state is the principle of the supremacy of law. This principle of law-abiding state found its legal reflection in the Constitution of the Republic of Kazakhstan, in the article 4, where have been written: "The provisions of the Constitution, the laws corresponding to it, other regulatory legal acts, international treaty and other commitments of the Republic as well as regulatory relations of Constitutional Council and the Supreme Court of the Republic shall be functioning law in the Republic of Kazakhstan. The Constitution shall have the highest judicial force and direct effect on the entire territory of the Republic. International treaties ratified by the Republic shall have priority over its laws and be directly implemented except in cases when the application of an international treaties shall require the promulgation of a law. All laws, international treaties of which the Republic is a party shall be published. Official publication of regulatory legal acts dealing with the rights, freedoms and responsibilities of citizens shall be a necessary condition for their application". This significant constitutional assignment of the principle of supremacy of law, to our mind, divided into two judicial demands: firstly, it is necessary to supply of the supremacy of the Constitution by itself, and secondly, the supremacy of the laws, which are not contradict the constitution. These two judicial requirements are the structural maintenance of the principle, which we are talkingabout. Let say, that this principle, first of all, has been addressed to the state and its organs, officials and their associations.

The supremacy of law- is the important category of the democratic law-abiding state. As the famous Russian scholar, professor M.N. Marchenko writes: "In accordance with this principle neither state organ, no official, organization don't release from the duty to submit to the law. When we talk about the supremacy, we mean it not in the wide meaning, but in it's strictly sense. So it is the act, emanates from the supreme judicial force" [1, P.363].

The forming and existence of the law-abiding state in any country supposes the establishment the real supremacy of law at all spheres of the life of the society, widening of the sphere of its direct influence on the public relations. Observance of the legality is not only the formal declaration, but the necessary demand, which is essential to observe. The observation of the legality determines the character of the state as the law-abiding democratic state.

Doctor of history, professor Martha Brill Olcott stressed, that "since independence, President Nazarbaev has tried to use international support to bolster an often floundering national economy. To do this he has traveled widely in an effort to secure a place for Kazakhstan as a bridge between East and West, between Europe and Asia" [2, P.222].

As the well-known jurist, professor V.D. Zorkin accounts, "the important principle of the supremacy of law, or law-abiding state, is the basis of new universal constitutional order of new democracies. Disorder and social chaos are its alternative"[3, P.12]. We are almost agreed with the scholar. Besides, its fixed in some international legal acts. For instance, Copenhagen Meeting on the security and cooperation in Europe (MSCE) in the Conclusion document fixed, that 35 states-the members of MSCE, are state about their desire to support the principles of justice, which educate the basis of the supremacy of the law.

The supremacy of law as the principle of law-abiding state means the priority not any law, but the law, which complies with the law demands. As the academician V.S. Nersesyants noted: "The law, in accordance with the constitutional concept of law-understanding, is not only the positive law, but the natural law, first of all, the integral main rights and freedoms of the citizens.Exactly, conformity or unconformity defines the legal or illegal character of all normative acts of the state, all the norms of acting legislation" [4, P.58].

Nowadays, all acting legislation in the law-abiding state must be legal and conform to the objective qualities of law. We mean not only the formal equality of law and its understanding as the general and necessary form of the liberty in the social relations of the people, but the law as the universal justice. It is very important to add the new definition- the powerful obligatory of the law (positive law) in the definite time and in fixed social space.

But we almost need to stress, that the law (which establishes as the justice) might be to correspond or to contradict to the right, or be the form of official powerful recognition and defense of the law and illegal requirements, allowance and prohibitions. Only as the form of the law's expression the right can be legal phenomenon. Owing to such a law the principle of law-abiding state receives the powerful state acknowledgement and defense, obtains the legal force. That way the law becomes the legal act. The legal act is the right with its necessary properties, which has an official recognition, concretization and defense, so-called legal power [5, P.64].

The real process of positive of law, its transformation into the right, the necessity of accounting of objective and subjective properties and demands of law, depends on from many different factors-objective and subjective (social, economic, political, cultural, legislative). From the position of liberal law-thinking, the legislation in socialism era is not the legal legislation. That's why well-known socialism law has not minimum necessary qualities of law, presents in the legal principle of the formal equality and freedom of the individuals [6, P.59].

So we see that in the law-abiding state there are no contradiction between the law and right. Moreover, the law is the logical result of the realization if law. Between the law and right it is very easy to find some harmony; the law has continuous connection with the right. When we are talking about the supremacy of law as the principle of law-abiding state we mean the supremacy of legal law. From the opposite side the laws, which are not correlated to the natural rights and freedoms of the people and contradicted to the principle of the legal act must be cancel immediately. We support the opinion of professor J.A. Tikhomirov, when he wrotes: "To my mind, the supremacy of law means, first of all, recognition of the highest role of right in the civil society. The society and the citizens conceive the law if it's expresses the social interests and will if people, if it was adopted by the supreme organ of power by democratic way, in case if the law becomes the act, which is regulated the main spheres of public life and coordinated conflict problems" [7, P.16]. Everyone knows, that only law calls to regulate the status, rights, freedoms and obligations of the citizens. By the other hand, the citizens must to know and respect the law as the basis of their existence in the society. Being the special product of the public development of the legislative organs, the law, let say, raises above the powers, demands commensurable all activities with it. The state organs, officials take an obligation to observe the law. Also the law commands by the supreme judicial power, which means it's dominate position in the legal system. All normative acts assumed in accordance with the law and correlated with it. The supremacy of law has been recognized by the international community as the important feature of law-abiding state. The international legal acts are confirming and defense this principle as the basis for the cooperation of the states. In Paris Charter for the new Europe the section "Rights of the human, democracy and supremacy of law" has been separated, in which the states-participants are engaged to strengthen the democracy with the help of the supremacy of law as the guarantee of the rights and freedoms of the people, justice. All this demands the elaboration of mechanism of the acting of the norms of international and national law; their inclusion in the national legislation.

The principle of supremacy of law is as the significant component of the construction of law-abiding state must be fixed in the legislation. As we wrote before, in the Constitution of the Republic of Kazakhstan (article 4) this principle received its constitutional strengthening. The supremacy of the constitution characterized not only the situation in the hierarchy of the normative legal acts. Being the supreme law and main legal bases for the development all the branches of the legislation; the constitution regulates and elaborates the process of the creation legal norms and acts, which are supplied the realization of political, cultural and socio-economic transformation in the society. The evolutional development of the constitution by itself determines the reforming of the state and social viability as the complete process. The renewing of the modern civil, civil procedure, labor, and criminal, criminal procedure legislation must correlate to the main principles and positions of the constitution. The Constitution is the kernel of the legal system. The supremacy of law is the important part of the constitution. The Supreme Law has to prepare the ideological and normative legal soil to the development of human-being and limit the state arbitrariness. The Supreme Law ought to absorb all positive beginnings and to become the normative expression of progressive humanitarian and ethics mind. That's why the constitution is not only the Supreme Law of the state, adopted in accordance with the necessary procedure, but the law, which supplies the supremacy of law in the state, i.e. arranges and guarantees the freedom

framework and formal equality of the participants of the social community. Of course, when we are talking about the principle of the supremacy of law, we mean the principle of the supremacy of the highest law. It's supposed the functioning of the special justice organ in the state, which has an obligation to supply the supremacy of law in the legal system of the country over the whole territory and realize the characteristic of the Republic of Kazakhstan as the democratic law-abiding state. By the way, it is the competence of the state authorities: Government, Parliament. Besides, the special organ- the Constitutional Council- takes part in the system of state organs. It's legal status has fixed in the section 6, articles 71-74 of the Constitution. "The Constitutional Council of the Republic of Kazakhstan shall consist of seven members whose powers shall last for six years. The ex-Presidents of the Republic shall have the right to be life-long members of the Constitutional Council. The Chairperson of the Constitutional Council shall be appointed by the President of the Republic, and in case the votes are equally divided, his vote shall be decisive. Two members of the Constitutional Council shall be appointed by the President of the Republic, two- by the Chairperson of Senate, and two- by the Chairperson of the Majilis. Half of the members of the Constitutional Council shall be renewed every three years" [8].

The real maintenance of the supremacy of law can be established, when the by itself has high quality and the mechanisms of the realization of law are well done. The famous soviet scholar P.I. Stuchka wrote: "The first condition of the legality is the law by itself"[9, P.4].We need to add, that many things are depends on the legislator, his intellectual and professional level, carefully researching of the problems. The legal norms must be exactly, clear exposed. Any norm might to act effectively and be used widely in the concrete legal relations in the condition, if it's has the enlistment of real legal meanings. In that case the norm becomes attractive among the interesting persons and easily the supplement of observance and execution of such norm. During the procedure of acceptance of laws, the most accents must make to the quality, but not the quantity of laws. The laws have to be effective, quality, easy to understand and to reflect the interests of the people of Kazakhstan.

Twenty-three years ago, in 1995, we were the members of the group of the scholars- teachers from the different universities of the Republic of Kazakhstan. There were 15 young lawyers and it was the great honor to work at President's Council, which was situated in Almaty. Now it is located in our new capital, Astana and calls the Administration of the President. So we received a lot of letters from our citizens: students, workers, farmers, pensioners, businessmen, etc, which were very interested about the new Supreme Law of the country. They made lots of suggestions, ideas about the contents of the constitution. Also we published several articles in the famous newspaper "Kazakhstanskaya Pravda" about the new Parliament, the new Constitution. Now we are going to celebrate the 15-th anniversary of our constitution in Astana. Two times the amendments were carried out in the constitution- 7 October, 1998 and 21 May, 2007. They concern the power of the President, Parliament, Government, Constitutional Court, Supreme Court, General Prosecutor, Committee of the State security, Ministry of external affairs, term of power of the head of the state: in last it was 7 years, now it's consists from 5 years, but no more, than two times one after another.

Professor A.R. Nematov notes: "In the conditions of intensive regulation and law-making the questions about the quality and effectiveness of laws and supplement of their supremacy become especially actual. From the one side, the adoption in short term the huge number of laws such as codes, charters and regulations is the evidence of the codification as the form of law-making, connected with the quality of normative acts and effectiveness of the legislation is very important and significant" [10, P.7].Indeed, we would like to stress the common benefit and definite progress from the quality laws. Otherwise, the laws will become the sources of unstable in the society.

After achieving independence, Kazakhstan faced problems regarding the formation, strengthening, and perfection of its statehood. The disintegration of the Soviet Union, in contrast to other regions of the planet, has resulted not necessarily in the formation of essentially new states, but in the revival of lost statehood from former times for lands with deep historical roots.

A sovereign republic must decide many urgent and vital problems such as: 1) transition from one economic system to another; 2) developments in the process of democratization; 3) preservation and strengthening of social and interethnic stability; 4) determination of foreign policy; 5) preservation of territorial integrity; 6) problems of conformity in legislation to accepted models of development, and 7) development of integrated processes in the context of international cooperative frameworks, such as Commonwealth of Independent States (CIS).

Quite important role in the context of the realization of the supremacy of law plays the effective within department's control of state organs in order to suppress any violations of laws.

The other subjects of the state and state organs, to whom the principle of the supremacy of law has been addressed, according to the constitution and international standards, are the citizens and their associations. Many things are depending on the condition of the observance of law at the highest echelons of state power, i.e. we mean the original effect: when the condition of the maintenance of legality by the officials influences on the perception of law by the citizens and it's maintenance by them. The sense of respect to law must be educated throw the system of legal education and active teaching to the legal disciplines at the universities. In this context the most attention is very necessary to turn on the quality of teaching of law at the universities. We need to take into account that the majority of the population live in the rural places. That's why it seems very effective to form the special group from the famous scholars-lawyers in order to liquidate the legal illiteracy of rural population.

In the conclusion we should write the necessary suggestions in order of the realization the supremacy of law:

1. to consolidate the Kazakh political system;
2. to create the necessary conditions for the economic development of the state, to prevent the excessive property stratification of the population;
3. to improve the mechanisms of defense of rights and freedoms of the citizens;
4. to reinforce the responsibility of the officials for the violation of law;
5. to activate the legal education among the citizens with the aim to form the high level of the legal consciousness and legal culture.

In the real practice the maintenance of the supremacy of law demands the huge efforts and complex of activities: material, judicial, administrative, psychological, etc. So it is very clear, that the supremacy of law not only the recognition of such position, but must be realized on the stage of law-understanding.

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ҚАЗАҚСТАН РЕСПУБЛИКАСЫНДАҒЫ ҚҰҚЫҚТЫҚ МЕМЛЕКЕТ ҚАЛЫПТАСУЫНЫҢ ЖИЫРМА ЖЕТІ ЖЫЛДЫҚ ТӘЖІРИБЕСІ

Аннотация. Қазіргі заманғы құқықтық мемлекет – адам құқықтары мен бостандықтары қамтамасыз етілетін, ал халыққа билікті жүзеге асыруға қатысу мүмкіндігі берілетін демократиялық мемлекет. 1 Қазақстан Республикасы Конституциясының 1 бабына сәйкес: «Қазақстан Республикасы өзін демократиялық, зайырлы, құқықтық және әлеуметтік мемлекет ретінде орнықтырады, оның ең қымбат қазынасы - адам және адамның өмірі, құқықтары мен бостандықтары». Біздің Президент құқықтық мемлекет қалыптастыру барысында принциптерді ұстанды: халықтық егемендік, Конституция үстемдігі, заң алдындағы теңдік, мемлекеттік жеке мүдделер теңдігі, адам мен азаматтың құқықтары мен бостандықтарына қол сұғылмау. Құқықтық мемлекет қалыптастыру - бұл бірқатар факторларға тәуелді ұзақ процесс: қоғамның әлеуметтік-экономикалық және мәдени даму деңгейі; бірыңғай құқықтық жүйені қалыптастыру; қоғамдық өмірді реттейтін заңның жетілдірілуі және т.б. Алайда, бұған қарамастан, біз барлық қиындықтарды еңсердік

және бүгінгі күні біз бүкіл әлемде танымалбыз. Республикада бұрынғыдан мүлде басқаша биліктің құрылымдары құрылды. Сонымен, Президент қайтадан демократиялық жолмен қайта сайланды, барлық атқарушы билік қайта құрылды және т.б. Сондықтан, XX және XXI ғасырлар тоғысында Қазақстан толық мемлекеттік егемендік қағидаты негізінде ТМД және әлемдік қауымдастықпен ынтымақтастықтың жаңа қырларын белсенді түрде қолға алды деген қорытынды шығады.

Түйін сөздер: құқықтық мемлекет, азаматтық қоғам, ұлттық бірегейлік, қазақстандық мемлекеттілік, әлеуметтік әділеттілік, халықтың әл-ауқаты, тұрақты мемлекет, әлеуметтік-бағдарланған саясат, құқықтық жүйе, құқықтық мәдениет.

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ДВАДЦАТИСЕМИЛЕТНИЙ ОПЫТ СТАНОВЛЕНИЯ ПРАВОВОГО ГОСУДАРСТВА В РЕСПУБЛИКЕ КАЗАХСТАН

Аннотация. Современное правовое государство – это демократическое государство, в котором обеспечиваются права и свободы человека, и дается возможность народу участвовать осуществлению власти. Согласно ст. 1 Конституции Республики Казахстан: «Республика Казахстан утверждает себя демократическим, светским, правовым и социальным государством, высшими ценностями которого являются человек, его жизнь, права и свободы». Наш Президент в ходе создании правового государства придерживался принципами: народный суверенитет, верховенство Конституции, равенство всех перед законом, равенство государственных и личных интересов, незыблемость прав и свобод человека и гражданина. Становление правового государства – длительный процесс, зависящий от целого ряда факторов: уровень социально-экономического и культурного развития общества; формирование общий системы права; совершенство самого права, регулирующего общественную жизнь и т.д. Но, несмотря на это, мы преодолели все эти трудности, и на сегодняшний день мы известны во всем мире. В республике были созданы структуры власти, принципиально отличающиеся от прежних. Так, Президент был вторично, всенародно избран демократическим путем, реорганизована вся исполнительная власть и т.д. Поэтому вытекает вывод, что на рубеже XX и XXI веков Казахстан, активно вышел на новые грани сотрудничества как с СНГ, так и с мировым сообществом, основанные на принципе полного государственного суверенитета.

Ключевые слова:правовое государство, гражданское общество, национальная идентичность, казахстанская государственность, социальная справедливость, благосостояние народа, стабильное государство, социально-ориентированная политика, правовая система, правовая культура.

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KAZAKHSTAN IN THE CONTEXT OF THE GLOBAL INDEX OF INNOVATIVE ACTIVITY

Abstract. The article analyzes the position of the Republic of Kazakhstan in the Global Innovation Activity Rating of Countries, compiled by the World Intellectual Property Organization (WIPO), Cornell University and the INSEAD Research Institute. The rating of countries on the index of innovative development of the most close to the economy of the Republic of Kazakhstan and advanced economies such as: Australia, Belarus, Brazil, Britain, Germany, India, Canada, China, Kyrgyzstan, Mongolia, Russia, Singapore, Turkey, Ukraine, Switzerland, South Korea, Japan. In addition, an analysis of the innovation system of Kazakhstan was done and the main problems that hampered the development of the innovative economy were identified.

Keywords: Innovation, a global index of innovation, scientific and technological progress, the level of innovative development, public-private partnership.

Introduction. For several centuries, the most important factor of economic development is scientific and technological progress, which is directly related to the innovation process, the basis of which it is.

The uniqueness of the innovation process is that it brings together science, technology, economics, entrepreneurship, management, and extends from the birth of a scientific idea to its commercialization, cover the entire range of relations: production, exchange, consumption obtained by this innovation process.

To assess the level of innovative development of the country by international organizations, generalizing indices are developed that take into account, as a rule, three components: innovation potential, innovation activity and innovative results. For example, the «Global Competitiveness Index» published in the reports of the World Economic Forum (Davos), considers the factors of innovation and improvement as an independent third section of the indicators forming the overall rating of competitiveness and the Global Innovation Index which represents the most comprehensive set of indicators of innovative development in various countries of the world. This rating is calculated from 2007 according to the methodology of the international business school INSEAD (France).

Theoretical and applied aspects of innovation activity are widely studied in the works of such Russian economists: Fatkhudinov R., Trifilova A., Kuznetsova N., Balashova S., Shurina S., Trilitskaya O., Capreeva E. and others [2-6].

Among the scientists of Kazakhstan, it is possible to note the following economists who raised the main issues of innovation activity development in organizational and economic aspects both at macro and micro levels: Abdygapparova S., Alshanov R., Mukhtarova K., Kupeshova S., Turginbayeva A., Kazhymurat K., Kenzheguzin M., Myltykbayeva A. and others.

Particularly it is possible to note article PhD of Myltykbayeva A.T. "Measuring the national development of the Republic of Kazakhstan in the context of a global index of innovation development" analyzes the parameters of the Global Competitiveness Index (GCI) measurement system, which together provide the development efficiency and competitiveness of the country, and depending on the degree of influence and importance in each of the 12 components of the index global competitiveness, they are grouped by subindex and stages of economic development. The weight shares of each subindex at a

certain stage of development are indicated. According to the World Development Classifier, the place of Kazakhstan is shown [7].

Despite wide research of the sphere of innovations, it is very rare to find works on the competitiveness of the Republic of Kazakhstan on the index of innovation activity.

Methods of research.

By definition, this international business school INSEAD "Global Innovation Index" is a global study and its accompanying rating of the countries of the world in terms of the level of innovation development. According to this methodology, the index is calculated as a weighted sum of estimates of two groups of indicators, which are presented in Table 1.

Table 1 - Indicator groups used in the calculation of the global innovation index

Available resources and conditions for innovation (Innovation Input)	Achieved practical results of innovation (Innovation Output)
Institutes; Human capital and research; Infrastructure; Development of the internal market; Business development.	Development of technology and knowledge economy; Results of creative activity. Creativity on-line
Source: compiled by the authors according to The Global Innovation Index, 2017 International Business School INSEAD [1]	

Thus, from Table 1, we can conclude that the final index is a cost-effectiveness ratio, which makes it possible to objectively evaluate the effectiveness of efforts to develop innovations in a particular country. The entry subindex reflects the conditions and factors necessary for creating innovations and includes the following groups of indicators: 1. Institutions; 2. Human capital and research; 3. Infrastructure; 4. Market stability; 5. Sustainability of business. The subindex effect summarizes the results of innovation activities and includes the following groups: 6. Scientific results; 7. Creative results and in the methodology of the report for 2012 added a new indicator - creativity on-line. Of the 84 indicators included in the Global Innovation Index (GII) 57 are input indicators that characterize the country's innovation potential and 27 are impact indicators that describe the effectiveness of using this potential.

Calculation of the final index, as a rule, is based on the principle of the average value of the parameters used, but with some with a preliminary normalization. Statistical values for each of the parameters are normalized according to the principle [8]:

$$X_{norm} = \frac{x-min}{max-min},$$

here, *min* - the minimum value of the indicator; *max* is the maximum value for the sample.

After that, the average value for each of the parameters and the final index are calculated. Thus, the way to measure innovative development differs among organizations in the set of incoming parameters, their number depending on their characteristics, goals and objectives, but on the whole are similar in principle to mathematical calculation. Expertise methods, correlation-regression analysis, factor analysis, the method of principal components, fuzzy sets, index analysis (O. Obraztsova [9], Bagrinovsky K.A. [10], Bandman M.K. [11], Varshavsky A.E. [12], Korotkov A.V. [13], Leontiev V. [14], Tatarkin A.N. [15]). The choice of the model is influenced by: the complexity of the object under study, the availability of data, the mastered mathematical apparatus.

Thus, it can be argued that during the definition of the innovation activity index, various methods can be used depending on the goals and objectives of the study, as well as the complexity of the structure of the innovation system of countries.

Results and discussion.

If we look at the twenty countries with the level of economic development from the Global Innovation Index 2017 report prepared by the World Intellectual Property Organization (WIPO), the Cornell University and the INSEAD research institute, it can be argued that over the past two years, exporters of technologically new products and services of daily use (consumption). Such as: Switzerland,

the United States, Great Britain, Singapore, Germany, South Korea, Japan, Canada and China. China, in 2017, was able to raise another 3 steps, ranking 22nd in the innovation development rating, thanks to high results at once on a number of indicators, including the number of companies engaged in research and development (R & D) in the country, the state research personnel in enterprises and the number of filed patent applications. Kazakhstan in this rating is on the 75th place according to 2016, and according to the data of 2017, having lost two positions it is located on the 78th place. Of the CIS countries, Kazakhstan is only ahead of Russia and Ukraine, which according to 2017 are located at 45 and 50 places respectively (Table 2 and Picture 1).

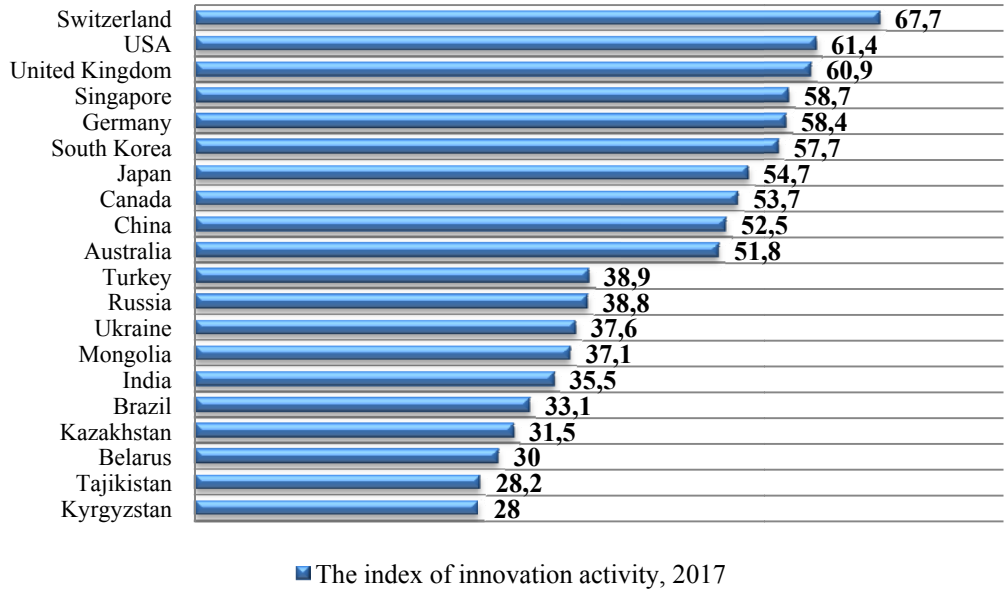
As for the rating on the level of innovative activity of the countries of Central and South Asia, Kazakhstan also closes in the top three, letting ahead only India and the Republic of Iran. India has been the undisputed leader in this region for the seventh consecutive year, having risen by 6 positions in 2017 compared to 2016 (from 66th to 60th place). Following India, as in 2016, are Iran (75th in the ranking of 2017) and Kazakhstan (78th place) (Table 2 and Picture 1).

Table 2 - 20 countries from the global rating of innovation activity with different levels of economic development

№	Countries	2017		2016	
		index	place	index	place
1.	Australia	51,8	23	53,1	19
2.	Belarus	30,0	88	30,4	79
3.	Brazil	33,1	69	33,2	69
4.	United Kingdom	60,9	5	61,9	3
5.	Germany	58,4	9	57,9	10
6.	India	35,5	60	33,6	66
7.	Kazakhstan	31,5	78	31,5	75
8.	Canada	53,7	18	54,7	15
9.	China	52,5	22	50,6	25
10.	Kyrgyzstan	28,0	95	26,6	103
11.	Mongolia	37,1	52	35,7	55
12.	Russia	38,8	45	38,5	43
13.	Singapore	58,7	7	59,2	6
14.	USA	61,4	4	61,4	4
15.	Tajikistan	28,2	94	29,6	86
16.	Turkey	38,9	43	39,0	42
17.	Ukraine	37,6	50	35,7	56
18.	Switzerland	67,7	1	66,3	1
19.	South Korea	57,7	11	57,1	11
20.	Japan	54,7	14	54,5	16

Source: compiled by the authors according to The Global Innovation Index, 2017 International Business School INSEAD [1]

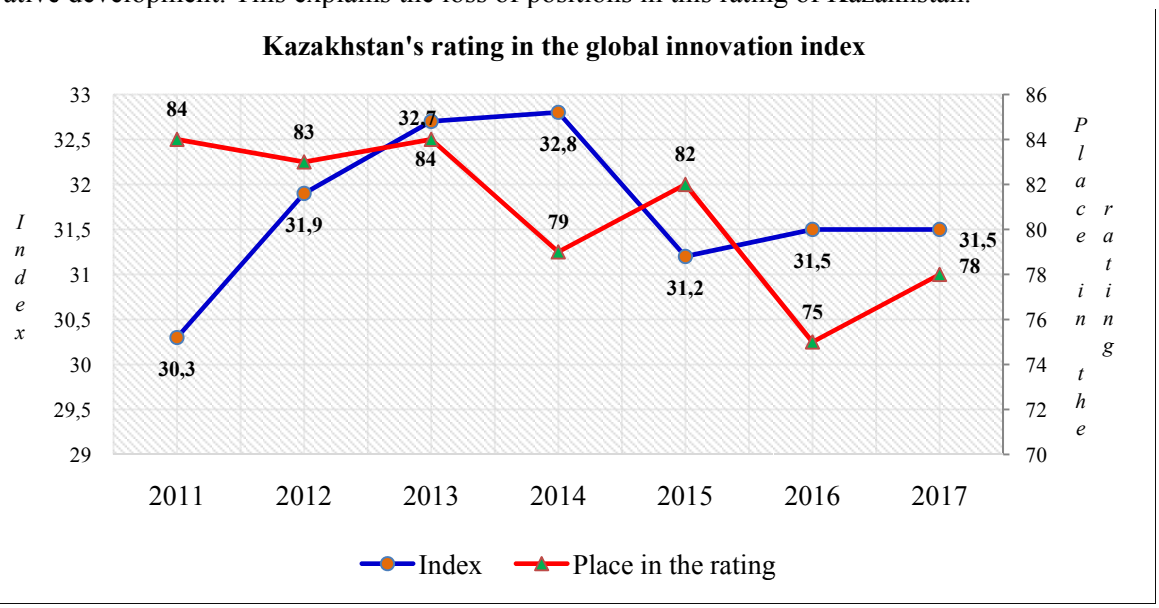
If we consider the data of Table 2 in the form of a diagram, we can see the following picture, which is shown in Figure 1, where we clearly see that the leading positions are countries with a high level of economic development. As is known, in modern conditions, economic growth is achieved due to the innovative activity of the economy. What is surprising, in this rating Kazakhstan is ahead of Mongolia, which is usually associated with the country with the lowest level of economic development in comparison with the Republic of Kazakhstan. However, the neighboring countries of Kazakhstan, such as Kyrgyzstan and Tajikistan, are represented in the report of The Global Innovation Index and occupy 95th and 94th places respectively.



Source: compiled by the authors according to The Global Innovation Index, 2017 International Business School INSEAD [1]

Picture 1 - Twenty countries from the global rating of innovation activity with different levels of economic development, 2017

Despite the stable position of Kazakhstan in the global innovation index, the experts of JSC "Institute for Economic Research" believe that the improvement of individual components of the index, the development of the national system of support and introduction of innovations of Kazakhstan is at the stage of formation, thereby explaining the gap with the leading countries of the world. The effectiveness of innovation depends on the overall economic situation in the country and the state scientific and technical strategy, on full-fledged resource support, market conditions, the availability of professional staff and effective management. To improve the calculations, the methodology for calculating the rating is revised annually. This year, new quality indicators were introduced. Since some processes cannot be adequately represented, the model of the global innovation index is not decisive in assessing the country's innovative development. This explains the loss of positions in this rating of Kazakhstan.



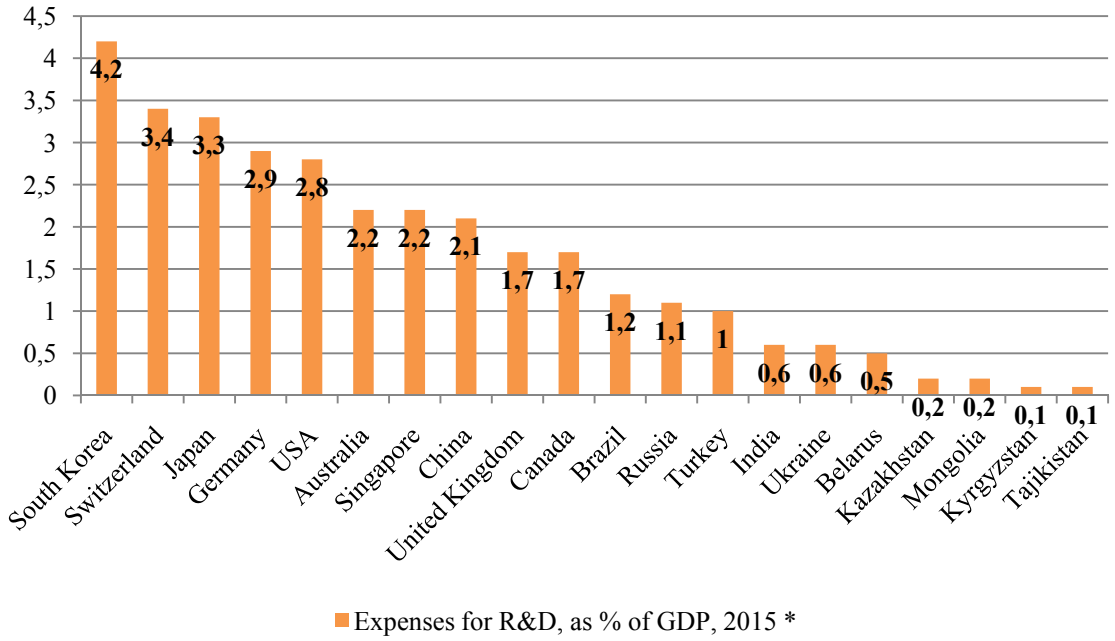
Source:: *compiled by the authors according to The Global Innovation Index, 2017 International Business School INSEAD [1]*

Picture 2 - Kazakhstan's rating in the global innovation index for the period 2011-2017

In different years, Kazakhstan's position in the Global Innovation Index has been different. From Figure 2, we can see the index of innovation activity and the rating for the period 2011-2017. For seven years, Kazakhstan improved its position by 6 points, and the turkeys of innovation activity increased from 30.3 to 31.5. However, in 2013 and in 2014 the result of innovative activity was 32.7 and 32.8 points, respectively.

In many ways, the development of the national innovation system depends on the share of R&D funding in% of the ratio to GDP. If we look at the countries that took as an example in our work, we can see the difference in the volume of R&D financing and see the objective reason for the development of innovative economies among the leading countries on the Global Innovation Index list.

According to KNOEMA, where 78 countries are represented in 2015, Kazakhstan is located at 67 positions with R & D expenditures of 0.2% to GDP, whereas the International Council's recommended share of expenditures for developing countries is 1-1.5% of GDP. Leading positions in this list are: Israel (4.3% of GDP), South Korea (4.2% of GDP), Switzerland (3.4% of GDP) and Japan (3.3% of GDP) (Picture 3).



Source:*: compiled by the author according to the literature [16-17]*

Picture 3 - Expenditure on R & D in% of the ratio to the GDP of the countries of the world, 2015

Thus, summarizing the above data, we can draw the following conclusions that from the list of countries listed in this sample with different levels of economic and innovative development, the Republic of Kazakhstan is at the stage of becoming its innovation system. The index of innovation activity from 2011 to 2017 ranges between 30.3 and 32.8, when as the leader in this ranking of Switzerland, the innovation activity index is 67.7 points, which indicates that these countries are twice as fast as Kazakhstan in the sphere innovative development.

Conclusions/

Having analyzed the innovative system of Kazakhstan, it is possible to identify the following main problems that hamper the development of the innovation economy, as well as to reduce Kazakhstan's positions in international ratings [18]:

1. Low level of science financing in Kazakhstan. Expenses for scientific research from the budget are 0.2% of GDP. According to UNESCO, the world economy allocates 1.7% of GDP to science.

2. Low share of private sector financing for the development of the country, in contrast to developed countries.

3. Weak material and technical basis.

4. Low effectiveness and competitiveness of research results in the domestic and foreign markets. Approximately 17 thousand scientists account for 1-2 international patents.

5. There is a gap between science, education and business.

Thus, international ratings of the innovation activity of the Kazakh economy reveal, in fact, the same vulnerable areas. Basically, these are factors of institutional and regulatory nature that affect the development of R&D and the innovative economy as a whole. In the interaction of the state and business in the innovation sphere, two aspects come to the fore. The first is related to the institutional foundations of this interaction. The second - with the financing of research and development.

Basically, all the problems associated with the low level of development of innovation in the country is due to the poor financing of innovation. In this regard, we propose to introduce in the innovative sphere the mechanisms of the institution of public-private partnership, which will be able to solve a number of problems arising during the life cycle of innovative products. Through PPP, an innovative infrastructure is being formed, investment in small and medium-sized businesses is increasing, the percentage of commercialization of innovative developments is increased by means of introduction into production, and indicators of socio-economic development are improving.

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КАЗАХСТАН В КОНТЕКСТЕ ГЛОБАЛЬНОГО ИНДЕКСА ИННОВАЦИОННОЙ АКТИВНОСТИ

Аннотация. В статье анализируется позиция Республики Казахстан в Глобальном рейтинге инновационной активности стран, рассчитывающейся Всемирной организацией интеллектуальной собственности (ВОИС), Корнельским университетом и исследовательским институтом INSEAD. Сделан рейтинг стран по индексу инновационного развития наиболее близких к экономике Республики Казахстан и стран с развитой экономикой, таких как: Австралия, Беларусь, Бразилия, Великобритания, Германия, Индия, Канада, Китай, Кыргызстан, Монголия, Россия, Сингапур, США, Таджикистан, Турция, Украина, Швейцария, Южная Корея, Япония. А также, проделан анализ инновационной системы Казахстана и выявлены основные проблемы, препятствующие развитию инновационной экономики.

Ключевые слова. Инновации, глобальный индекс инноваций, научно-технический прогресс, уровень инновационного развития, государственно-частное партнерство.

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ҒАЛАМДЫҚ ИННОВАЦИЯЛЫҚ БЕЛСЕНДІЛІК ИНДЕКСІ ЖАҒДАЙЫНДАҒЫ ҚАЗАҚСТАН

Аннотация. Мақалада Қазақстан Республикасының Әлемдік зияткерлік меншік ұйымы және INSEAD зерттеу институты мен Корнель университетімен есептелетін мемлекеттердің жаһандық инновациялық белсенділігінің индексіндегі орны сарапталады. Қазақстан Республикасының экономикасының даму деңгейіне біршама жақын және экономикасы дамыған келесі мемлекеттердің инновациялық даму индексі бойынша рейтинг жасалды: Австралия, Беларусия, Бразилия, Ұлыбритания, Германия, Үндістан, Канада, Қытай, Қырғызстан, Монғолия, Ресей, Сингапур, АҚШ, Тәжікстан, Түркия, Украина, Швейцария, Оңтүстік Корея, Жапония. Сондай-ақ Қазақстанның инновациялық жүйесіне талдау жүргізіліп, инновациялық экономиканың дамуына кедергі келтіретін негізгі мәселелер анықталды.

Түйін сөздер. Инновация, инновацияның жаһандық индексі, ғылыми-техникалық прогресс, инновациялық даму деңгейі, мемлекеттік жеке меншік серіктестік.

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MODERN TRENDS OF YOUTH UNEMPLOYMENT IN KAZAKHSTAN

Abstract. In the modern world space in the context of globalization, the subject of youth unemployment is an actual and most significant problem. In addition, according to the International Labor Organization (ILO), the unemployment rate in the world has already reached its record values and the number of unemployed in the world has exceeded 192 million persons, the global trends of youth unemployment lead to socio-economic imbalances. The need to assess the situation of youth in the labor market is due to the fact that young persons are the future of the country, and the subsequent development of the economy and society depends on the starting conditions of their activities. Each country, depending on the peculiarities of the state employment policy, has specific reasons for youth unemployment, the level and its consequences. Maley domestic and foreign scientists-economists and researchers have studied the issue of unemployment from various angles. The current assessment of the level of youth unemployment requires constant monitoring, analysis of its current state and a rapid political response to any transformation.

The article analyzes unemployment pictures, presents the dynamics of youth unemployment by regions of the country, as well as the structure of the unemployed for various socio-demographic factors. The main reasons of youth unemployment in general are considered, the main directions of the state policy in the sphere of employment of the population are proposed, which contribute to reducing the level of youth unemployment.

The article also contains references to a number of documents regulating youth policy and employment issues at the national level.

In the conclusions, the authors of the article find the relationship between the level of youth unemployment in Kazakhstan and the measures taken to stabilize this indicator. Since the level of youth unemployment has decreased by 2.5% over the last seven years to 4.1%. At the same time, the level of youth unemployment in the rural is lower (3.5%) than in the urban (4.6%).

Key words: youth unemployment, self-employment, employment, youth policy, labor market.

Introduction. Effective use of labor potential is one of the most important tasks of forming a socially-oriented modern state, conducted within the framework of the state policy of Kazakhstan. Youth is a socio-economic active layer of the population, has an innovative and creative potential, although by virtue of its age does not have sufficient experience in this or that field of professional activity.

The special status of young persons creates the need for an adequate youth policy that can solve or alleviate existing problems, as well as channel creative potential of youth into creative channels. Therefore, employment issues, support and development of professional competitiveness of young persons in the labor market are a very topical and strategic priority of the state policy of the Republic of Kazakhstan. In addition, according to the Committee of Statistics of the Republic of Kazakhstan (CSRK), young persons make up more than a quarter of the economically active population of Kazakhstan [1]. In Kazakhstan, according to statistics of the Committee on Statistics of the Republic of Kazakhstan, in 2010 year, youth unemployment was 2335.4 thousand persons, and in 2017 year - 2140.9 thousand persons. In total for the last 7 years, youth unemployment has decreased by 8%.

Methods. Methods of scientific cognition have become both general scientific (statistical, normative analysis, synthesis, analogy and generalization), and empirical-theoretical in the studied branch of science (collection, study and comparison of data).

The theoretical basis for the study was the work of domestic and foreign economists on analysis and problems of combating unemployment, regulations and regulations of the Government of the Republic of Kazakhstan regulating employment and labor migration at the state and interstate levels, materials of monographic and experimental research, scientific conferences, as well as Scientific publications in periodicals and materials posted on the Internet.

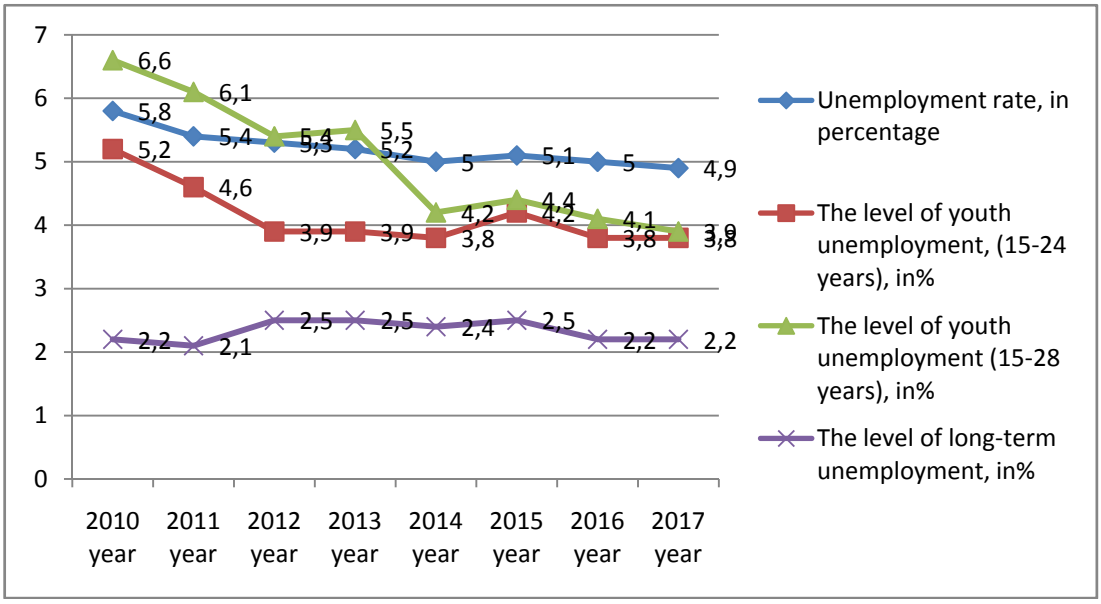
Results. Problems of unemployment are devoted to research work of many scientists, for example: Tamoshina G.I., Dorohova N. V., D.K. Tursynbaeva, A.E. Toylybayev, Yaprak Kurtsal, Mulyarchik N., Grace O.M. Lee, Malcolm Warner, Daurenbekov A., Andrews Atta-Asamoah, Nurekenov NG, Potudanskaya V, Shaihin D. [10-14, 16-20].

To carry out quantitative and qualitative analysis of youth unemployment, it is necessary to take the following statistics:

1) the level of youth unemployment (15-24 years), the age of referring to youth according to the standards of the International Labor Organization;

2) The level of youth unemployment (15-28 years), The age of referring to youth in accordance with the Law of the Republic of Kazakhstan «On State Youth Policy» [2].

Consider the level of youth unemployment in Kazakhstan (taking into account the main indicators of the labor market over the past seven years) (picture 1).



Picture 1 – The level of youth unemployment in Kazakhstan in 2010-2017 years.

Source: compiled according to the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan [4, 7-9]

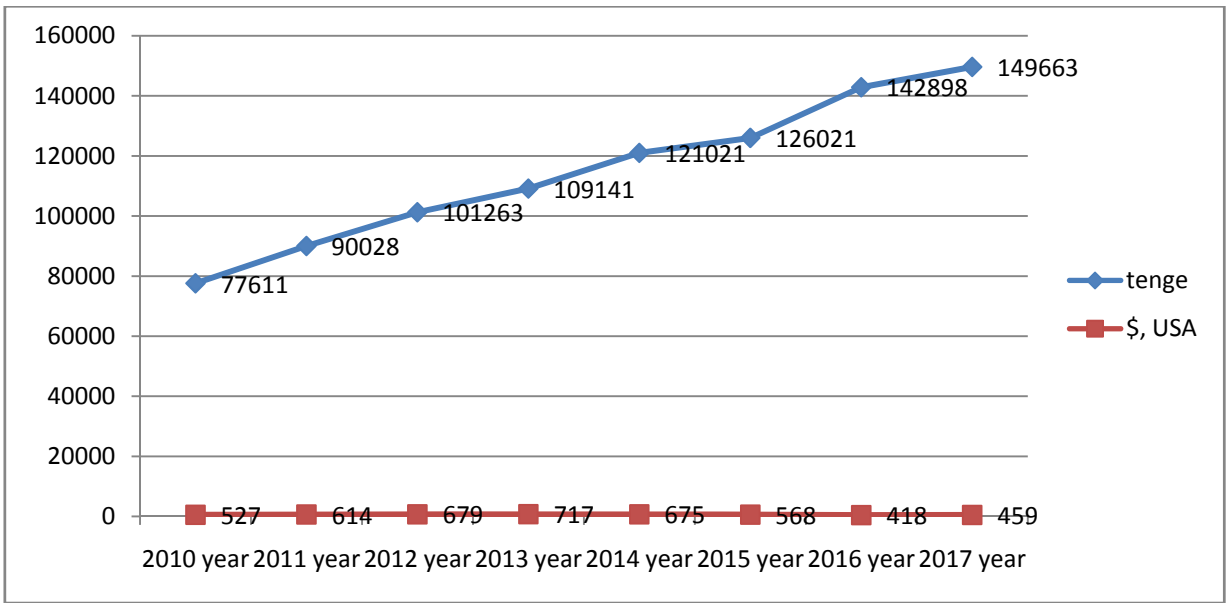
In 2017 year, with a total unemployment rate of 4.9%, youth unemployment (15 to 28 years) was 4.1%. At the same time, in 2010, on average for Kazakhstan, statistical data were determined within 5.5% and 6.2%, respectively. In general, the level of youth unemployment in the republic in 2010 exceeded the total number of unemployed by 0.7%, and in 2017 year - decreased by 0.8%. The proportion of unemployed women is higher (4.7%) than men (3.6%). In general, during the analyzed period, the level of youth unemployment fell by 2.5% to 4.1%. In parallel, there was a gradual decline in the level of long-term youth unemployment. The main reason for the reduction of youth unemployment is the various social modernization programs adopted at the state level for the self-realization of youth, such as «100 schools, 100 hospitals», «Business Road Map 2020», «Employment 2020» [3].

The differentiation according to the level of youth unemployment according to the data of the Committee on Statistics of the Republic of Kazakhstan in the regional context is characterized as follows: the highest level of youth unemployment in 2016 year was observed in Almaty (7.4%), Astana (5.8%),

Karaganda region (5.0%), Zhambyl oblast (4.9%); the lowest level of youth unemployment was registered in Atyrau oblast (2.4%), Almaty (2.5%), North Kazakhstan (2.9%) regions [7].

Economists identify several reasons for youth unemployment, among which there is an economic decline in production and an illegal influx of labor (mainly from Uzbekistan, Kyrgyzstan, China, etc.), as well as non-demaled because of low qualifications of graduates of economic and legal specialties [11, 17, 21].

As known, the main attractive and stimulating argument for the growth of employment is wages. To do this, consider the average monthly nominal wage of one employee at the ages of the 15 - 28 years.



Picture 2 – Average monthly nominal wage of one employee

Source: compiled according to the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan [4, 7-9]

This picture shows the dynamics of changes in the average monthly nominal wage of one employee in our country. As the graph shows, the average monthly wage in the national currency (tenge) has increased over the past seven years, and the dollar has been different. So in 2013 year the average salary in US dollars was the largest and amounted to $ 717, and in 2016 year the lowest - $ 418.

The majority of economically active youth are engaged in such sectors of the economy as trade (17%), agriculture (15%), industry (11%), education (10.9%), transportation and warehousing (6.6%), public administration (6.5%). Nevertheless, there is an industry flow of young persons during the analyzed period into the sphere of trade (+17.5 thousand persons), transport (+19.1 thousand persons), education (+45.3 thousand persons) due to outflows from such spheres as agriculture (-302 thousand persons), construction (-8.3 thousand persons) [4, 8].

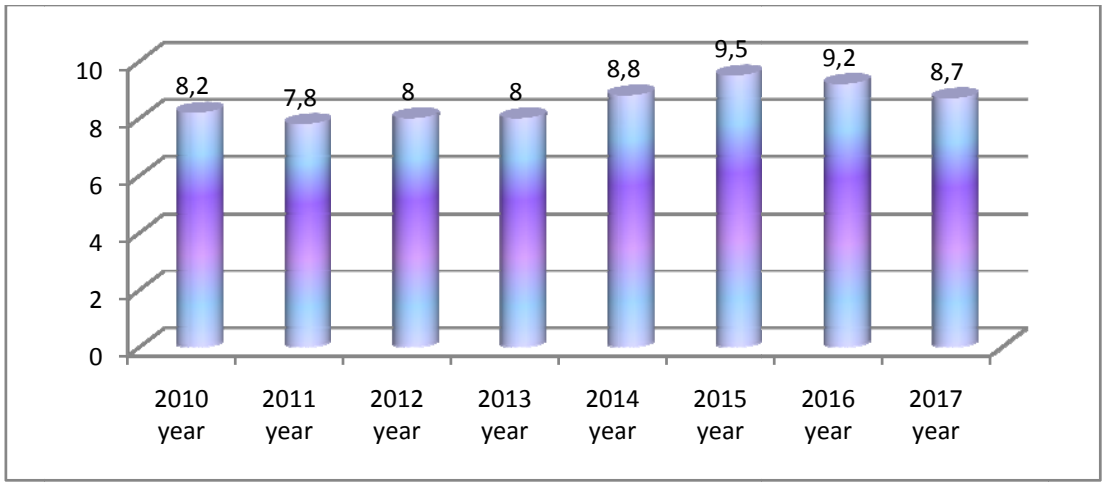
Table 1- Self-employed youth (at the age of 15-28 years) by employment status, population types, sex for 2010-2017

Indicator	**2010 year**	**2011 year**	**2012 year**	**2013 year**	**2014 year**	**2015 year**	**2016 year**	**2017 year**
Self-employed (urban population), thsd.persons	199.2	212.1	238.1	210.2	208.1	185.5	159.3	161.8
of them:								
Male	95.8	1112	126.7	115.6	109.7	98.0	89.5	89.6
Female	103.3	100.9	111.4	94.6	984	87.4	69.8	72.2
Self-employed (rural population), thsd.persons	651.9	609.8	580.6	511.9	459.2	396.1	353.7	330.7
of them:								
Male	355.1	328.0	312.2	288.1	250.1	230.0	209.2	186.5
Female	296.8	281.9	268.4	223.8	209.0	166.2	144.6	144.2
Source: compiled according to the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan [4, 7-9]								

In the section « urban - rural» the following picture is formed. The greatest number of self-employed - in rural areas (67.1%). As can be seen from the table 1, for the analyzed period self-employed young persons are decreasing both among the urban population and among the rural population.

The rate of decline in the rural population is 2 times more than among the urban population. If in 2010 year the total number of self-employed youth was 199.2 thsd.persons among the urban population, in 2017 year - 161.8 thousand persons. While among the rural population, these pictures were respectively 651.9 and 330.7.

The explanation for this phenomenon is a large outflow of rural to the urban. Not finding a job at home, they go to the urban, hoping to find a suitable job there and often fill up the ranks of unemployed citizens because of the inaccessibility of housing, lack of residence permits, vocational education and work experience. In addition, students from among the rural, having received diplomas on secondary special or higher education, are not in a hurry to return home even if they are actually employed in their native rural. However, the unemployment ratio of urban and rural youth does not reflect the real picture of youth unemployment in the rural, since much of it is hidden by so-called self-employment. That is, it is believed that the availability of subsidiary farming provides the rural resident with a self-employed status, and thus the statistics do not record it as unemployed and the number of such persons grows. As a result, the level of youth unemployment in the rural is lower (3.5%) than in the urban (4.6%). Tensions in the labor market for both urban and rural youth are strengthened by graduates of schools and other educational institutions who are not employed after graduation, young persons who have not completed their studies for various reasons, children from orphanages, orphans and children left without parental care before the age of 23 years old. In addition, changing values and priorities in the lives of young persons, inflated expectations and a sense of «easy», «fast» money has led to a new type of youth NEET. NEET (Not in Employment, Education or Training) is defined as the proportion of young persons who do not want to work (unemployed or not in employment) and do not study in% of the total youth. According to the data of the Constitutional Court of the Republic of Kazakhstan in Kazakhstan, the share of NEET youth is 8.7% of the young population (see picture 3).



Picture 3 - The share of youth is NEET (15-28 years) in the Republic of Kazakhstan for 2010-2017.

Source: compiled according to the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan [4,7,8]

While there is a significant negative relationship between youth education and unemployment of youth. In terms of educational level, a significant part of unemployed youth has higher or incomplete higher education (in 2017 year, 43% and in 2010 year - 31%). At the same time, the highest unemployment rate is typical for young persons with secondary education (4.6%) against young persons with secondary special education (4.1%) and higher education (4.2%).

Table 2 – Structure of youth unemployment in Kazakhstan for 2010 and 2017 years

Indicator	2010 year		2017 year	
	thousands of persons	%	thousands of persons	%
Higher and incomplete higher	728.3	31.18	919.3	42.94
vocational (specialized)	528.1	22.62	781.2	36.49
Basic, secondary, general, primary	1079.0	46.20	440.4	20.57
Total	2335.4	100	2140.9	100
Source: compiled according to the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan [4, 7-9]				

Young citizens of Kazakhstan began actively to study - for the year the population of the age group aged 15-28 who were not present in the labor market due to the day-long learning process increased by 62.4 thousand persons, or by 5.4%. Of no less importance in this was the implementation of the state project «Free vocational education for all». Since January 1, 2017, Kazakhstan has been implementing the Program for the Development of Productive Employment and Mass Entrepreneurship for 2017-2021, which provides for mass training and inculcation of skills in demaleded occupations, training of personnel with technical and vocational education and short-term vocational training at the expense of the republican budget, and training in entrepreneurship, lending, assistance in employment and support of labor mobility. In addition, the participants of the Program are provided with a scholarship, one-time hot meals, travel, hostels provided. However, according to the Office for the Coordination of Employment and Social Programs, in recent years, the number of persons applying to employment agencies has decreased. Perhaps this is due to the discrepancy between the expected wages of employees and the high demands of employers.

Table 3 - Monitoring of persons applying for employment and employed

Indicator	2016 year	2017 year
Appealed to employment agencies (person)	4026	3500
Employed (person)	2606	2520
Sent to public works (person)	757	758
Employed in social work places (person)	150	136
Are directed to vocational training (person)	433	432
Organization of youth practice (person)	281	204
Source: compiled according to the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan [4, 9]		

This is due to the fact that more and more young persons began to receive information assistance in the search for work.

Conclusion. World is facing an employment crisis and youth constitutes a group that is among the most vulnerable.

From the moment of independence to the present, one of the most global problems of the present and the republic is the problem of unemployment those with employment. In the republic laws «On employment of the population», «On labor», normative legal acts and state support programs for reforming the labor market, improving employment were developed.

One of the important measures taken by the new economic policy is the state program "Nurly Jer", which resulted in regional employment promotion plans, memorandums of akimats with large enterprises on mutual cooperation on issues of job preservation, memorandums of educational institutions with employers for further employment of graduates) [5].

In 2011 year, «Employment 2020» program developed into the program «Employment road map – 2020», then into the program for the development of productive employment and mass entrepreneurship in the context of globalization and the fast-change labor market requirements. In addition, separate state projects for youth are being implemented: «Green country», «With diploma - in rural», «Youth of the eternal country - industry », «Youth staff reserve» [6].

The effective increase of youth employment is the main principle of the entire reform to regulate the situation on the national labor market, aimed at the following tasks:

1) training of personnel with technical and vocational education, taking into account the needs of the labor market;

2) short-term vocational training of workers in the professions and skills in demand on the labor market;

3) learning the basics of entrepreneurship;

4) expansion of microcrediting in the rural and in the urban;

5) assistance in providing employment for the unemployed and self-employed;

6) increasing labor mobility;

7) creation of a single digital platform for employment.

The share of the population with higher and secondary vocational education is growing in the structure of the unemployed population and the share of persons without qualification and education is declining. The imbalance in the training of specialists with higher education, as well as secondary vocational education, increased the share of NEET youth.

Statistics show that secondary vocational education is more demanded and flexible. An important role is played by the program "Youth Practice", implemented since 2009 year, which makes it possible to acquire graduates of higher educational institutions and colleges of practical experience in their specialty. Therefore, the introduction of a dual system of education in higher education institutions would positively solve the issue of vocational training of graduates and would increase and reduce the level of unemployed with higher education.

In general, the employment programs of the persons of the Republic of Kazakhstan are based on strategic plans for the development of the state and take into account the current trends in the economy.

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ҚАЗАҚСТАННЫҢ ЖАСТАР ЖҰМЫСЫНЫҢ ҚАЗІРГІ ЗАМАНҒЫ ТЕНДЕНЦИЯСЫ

Аннотация. Жаһандандыру кезеңіндегі заманауи әлемдік кеңістікте жастар жұмыссыздығы тақырыбы өзекті және ең маңызды мәселе болып табылады. Еңбекті халықаралық ұйымдастыру (ЕХҰ) мәліметтерімен келісе отырып әлемдегі жұмыссыздардың көлемі өзінің рекордтық мәніне жетті және әлемдегі жұмыссыздардың саны 192 млн. адамнан асты, жастар жұмыссыздығының жалпы әлемдік тенденциясы әлеуметтік-экономикалық теңсіздікке әкеледі. Еңбек нарығындағы жастардың жағдайын бағалаудың қажеттілігі ол жас адамдар – елдің болашағы және экономика мен қоғамның бастапқы жағдайларынан келесі дамуы олардың қызметтеріне байланысты.

Әрбір елде, жұмыспен қамту саласындағы мемлекеттіксаясатының ерекшелігіне байланысты кейбір жастардың жұмыссыздық мәселесінің, деңгейінің және оның алғышарттарының себептері бар.

Көптеген отандық және шетелдік ғалым-экономистері және әзденушілері жұмыссыздық сұрақтарын жан-жақты қарастырды. Жастар жұмыссыздығының деңгейін заманауи бағалау тұрақты мониторингті, оның ағымдағы жағдайын талдауды және кез-келген трансформацияға жылдам саяси жауапты талап етеді

Мақалада жұмыссыздық көрсеткіші талданады, елдің аймақтары бойынша жастар жұмыссыздық деңгейінің динамикасы, сонымен қатар әртүрлі әлеуметтік – демографиялық факторлар бойынша жұмыссыздық құрылымы берілген.

Жалпы жастар жұмыссыздығының негізгі мәселелері қарастырылған, жастар жұмыссыздығы деңгейін қысқартуға ықпал ететін, халықты жұмыспен қамту жүйесіндегі мемлекеттік саясаттың негізгі бағыттары ұсынылған.

Мақалада сонымен қатар жастар жұмыссыздығы мен жұмыспен қамтуды ұлттық деңгейде реттеу мәселелері мазмұндалған.

Қорытындыда мақала авторлары Қазақстандағы жастар жұмыссыздығының деңгейі және қабылданған шаралар арасындағы, осы берілген мәліметтерді тұрақтандыруға бағытталған өзара байланыстарды табады. Өйткені, соңғы жеті жылда жастар жұмыссыздығының деңгейі 4,1% ден 2,5 % дейін төмендеді. Бола тұра, ауылдағы жастар жұмыссыздығы қалаға (4,6%) қарағанда (3,5%), төмен.

Түйін сөздер: жастар жұмыссыздығы, жұмыссыздық, өзін-өзі жұмыспен қамту, жұмыспен қамту, жастар саясаты, еңбек нарығы.

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СОВРЕМЕННАЯ ТЕНДЕНЦИЯ МОЛОДЕЖНОЙ БЕЗРАБОТИЦЫ КАЗАХСТАНА

Аннотация. В современном мировом пространстве в условиях глобализации тематика молодежной безработицы является актуальной и наиболее значимой проблемой. К тому же согласно данным Международной организации труда (МОТ) уровень безработицы в мире уже достиг своих рекордных

значений и число безработных в мире превысило 192 млн человек, общемировые тенденции молодежной безработицы приводят к социально-экономическому дисбалансу. Необходимость оценки положения молодежи на рынке труда обусловлена тем, что молодые люди – это будущее страны, и от стартовых условий их деятельности зависит последующее развитие экономики и общества. Каждой стране, в зависимости от особенности государственной политики занятости, присущи определенные причины молодежной безработицы, уровень и ее последствия. Многие отечественные и зарубежные ученые-экономисты и исследователи изучали вопрос безработицы с разных сторон. Современная оценка уровня молодежной безработицы требует постоянного мониторинга, анализа текущего её состояния и быстрого политического реагирования на любые трансформации.

В статье анализируются показатели безработицы, представлена динамика уровня молодежной безработицы по регионам страны, а также структура безработных по различным социально-демографическим факторам. Рассмотрены основные причины молодежной безработицы в целом, предложены основные направления государственной политики в сфере занятости населения, способствующие сокращению уровня молодежной безработицы. В статье также содержатся отсылки к ряду документов, регулирующих вопросы молодежной политики и занятости на национальном уровне.

В выводах авторы статьи находят взаимосвязь между уровнем молодежной безработицы в Казахстане и предпринятыми мерами, направленными на стабилизацию данного показателя. Так как за последние семь лет уровень молодежной безработицы снизился на 2,5% до показателя 4,1%. При этом, уровень молодежной безработицы на селе ниже (3,5%), чем в городе (4,6%).

Ключевые слова: молодежная безработица, самозанятость, занятость, молодежная политика, рынок труда.

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INVESTMENTS IN EDUCATION AND HEALTH AS FACTORS OF FORMATION OF HUMAN CAPITAL

Abstract. Of all types of investment in human capital, investments in health and education are the most important. Investing in health leads to a reduction in diseases and mortality, prolongation of a person's working age. Strength, endurance, efficiency, an increase in the period of active labor activity are necessary for every person in any sphere of professional activity. Competitive advantages of an innovative nature that require large investments in their creation and development depend on the carrier itself, on the nearest environment, on the society and on the enterprise in which they are implemented. For an employee, the economic effect of investment is expressed in his income. For the enterprise - in raising the productivity of workers. For society - in maintaining the competitiveness of the national economy. By investing in the education of employees, enterprises strive to increase their labor activity, increase labor productivity, reduce losses of working time and thereby strengthen their competitiveness

Keywords: investment, education, human capital, health, competitiveness, potential

Introduction. Human capital is a natural and acquired potential, formed by a person as a result of development, not contradicting his inner desires and possibilities, the cumulative volume of accumulated knowledge, abilities, skills, experience, skills, motivations and health, the use of which, in the course of labor activity, provides income to its owner , the business entity and society as a whole

The following types of human capital are singled out as management objects:

• individual human capital, which is owned by a specific person;

• integral human capital (cumulative), i.e. the combination of individual human capital within the following levels: the human capital of the primary labor collective; corporate -human capital of the organization; regional; sectoral and national human capital.

Methods of research. The main methods of research are a method of deduction and induction, as well as a comprehensive approach and a method of scientific abstraction. The variety of goals, objectives and areas of activity in agriculture predetermines various criteria for assessing the effectiveness of economic entities.

The discussion of the results. Special investment in human capital is investment in special training, physical condition and emotional behavior, with the focus on forming an employee's sense of commitment to the organization. International experience shows that investments in education contribute to significant returns for the economy and society. The earlier the investments begin, the more effect they have. General, special, higher and postgraduate education, training in magistracy, doctoral studies, etc., self-education of an individual improve the quality, increase the level and stock of knowledge of a person. In developed countries, there is a stable relationship between the level of education and the income of the individual. To stimulate motivation to receive education, expectations of decent wages, opportunities for professional growth are necessary. The interests of the individual and society in that the employee had a higher level and quality of education should coincide. Investments in human capital are necessary for the formation of highly skilled workers who are able to adapt in a rapidly changing world. It is necessary to emphasize that education performs the most important educational function, the function of forming social capital - people with an active civic position, high social cohesion. The transition to an innovative and diversified economy and the implementation of breakthrough projects of industrial and innovative development of Kazakhstan largely depends on the quality of human capital, based on the education and professionalism of human resources.

Investments, for the production of human capital are extremely important for the family and for the whole society.

Consider how much education, health care and social services are in the GDP part, million tenge.

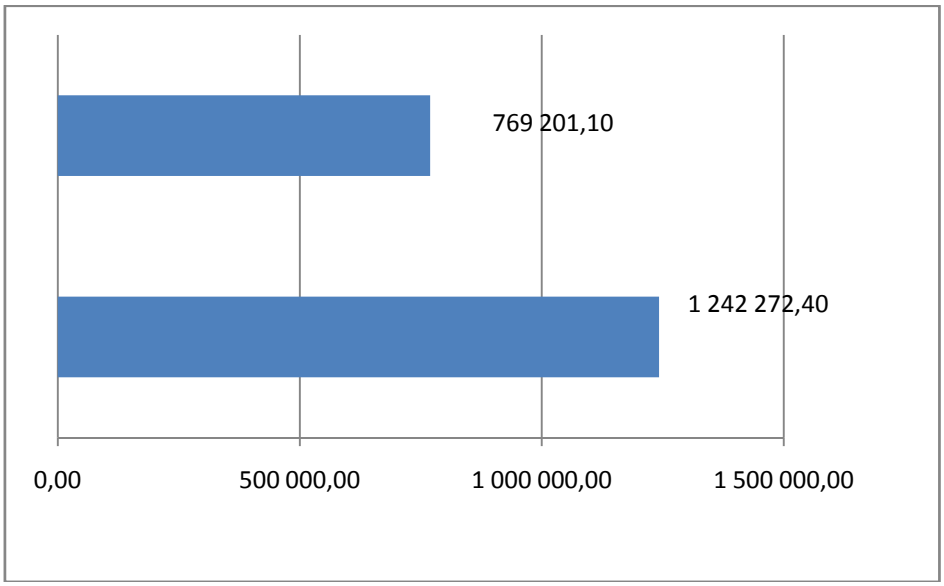

Figure 1 - GDP by types of economic activity, million tenge

Note - compiled by the author on the basis of the data of the COP of the Ministry of Education and Science of the Republic of Kazakhstan [2]

GDP in terms of education amounted to 1 242 272.4 million tenge, and health and social services 769 201.1 million tenge

Investments in human capital are the costs necessary to preserve and maintain health, form a culture, receive education, training, skills and experience of working people.

Table - Expenditures of the budget of the Republic of Kazakhstan for 2017

	The state budget		Republican budget		Local budget	
	billion tenge	Specific gravity, in%	billion tenge	Specific gravity, in%	billion tenge	Specific gravity, in%
Expenses	12485,4	100	10677,5	100	4613,3	100
General government services	652,3	5,2	493,9	4,6	167,1	3,6
Defense	452,4	3,6	428,7	4,0	25,9	0,6
Education	**1843,2**	**14,8**	**464,6**	**4,4**	**1480,1**	**32,1**
Health care	**1128,3**	**9,0**	**1018,6**	**9,5**	**409,0**	**8,9**
Social assistance and social security	2302,3	18,4	2130,0	19,9	196,5	4,3
Other	5397,2	43,3	5592,6	52,5	2163,8	46,8
Note - compiled by the author on the basis of the data of the COP of the Ministry of Education and Science of the Republic of Kazakhstan [2]						

Low level of integration of science and education, as well as inefficient use of the available scientific potential. The main reasons are the lack of motivation for scientific labor and the lack of competent PPP, the lack of time for PPPs due to their workload in different types of activities. Therefore, in order to improve the quality of human capital, it is necessary to raise the status of science in society on the basis of strengthening the factor of motivation for creative work. If we take for example, Europe or the US, it is the universities that conduct the main scientific work and widely attract students, undergraduates and doctoral students. In this respect, the experience of Nazarbayev University is attractive, where the Centers for Research have been established, whose activities contribute to the integration of science and education.

The labor force at the age of 15 years and older in the I quarter of 2018 amounted to 9.0 million people. 8.5 million people or 66.1% of the population aged 15 years and over were employed in the economy of the republic. The number of employees amounted to 6.5 million people and increased by 143.0 thousand people (2.3%) as compared to the first quarter of 2017.

The expected return on investment in human capital includes a higher level of earnings, greater satisfaction from the chosen work during life, as well as a higher valuation of non-market activities.

Consider the remuneration of labor of workers, its average value for Kazakhstan, how much the work of educators, health and social services.

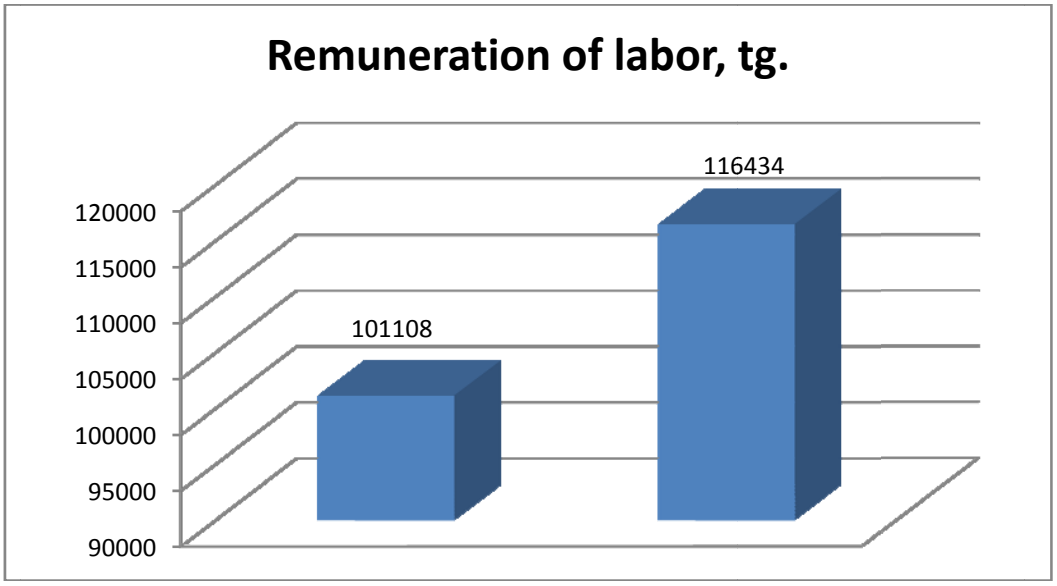

Figure 2 - Payment of employees of education, health and social services

Note - compiled by the author on the basis of the data of the COP of the Ministry of Education and Science of the Republic of Kazakhstan [2]

The average wage in education is 101,108 tenge, in the healthcare and social services system - 116,434 tenge, which is higher at 15,326 tenge. However, salaries of these workers are lower than the average salary in the country at 169,725 tenge. As evidenced by the shortage of workers in this sphere, migration and the search for information contribute to the movement of labor to regions and industries where labor is better paid, i. where the price for human capital services is higher.

Higher education is the determining factor that influences the quality of human capital. The annual growth of human capital by 1% in higher education ensures an increase in GDP growth rate per capita by 5.9% [1].

In our country, on the basis of the National Framework of Qualifications in the spheres of education and science, labor, agriculture, the sectoral framework of qualifications has been formed, professional standards and an institutional system of independent confirmation of qualifications are being developed. Therefore, the important task of the current stage of development of this system is the formation of its legislative framework. In order to implement the principles of the qualification system, according to the experience of foreign countries, independent certification organizations should be formed. For example, to improve the quality of medical education, in a number of countries experts from other countries or non-governmental organizations are involved in this procedure. In Singapore, for example, specialists from England and the United States are being recruited to conduct an external assessment of health personnel. In America, such an assessment is carried out by a private non-governmental organization - the National Council of Medical Examiners, which develops medical licensing exams, provides medical schools with tests on subjects [10].

The most important forms of investments in a person are Western economists: education, on-the-job training, medical services, migration, the search for information on prices and incomes, the birth of children and care for them. Education and training at work increase the level of human knowledge, i.e. increase the volume of human capital. Health protection, reducing morbidity and mortality, prolongs the life of a person, and also increases the intensity of its use.

The mechanism for the formation of human capital is investing in people, that is, expedient investments in the individual in the form of monetary or other form, contributing, as mentioned above, on the one hand, to bring income to a person, and on the other, to increase labor productivity. Costs that increase productivity can be seen as investments; current costs are realized with the expectation that they will be repeatedly compensated by higher profits in the future [5].

Consequently, of all types of investments, investments in human capital are most important, and they differ as follows:

• investment in education (training in school, institute, advanced training in production);

• health care costs that provide for the individual's physical and mental health (disease prevention, medical care);

• Improvement of housing conditions, contributing to the restoration of the worker's strength and strengthening his mental activity);

• adequate power.

The above types of investment create conditions for quality labor, which promotes the use of human capital.

Conclusions. The peculiarity of investments in human capital is that the increase in knowledge and experience of individuals contributes to the growth of productivity of capital embodied in people, not immediately. This process, as a rule, is prolonged in time.

Human capital occupies a leading place among the competitive advantages of the enterprise, which means that the analysis and evaluation of personnel is the most important condition for the successful leadership of any organization. Without investments in personnel, ensuring competitive advantages is impossible.

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АДАМНЫҢ КАПИТАЛЫНЫҢ ҚҰРЫЛЫСЫ ФАКТОРЛАРЫ БІЛІМ ЖӘНЕ ДЕНСАУЛЫҚ ИНВЕСТИЦИЯЛАРЫ

Аннотация. Адами капиталға салынған инвестициялардың барлық түрлерінің бірі денсаулық пен білімге инвестициялар болып табылады. Денсаулыққа инвестициялау аурулар мен өлім-жітімді азайтуға, адамның жұмыс жасын ұзартуға алып келеді. Кәсіби қызмет кез келген саладағы әр адам үшін төзімділік, тиімділік, еңбек белсенділігі кезеңінің ұлғаюы қажет. Оларды жасау мен дамытуға үлкен инвестицияларды қажет ететін инновациялық сипаттағы бәсекелестік тасымалдаушының артықшылықтарының өзі, жақын жерде, қоғамда және олар жүзеге асырылатын кәсіпорында болады. Қызметкерге инвестициялардың экономикалық әсері оның табысымен көрінеді. Кәсіпорын үшін - қызметкерлердің өнімділігін арттыру.

Қоғам үшін - халық шаруашылығының бәсекеге қабілеттілігін сақтау. Кәсіпорындар қызметкерлерді оқытуға инвестициялау арқылы олардың еңбек қызметін, еңбек өнімділігін, олардың бәсекеге қабілеттілігін арттыруға және жұмыс уақытының жоғалуын азайтуға ұмтылады.

Түйін сөздер: инвестиция, білім, адам капиталы, денсаулық сақтау, бәсекеге қабілеттілік, әлеует.

УДК 338.43.

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ИНВЕСТИЦИИ В ОБРАЗОВАНИЕ И ЗДОРОВЬЕ КАК ФАКТОРЫ ФОРМИРОВАНИЯ ЧЕЛОВЕЧЕСКОГО КАПИТАЛА

Аннотация. Из всех видов инвестиций в человеческий капитал наиболее важными являются вложения в здоровье и в образование. Вложения в здоровье приводит к сокращению заболеваний и смертности, продлению трудоспособного возраста человека. Сила, выносливость, работоспособность, увеличение периода активной трудовой деятельности необходимы каждому человеку в любой сфере профессиональной деятельности. Конкурентные преимущества инновационного характера, требующие больших инвестиций в их создание и развитие, зависят от самого носителя, от ближайшего окружения, от социума и предприятия, в котором они реализуются. Для работника экономический эффект инвестиций выражается в его доходах. Для предприятия - в повышении производительности труда работников. Для общества — в поддержании конкурентоспособности национальной экономики. Инвестируя в образование сотрудников, предприятия стремятся активизировать их трудовую деятельность, повысить производительность труда, сократить потери рабочего времени и тем самым укрепить свою конкурентоспособность

Ключевые слова: инвестиции, образование, человеческий капитал, здравоохранение, конкурентоспособность, потенциал.

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ENTREPRENEURSHIP IN THE ECONOMIC DEVELOPMENT OF THE REPUBLIC OF KAZAKHSTAN

Abstract. In the article, the authors has revealed the current state of the small business in Kazakhstan, which has been examined by some of the small and medium business, has been identified as the role of economic security. Showcase market is a small and medium-sized business and a small company. It has been suggested that a small number of small businesses, small businesses, small and medium-sized businesses, will create favorable conditions for the development of the economy, the basic forms and mechanisms of private interconnectivity in large and small businesses. Small business plays a significant role in the economy. By the way, the authoritative development of smaller enterprises in the Republic of Kazakhstan allows to maintain a high level of employment, which excludes massive deprivation and, as a matter of fact, is the most important factor of the stabilization of stabilization in the country.

Keywords: small business, predictability, self-sacrifice, root, role, task

Introduction. One form of small business is self-employment - entrepreneurship without the formation of a legal entity and in most cases without the use of hired labor. In the countries of the European Union in the 1990s, it provided employment for every eighth resident. In developing countries, 30-70% of the economically active population is employed in micro-enterprises with the number of employees from two to ten people. Here, up to 30% of gross domestic product is produced, and by 2020 this share can grow more than twice [1].

However, small and medium businesses have not only quantitative, but also qualitative certainty. Here the main feature is the combination of the functions of the owner (manager) of the property and the manager who manages this property and ensures the self-sufficiency of the business.

The combination of ownership and management in small and medium businesses gives real advantages in competitiveness: a) accelerates and simplifies the process of making managerial decisions, which allows small businesses to quickly adapt to changes in the market situation and consumer demands, develop and assimilate new profitable spheres of business, unprofitable and unpromising; b) small business does not need a complex system of management, accounting and control over employees and managers; the owner himself organizes the production, while receiving savings on overhead costs; c) due to direct contact and mutual control of members of a small group, a higher intensity and discipline of labor is ensured; e) workers have the opportunity to work closer to home or at home with a flexible working day regime, agreeing, as a result, to lower wages than large enterprises.

Methods of research. The study of small and medium-sized businesses was based on modern materials of domestic and foreign sources recognized by the world's most popular scientists in the economic development of the country. The substantiation of theoretical positions was carried out on the basis of application of such general scientific methods and techniques as system and complex approaches, the method of comparative analysis and synthesis, and others.

The discussion of the results. According to the United Nations Development Program, the number of small enterprises exceeds 95% of the total number of enterprises. In the world economy, these enterprises account for over 60% of employees, and their share in GDP reaches 50%.

According to the "European Review of Small and Medium Enterprises", the contribution of enterprises in European countries with the number of employees up to 250 people in relation to the corresponding total for all enterprises of the European Union countries is: the share in the total number of enterprises is 99.8%; share in total employment - 65.8%; share in the total sales - 56.7% [2].

Small business in the developed countries of the world largely determines the rate of economic growth, the structure and quality of the gross national product.

In countries such as Japan, Germany, Belgium, Italy, small and medium-sized businesses account for more than 90% of all enterprises, in many developed countries it accounts for more than 50% of GDP.

In Western Europe, the United States and Japan, small businesses are represented by a combination of small enterprises, the bulk of which are small enterprises with a maximum of 20 employees. Small businesses account for 2/3 of the increase in new jobs, which significantly reduced unemployment in the above-mentioned countries.

In many countries of the former socialist camp, the share of small and medium-sized businesses in the structure of the gross domestic product is more than 50%, which makes it possible to form and develop a full-fledged middle class. So, in Latvia small and average business already brings more than 50% of gross national product. In Hungary, small and medium-sized enterprises account for 50% of GDP, 67% of the employed in the economy, 20% of exports and 99% of the total number of enterprises.

Small businesses around the world play an important role. Entrepreneurship mobilizes large financial and production resources of the population, carries a powerful antimonopoly charge, is a serious factor in structural restructuring and ensuring breakthroughs in a number of areas of scientific and technological progress, largely solves the problem of employment. Therefore, small business organically enters the economic systems of the most developed countries. So, in the USA there are over 10 million, in Japan - about 8 million, in Italy - 3.6 million small enterprises.

Small enterprises are effective not only in the production of consumer goods, but also as producers of individual components, semi-finished products and components required for the production of final products, the production of which is not beneficial for large enterprises.

Successful functioning of small and medium-sized enterprises creates favorable conditions for economic recovery:

- a competitive environment is formed and developed;
- branch and regional monopolism is overcome;
- there is a saturation of the market with goods and services;
- anti-monopolization of the economy is carried out;
- the achievements of scientific and technical progress are being introduced;
- additional workplaces are created;
- material and non-material resources are effectively used;
- the export potential is increasing;
- tax revenues increase;
- the middle class is formed;
- local raw materials are better used [3].

Of great importance is the ability of small enterprises to expand the scope of employment, create new opportunities not only for employment, but above all for expanding the entrepreneurial activity of the population, the deployment of its creative forces and the use of free production facilities. As a result, on average, small producers receive a greater return on equity than large producers.

The stabilizing role of small and medium-sized businesses is due to three main reasons: a) in this sphere, a less important role is played by an agiotage price increase and speculative intermediaries; b) small business is less dependent on imports, the dynamics of prices here are largely due to the ratio of supply and demand; c) the branch labor market in this area is more flexible, and the reduction in demand is accompanied not by the elimination of jobs, but by the introduction of an incomplete working week, a shorter working day [4].

The main forms and mechanisms of economic interaction between large and small businesses are subcontracting, leasing, franchising, the creation of entrepreneurial networks, "incubators" of small and medium-sized businesses, and others.

Threats to the economic security of business are understood as the potential or real impact of individuals or legal entities that violate the protection of an entrepreneurial entity and may lead to the cessation of its activities, or to economic and other losses.

Conclusions. To achieve this goal, it is necessary to solve the following tasks:

- Creation of the most transparent legislative basis for the development of small and medium-sized businesses;
- De-bureaucratization of the economy and removal of administrative barriers;
- Reduction of shadow turnover in small and medium-sized businesses;
- transfer of non-core functions of enterprises and joint-stock companies with state participation in the market environment, primarily small and medium-sized enterprises;
- Creation and maintenance of viability of infrastructural systems on the basis of the cluster-network approach;
- participation of entrepreneurs in the innovation economy.

The macroeconomic effect of small and medium-sized businesses is realized not only in increasing sales and profits at the microeconomic level, but, first of all, in social and economic transformations at the scale of society as a whole. Small and medium-sized businesses stabilize the market, involving local raw materials, whose use is unprofitable for giants, and also more accurately taking into account the needs of the local market. Small and medium business contributes to the development of small towns and villages, reduces travel time and general transport costs, facilitates (especially in chemistry and metallurgy) the burden on nature, dispersing production in many regions of the country

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ҚАЗАҚСТАН РЕСПУБЛИКАСЫНЫҢ ЭКОНОМИКАЛЫҚ ДАМУЫНДАҒЫ КӘСІПКЕРЛІКТЕР

Аннотация. Мақалада автор Қазақстанда шағын бизнестің қазіргі жай-күйін анықтап, шағын және орта бизнеске қатер төндірді, кәсіпкерліктің экономикалық қауіпсіздігінің рөлін анықтады. Шағын және орта

кәсіпорындарды қалыптастыруға нарықтың әсер етуі және ықтимал тәуекел дәрежесі көрсетілді. Шағын кәсіпкерлікті дамытудың оң шетелдік тәжірибесі, шағын және орта бизнестің табысты жұмыс істеу жолдары, экономиканы сауықтыруға қолайлы жағдайлар жасайтын, ірі және шағын бизнестің экономикалық өзара әрекеттесуінің негізгі нысандары мен механизмдері ұсынылған. Шағын бизнес ел экономикасында маңызды рөл атқарады. Автордың айтуы бойынша, Қазақстан Республикасындағы шағын бизнестің алға басуы халықтың жаппай жұмыссыздық деңгейін төмендететін жұмыспен қамтудың жоғары деңгейін ұстап тұруға мүмкіндік береді және соның салдарынан елдегі тұрақтылықты қамтамасыз етудің маңызды факторы болып табылады.

Түйін сөздер: шағын бизнес, кәсіпкерлік, өзін-өзі жұмыспен қамту, қатерлер, рөлдер, міндеттер

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ПРЕДПРИНИМАТЕЛЬСТВО В ЭКОНОМИЧЕСКОМ РАЗВИТИИ КАЗАХСТАНА

Аннотация. В статье авторы раскрыли современное состояние малого бизнеса в Казахстане, рассмотрены были некоторые угрозы малому и среднему бизнесу, выявлены роль экономической безопасности предпринимательства. Показано влияние рынка на формирование малых и средних предприятий и возможная степень риска. Представлен положительный зарубежный опыт развития малого предпринимательства, пути успешного функционирования малых и средних предприятий, которые создают благоприятные условия для оздоровления экономики, основные формы и механизмы хозяйственного взаимодействия крупного и малого бизнеса. Малый бизнес играет значительную роль в экономике страны. По мнению автора, поступательное развитие малого предпринимательства в РК позволяет поддерживать высокий уровень занятости населения, что исключает массовую безработицу, а как следствие – является важнейшим фактором обеспечения стабильности в стране.

Ключевые слова: малый бизнес, предпринимательство, самозанятость, угрозы, роль, задачи

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THE MAIN DIRECTIONS OF THE ECONOMIC DIVERSIFICATION OF THE REPUBLIC OF KAZAKHSTAN

Abstract. Diversification of the economy implies diversification of its structure. The role of national states has now intensified both in domestic economic and in interaction with the outside world. In these conditions, the main goal of the economic policy of any state is to create a competitive economy that ensures a decent level and quality of life for the population and a worthy position of the country on the world market. Access to the latter primarily science-intensive products and scientific and technical information has become an indispensable condition for a consistent goal and the main factor of economic growth. Without the connection to the world market, the development of the national economy is rapidly slowing down. Consequently, the state developed by them investment and industrial-innovative programs and legislative acts should be directed and subordinated to ensuring the competitiveness of domestic enterprises.

Keywords: Diversification, competitiveness, innovation, modernization, competitiveness, potential, development

Introduction. Today's successes in socio-economic development and attraction of foreign investments make the Republic of Kazakhstan obliged to such basic factors of competitiveness as the availability of natural resources, a favorable macroeconomic environment and political stability. However, in the long term to 2020, after reaching a certain level of well-being in the range of 10 thousand to 15 thousand US dollars GDP per capita, the growth of the economy of the Republic of Kazakhstan may slow down. The economy of the Republic of Kazakhstan may lose its competitiveness and find itself in a "middle income trap". To maintain high rates of economic growth, the Republic of Kazakhstan will need to implement the structural changes in the economy that are necessary to move to a new stage of development. In this regard, the diversification of the economy seems to remain relevant for Kazakhstan.

Methods of research. The variety of goals, objectives and areas of activity in agriculture predetermines various criteria for assessing the effectiveness of economic entities. The main methods of research are a method of deduction and induction, as well as a comprehensive approach and a method of scientific abstraction.

The discussion of the results. Initiatives within the framework of an active state policy on business cooperation can be aimed directly at strengthening business contacts with entrepreneurs in the following areas:

- specialized categories of buyers form new market niches and are the source of information on product standards;
- suppliers of equipment transfer with it the production experience;
- suppliers of resources contribute to the emergence of new ideas and methods of production, and competitors are a rich source of new ideas.

Groups of companies, customers, suppliers of equipment and resources, services, industry associations, design offices and other specialized organizations working on the principles of cooperation operate jointly within the same region. Countries with underdeveloped markets may require a catalyst (by its nature it can be public or private) to drive the cumulative process of deepening the market and developing business cooperation. To give impetus to industrial growth, states are tempted to replace market assessments with information and estimates generated in the public sector. These efforts rarely bear fruit. Experience of the Philippines in the late 70's and 80's shows what can happen when the government has a strong influence of influential groups of private entrepreneurs [2, p.41].

Partly driven by the desire to create new business opportunities for its allies within the country, in 1979 the Philippine government announced a new program of "large industrial projects" worth $ 5 billion (all of which were implemented without exception in capital-intensive heavy industries). A year later, under pressure from opponents of the strategy, the government agreed to subject these projects to a second economic and financial examination. Soon, political and financial turmoil brought about their contribution to the process. By the end of 1987, five of the eleven initially proposed projects, valued at almost $ 4 billion (of $ 5 billion), were collapsed as unrealizable. In total, only four projects with a total value of $ 800 million made a profit.

Based on the world experience, the government of Kazakhstan makes the main emphasis in the implementation of investment policy on initiatives to coordinate investment and develop business cooperation. Financial support will be provided only on the principles of equity participation through development institutions. At the same time, the private sector, including second-tier banks, must assume the main risks.

Competitiveness is formed at various levels: goods and services, companies, industries, regions, countries. These concepts are far from identical, but closely interrelated. Often it is impossible to separate problems relating to the competitiveness of the country as a whole, from problems expressing the competitiveness of a product or firm. Competition primarily forces enterprises to improve the quality of their products, goods, works and services, reduce production costs, and increase labor productivity. In a competitive environment, competing enterprises and firms seek to gain recognition and get more profit.

In the most complete sense, competitiveness includes three main components. One of them is rigidly related to the product as such and to a large extent reduces to quality, the other is related both to the economy of the creation of the marketing and service of the goods, and to the economic possibilities and limitations of the consumer. Finally, the third reflects all that can be pleasant or unpleasant to the consumer as a buyer, as a person of a social group.

Synthetic indicator, combining the competitiveness of goods, producers, sector competitiveness and characterizing the country's position in the world market, is the indicator of country competitiveness. In its most general form, it can be defined as the country's ability to produce goods and services in a free and fair competition that meet the requirements of the world market, the realization of which increases the welfare of the country and its individual citizens. In the modern economic dictionary, the following definition is given: the country's competitiveness is the ability of the country's economy, the state to participate in international trade, to retain and expand certain segments on world markets, to produce products corresponding to world standards. It is quite obvious that most of the competitive advantages are created in enterprises and firms using the latest technologies, new materials, more efficient forms of labor organization, which results in competitive goods, products and services.

In this regard, the President of the country outlined five major areas of modernization: the professionalization of the state, law and order, the construction of a new economy, social modernization, the formation of a state accountable to society. One of the biggest blocks of reform is industrialization and economic growth.

With regard to ensuring sustainable economic growth in Kazakhstan, a number of tasks must be achieved through reforming the system of state planning, fiscal and monetary policy, developing the financial sector, regulating the activities of natural monopolies, developing competition and entrepreneurship, and introducing corporate governance principles.

In solving these problems, the state should take the initiative of the regulator, the operator in their own hands, where necessary, to act as an investor (by using part of the budget, foreign exchange reserves and the National Fund).

Explicit imbalances in the structure of the economy are accompanied by an increase in the real exchange rate in the country and an upsurge in inflation.

In Kazakhstan, a relapse of the "Dutch disease" is expected, which may result in an increase in inflation. But above normative growth of inflation and rise in price of consumer services is, first of all, the result of growth of the real exchange rate of the national currency.

The surplus in the raw materials industries and the corresponding demand for their products do block the free flow of capital into the manufacturing sector.

For the time being, Kazakhstan's economic development can be characterized as dependent on the oil and gas and mining export sector and a high real exchange rate. Consequently, the economy is highly susceptible to world price fluctuations of the so-called boom sectors. The position of monopoly companies in commodity sectors, which are highly profitable and super-profitable, is such that they are not interested in developing the manufacturing sector, with the exception of small projects to improve technological indicators in the extraction of raw materials or raw materials. And the purchasing policy of large commodity holdings is aimed at foreign partners, their parent companies, which supply the necessary equipment, spare parts, chemical reagents, which does not contribute to the formation of domestic small and medium-sized businesses in industry. Now this business in the country is focused mainly on the retail consumer sphere.

Kazakhstan has every chance to go its own way to innovation most successfully and to become one with the world leaders of innovations. In order to ensure high rates of annual growth in the indicators of innovative development in market conditions, a purposeful state policy is needed not only in innovation and scientific, technical, but also in the social and economic sphere. For example, Kazakhstan's participation in the Sustainable Energy for All Initiative provides the following perspectives:

• to attract financial and technical, informational assistance for the achievement of Kazakhstan's goals for the green economy, the Kyoto Protocol, the Energy Charter. Achieve a 30% share of renewable energy in 2030 and 50% in 2050, reduce energy intensity of GDP by 25% by 2020, and double by 2050, increase labor productivity by 5 times;

• coordinate Kazakhstan's actions with other countries in the field of energy efficiency and development of RES;

• to attract 80 countries participating in the initiative at Expo-2017, and also to integrate their efforts into the activities of the Green Bridge Program, the Global Energy and Environmental Strategy;

• To attract the potential of the founders and partners of the initiative at the Expo-2017, which includes BloombergNewEnergyFinance, IRENA, the United Nations Foundation Ted Turner, two key UAE energy future structures - Mazdar and ZayedFuture, GlobalAllianceforCleanCookstoves, GlobalBioenergy Partnership, GlobalVillage EnergyPartnership and others..

Conclusions. Thus, successful implementation of the innovation development strategy should facilitate the implementation of qualitative changes in the structure of Kazakhstan's economy that will lead to its sustainable growth based on the effective use of human, produced and natural capital, Kazakhstan's access to a new level of social development and social structure. Based on the current challenges of globalization and financial instability, increased competition in world markets, the growing role of science and innovation, human development, the macroeconomic policy of the Republic of Kazakhstan should be built [9]. For the benefit of the people of Kazakhstan, it is necessary to focus not on the ideals of individual and mass consumption, but on preserving the traditions of the family and the national characteristics of social relations. This is the main key to building a civil society in the Republic of Kazakhstan [10]. Today, Kazakhstan needs to look for new directions for economic development. To increase the country's competitiveness in the world market, it is necessary to actively develop high-tech industries and, on their basis, to build an effective national innovation system**.**

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ҚАЗАҚСТАН РЕСПУБЛИКАСЫНЫҢ ЭКОНОМИКАСЫН ӘРТАРАПТАНДЫРУДЫҢ НЕГІЗГІ БАҒЫТТАРЫ

Аннотация. Экономиканы әртараптандыру оның құрылымын диверсификациялауды білдіреді. Ұлттық мемлекеттердің рөлі ішкі экономикалық және сыртқы әлеммен өзара әрекеттестікте күшейе түсті. Мұндай жағдайда кез-келген мемлекеттің экономикалық саясатының негізгі мақсаты халықтың лайықты деңгейі мен өмір сүру сапасын қамтамасыз ететін бәсекеге қабілетті экономиканы құру және әлемдік нарықта елдің лайықты ұстанымын қамтамасыз ету болып табылады. Соңғы ғылыми-техникалық өнімдерге және ғылыми-техникалық ақпаратқа қол жеткізу тұрақты дамудың негізгі факторы болып табылады. Әлемдік нарыққа қосылусыз, ұлттық экономиканың дамуы жылдам қарқынмен төмендейді. Демек, олар әзірлеген мемлекет инвестициялық және индустриялық-инновациялық бағдарламалар мен заңнамалық актілерге отандық кәсіпорындардың бәсекеге қабілеттілігін қамтамасыз етуге бағдарлануы керек.

Түйін сөздер: Әртараптандыру, бәсекеге қабілеттілік, инновация, жаңғырту, бәсекеге қабілеттілік, әлеует, даму

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ОСНОВНЫЕ НАПРАВЛЕНИЯ ДИВЕРСИФИКАЦИИ ЭКОНОМКИ РЕСПУБЛИКИ КАЗАХСТАН

Аннотация. Диверсификация экономики подразумевает диверсификацию ее структуры. Роль национальных государств в настоящее время усилилась как в внутриэкономической, так и во взаимодействии с внешним миром. В этих условиях главной целью экономической политики любого государства является создание конкурентоспособной экономики, обеспечивающая достойный уровень и качества жизни населения и достойное положение страны на мировом рынке. Доступ к последнему в первую очередь наукоемкой продукции и научно-технической информаций стал обязательным условием последовательной цели и главным фактором экономического роста. Без подключения к мировому рынку развитие национальной экономики резко замедляется. Следовательно, государство разрабатываемые ими инвестиционные и индустриально-инновационные программы и законодательные акты должны быть направлены и подчинены к обеспечению конкурентоспособности отечественных предприятий.

Ключевые слова: Диверсификация, конкурентоспособность, инновации, модернизация, конкурентоспособность, потенциал, развитие

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FEATURES OF THE TAX ACCOUNT OF LEASING OPERATIONS

Abstract. The authors of the article emphasized that many auditors believe that for all the shortcomings of the IFRS imposition, our legislative tax base of Kazakhstan should be based on international standards. Ideally, perhaps, it would be to create a separate accounting accounting from tax accounting, but taking into account the experience of the Big Four, it is hardly possible to completely abandon accounting as such. Therefore, for today, it seems to me, it would be of fundamental importance to take the existing accounting and, on its basis, minimize the differences that are currently occurring in the market. After all, the more Kazakhstan integrates into the world economy, the more questions will arise in our country. Therefore, the tax base in our country should be unified in international financial reporting standards**.**

Keywords: leasing, tax, accounting, operations, standard, reporting.

Private leasing companies most often compete in the sectors of vehicles and construction equipment, which, although they have a small share in comparison with the state-funded industries, are key to the market.

A significant share of agricultural machinery in the structure of new transactions is the merit of KazAgroFinance. Once there was presented another major player - the leasing company Astana-Finance, but it has not made new deals for a long time, and its portfolio is shrinking from year to year. The remaining companies in this segment of the market are almost not represented.

The growth of the share of railway equipment is largely ensured by the activities of DBK-Leasing on the development of domestic infrastructure. The railway segment is extremely popular in Russia, but in Kazakhstan its development is variable, probably because of the limited number of potential customers.

Motor transport, primarily freight, is one of the priority sectors for private leasing companies. Here there is the most significant competition and it seems that in this segment first of all leasing companies are able to make attractive offers.

Taking into account that since April 1, 2017 the official refinancing rate is equated to the value of the base rate, which amounts to 11.0%, the subsidy by the Government of the Republic of Belarus for Kazakh agrarians will be 7.33%. Previously, the compensation was 3.67%.

Since the end of last year, KazAgroFinance JSC has reduced the interest rate from 19% to 17.3% per annum. Thus, the final rate for consumers under the program "Made in Belarus" will be about 10%. At the same time, the possibility of obtaining Kazakh subsidies is not ruled out.

The procedure for recognizing financial leasing for tax purposes is regulated by art. 78 of the new Tax Code. According to this article, the transfer of property under a leasing agreement concluded in accordance with the legislation of the Republic of Kazakhstan for a period of more than three years is a financial lease if it meets one of the following conditions.

The first condition is the transfer of ownership of the property to the lessee or the granting of the right to the lessee to purchase the property at a fixed price are determined by the leasing agreement.

The second. The term of financial leasing must exceed seventy five percent of the useful life of the leased asset.

And the third. The current (discounted) cost of leasing payments for the entire term of financial leasing should be more than ninety percent of the value of the property transferred for financial leasing.

For the purposes of tax accounting, such transfer is considered a purchase of property by the lessee. In this case, the lessee is considered as the owner of the leased asset, and the lease payments - as payments on the loan granted to the lessee.

If the leasing agreement determines the right of the lessee to extend the term of financial leasing, the term of financial leasing is determined taking into account the period for which the extension was actually effected.

It should be especially noted that the property transferred for financial leasing is leased items that are to be received by the lessee as a fixed asset, investment in real estate, and biological assets.

In addition, the new Tax Code identified cases where, for tax purposes, financial leasing is not recognized, this is primarily:

First. Leasing transactions in case of cancellation of leasing contracts on them before the expiration of three years from the date of the conclusion of such contracts (except for the recognition of the lessee as bankrupt, recognition of the physical person - lessee missing or deceased, incompetent or severely incapacitated, disability I, II group, person - the lessee and other cases established by the new Tax Code).

The second. Leasing transactions for which the amount of leasing payments (independently, under contract or actual) for the first year of the leasing agreement is more than 50 percent of the value of the leased asset.

Third. Leasing transactions for which, prior to the expiry of three years from the date of the conclusion of the leasing agreement, the lessee was replaced, except for the replacement in connection with the reorganization of the lessee.

And, fourth, the transfer of property in subleasing.

Features of revenue recognition under long-term contracts are established art. 79 of the new Tax Code.

A long-term contract is a contract or contract for the production, installation, construction, which was not completed within the tax period for corporate income tax, in which the production, installation, construction stipulated under the contract were commenced.

The amount actually incurred for the tax period of expenses under a long-term contract shall be referred to deductions in accordance with Art. 100-125 of the new Tax Code.

Revenues under long-term contracts are determined at the choice of the taxpayer by the actual method or method of completion. The chosen method for determining revenue is reflected in the tax accounting policy and can not be changed during the term of the contract.

According to the actual method, income received under the long-term contract for the reporting tax period is recognized as income received (received) for the reporting tax period, but not less than the amount of expenses incurred for such period under a long-term contract.

By the method of completion, income under a long-term contract for the reporting tax period is defined as the product of the total amount of income under a long-term contract and the proportion of the performance of the specified contract for the reporting tax period.

At the same time, the proportion of performance of a long-term contract is defined as the ratio of the amount of expenses incurred for deductions in the reporting tax period to the total amount of expenses under a long-term contract that can be charged for deductions for the contract period.

Features of tax accounting for joint activities established art. 80 of the new Tax Code.

In the case of an agreement on the conduct of joint activities or other agreement providing for two or more participants in a joint activity agreement without the formation of a legal entity, taxable objects and objects related to taxation are accounted for and taxed, respectively, by each participant in the joint activity agreement.

Each participant of a joint activity agreement with respect to the share of the whole participation independently maintains a record of assets, liabilities, income and expenses for joint activities for determining taxable objects and objects related to taxation.

In the absence of the procedure for the allocation of assets, liabilities, income and expenses for joint activities in the joint activity agreement to determine the objects of taxation and objects related to taxation, the participants in the joint activity agreement must develop and approve the tax accounting policy for joint activities before the submission of the first tax reporting.

The joint activity agreement may be used to determine the authorized representative of the parties to the joint activity agreement responsible for maintaining tax accounting for such activities or a part thereof.

Assets, liabilities, income and expenses for joint activities are taken into account by the authorized representative of the parties to the joint activity agreement separately from assets, liabilities, revenues and expenses for other activities of this authorized representative.

The distribution of assets, liabilities, income and expenses for joint activities for determining the objects of taxation and objects related to taxation between the parties to the joint activity agreement is carried out by the parties to the joint activity agreement or their authorized representative on the basis of the results of each tax period in accordance with the procedure for the joint activities.

If the procedure for the allocation of assets, liabilities, income and expenses is not established by the terms of the joint activity agreement or the tax accounting policy for joint activities, the participants in the joint activity agreement or an authorized representative of such participants shall exercise this allocation in proportion to the shares of participation under the joint activity agreement.

The results of the distribution of assets, liabilities, income and expenses for the determination of taxable objects and objects related to taxation between the parties to the joint activity agreement must be in writing, signed by all parties to the joint activity agreement or their authorized representative, and sealed by participants agreement on joint activities.

The document on the results of the distribution of assets, liabilities, incomes and expenses is submitted by each participant of the agreement on joint activity to the tax authorities when conducting a documentary tax audit.

The authorized representative of the parties to the joint activity agreement must have copies of all documents on the basis of which the distribution of assets, liabilities, income and expenses was effected.

When transferring property to financial leasing, the date of completion of the sale is:

1) in the part of the amount of the periodic lease payment established by the leasing agreement, without taking into account the amount of remuneration, except for the cases specified in subparagraphs 2) and 3) of this paragraph, - the date of the receipt of the period for receipt of such payment;

2) in the part of the amount of all periodic lease payments without taking into account the amount of remuneration, the date of the receipt of the time of receipt of which under the leasing agreement is established prior to the date of transfer of the property to the lessee, - the date of transferring the property to financial leasing;

3) in terms of early repaid amounts of leasing payments provided for by the leasing agreement without taking into account the amount of remuneration, if the requirements of Article 197 of the Tax Code are complied with, the date of receipt of such payment (regardless of the form of calculation);

4) in terms of the amount of remuneration accrued, the date of the turnover is the earliest of the following dates:

the last day of the reporting tax period;

the last day of the termination of the accrual of remuneration under a financial leasing contract. "

When transferring property to finance leasing, the sales turnover size is determined in the amount of:

1) as of the date of the turnover specified in subparagraph 1) of paragraph 11 of Article 379 of the Tax Code - on the basis of the amount of the lease payment established in accordance with the financial leasing agreement without including the amount of remuneration for financial leasing and value added tax;

2) as of the date of the turnover specified in subparagraph 2) of paragraph 11 of Article 379 of the Tax Code - on the basis of the amount of all periodic lease payments without including in them the amount of remuneration for financial leasing and value added tax, the date of the receipt of which is due in accordance with the contract of financial leasing is established before the date of transfer of property to the lessee;

3) as of the date of the turnover indicated in subparagraph 3) of paragraph 11 of Article 379 of the Tax Code - as the difference between the total amount of all lease payments received (receivable) under a financial leasing contract without including in them the amount of financial lease and tax on added value, and the amount of taxable turnover, defined as the sum of the amounts of taxable turnover falling on the previous dates of the sale of sales under this agreement;

4) as of the date of the turnover specified in subparagraph 4) of paragraph 11 of Article 379 of the Tax Code - in the amount of the accrued amount of remuneration.

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ЛИЗИНГ ОПЕРАЦИЯЛАРЫНЫҢ САЛЫҚ ШЫҒАРУЫНЫҢ ЕРЕКШЕЛІКТЕРІ

Аннотация. Мақаланың авторлары көптеген аудиторлар ҚЕХС енгізілген барлық кемшіліктер үшін Қазақстанның заңнамалық салық базасы халықаралық стандарттарға негізделуі керек деп санайды. Ең дұрысы, салықтық есепке алудан бөлек бухгалтерлік есепті құру керек еді, бірақ «Үлкен Төрт» тәжірибесінің есебімен бухгалтерлік есептен толықтай бас тартуға болмайды. Сондықтан, бүгінде, меніңше, қазіргі бухгалтерлік есепті жүргізудің түбегейлі маңызы болады және оның негізінде нарықта болып жатқан айырмашылықтарды барынша азайтады. Өйткені, Қазақстан дүниежүзілік экономикаға неғұрлым көп кіреді, біздің елде одан да көп сұрақ туындайды. Сондықтан біздің еліміздегі салық базасы халықаралық қаржылық есеп беру стандарттарында бірыңғай болуы тиіс**.**

Түйін сөздер: лизинг, салық, бухгалтерлік есеп, операциялар, стандарттар, есеп беру.

УДК 339.187.62

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ОСОБЕННОСТИ НАЛОГОВОГО УЧЕТА ЛИЗИНГОВЫХ ОПЕРАЦИЙ

Аннотация. Авторами статьи подчеркнуто, что многие аудиторы считают, что при всех недостатках наложения на МСФО, наше законодательная налоговая база Казахстана должна основываться на международных стандартах. Идеально, наверное, было бы создать отдельный от бухгалтерского налоговый учет но, принимая во внимание опыт работы большой четверки, вряд ли можно полностью отказаться от бухгалтерского учета как такового. Поэтому на сегодняшний день, мне кажется, принципиально важным было бы брать существующий бухучет и на его базе минимизировать различия, которые происходят на сегодняшний день на рынке. Ведь, чем больше Казахстан будет интегрироваться в мировую экономику, тем больше вопросов будет возникать и у нас. Поэтому налоговая база в нашей стране должна быть унифицирована на международных стандартах финансовой отчетности.

Ключевые слова: лизинг, налог, учет, операции, стандарт, отчетность.

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THE ROLE OF THE STATE IN THE INVESTMENT POLICY OF THE MACHINE-BUILDING COMPLEX OF KAZAKHSTAN

Abstract. This article researches the issues of investing in the machine building complex of Kazakhstan. The machine-building complex is one of the most important industries of any economy. The article shows investment trends, problems and factors that restrain the pace of development of the industry. The role of the state in determining the direction of the investment policy of the machine building complex is considered. The results of the Government's policy for creating a favorable investment regime are positively assessed at the international level. The effectiveness of investment policy in the machine building complex largely depends on the scientific validity of the investment management process. The authors presented the state measures to increase the investment attractiveness of the industry.

Keywords: investment, machine-building complex, state policy.

At present, the priority branches of machine building in Kazakhstan are divided into two main segments. The first segment includes enterprises with high attractiveness and realizability, namely engineering for the oil and gas, mining and metallurgical industries, railway machinery, agricultural machinery, and the production of electrical equipment. Segments of the second priority either have high attractiveness, but relatively low realizability, or high realizability, but moderate attractiveness. The second priority is the automotive industry, construction machinery, machine tools, home appliances and components "[1].

Domestic enterprises are focused mainly on the assembly or production of spare parts, while the enterprises-competitors have long been manufacturing the products of the fifth technological order and are increasing the capacity for the production of the sixth technological order. Obviously, the solution to these problems is impossible without attracting the necessary amount of investment.

As official statistics show, the volume of fixed capital investment in manufacturing in 2017 is almost twice as high as in 2011. However, if we consider the machine-building complex, the growth was 1.36 times. If to compare in a structural cut, here it is possible to speak about various tendencies.

There are industries where the growth in investment is higher than the industry average, such as the production of machinery and equipment not included in other categories and the production of other vehicles. In the production of vehicles, trailers and semi-trailers, investments in 2017 decreased by more than two times compared with 2011.

Let's compare the share of investments in machine building in the total volume of investments into the economy of Kazakhstan. During the period under review, there is a positive dynamics of changes in investment in the industry as a whole; in 2015 the volume of investments amounted to 3863090 million tenge, whereas in 2011 there were 2653463 million tenge [2].

If we talk about the share of investments in the machine-building industry in the total volume of investments in industry, then there is a steady decline, in 2011 9.22%, and in 2015, 6.84%. The same situation is observed in the share of machinery investment in industry as a whole. In 2011, there was 1.67%, then there was a decline in the share to 1.46%.

The share of investments in machine building in the total volume of investments in industry (1.46%) does not correspond to the share of the industry in the total volume of industrial production (4.44%). In developed countries, the ratio is the opposite - for borrowed (attracted) funds account for 70-80% of investment. The same discrepancy is observed in relation to the manufacturing industry. So, if the share of investment in engineering in manufacturing investment fell to 6.8%, the share of manufacturing machinery manufacturing industry was 11.09%.

In general, the domestic machinery industry, with the exception of some sub-sectors, is characterized by low investment attractiveness [3].

Investments in fixed capital by types of industries show uneven distribution. So, if in general the growth of investments is observed on the industry by 71.2% compared to 2011, then in mechanical engineering the growth occurred only 27.1%. In the context of engineering industries, there is also a disproportional distribution of investment funds. The most attractive production is machinery and equipment not included in other categories. In the quantitative ratio of investment prevails in the production of other vehicles. As noted above, the structure of investments over the period under review has changed. There was a shift from one industry to another, at the same time there was instability.

If we talk about the role of the machine building complex of Kazakhstan in the national economy, its place at the moment is not as definite as in the economies of other countries. So, it is clear that for Kazakhstan machinery is important and its products are in demand, especially in the oil and gas and agrarian sectors.

At the moment in the import structure, engineering products occupy a significant share. For example, more than 40% of Kazakhstan's imports are manufactured by machine-building. This proves the dependence on imports of machinery and equipment. Therefore, the issue of import substitution is especially relevant for this sector. This is why machine building is among the main priorities.

As the data at machine-building enterprises show, the utilization of production capacity is only half of what is possible. Only the units of the enterprise work, and using their capacity is maximum. The coefficient of renewal of fixed assets in the machine building complex is quite low, which indicates the wear of production equipment. It should be noted that the fixed assets of this sector are being updated more slowly and more often due to imports of machinery and equipment. All this is reflected in the non-competitiveness of domestic engineering.

To solve existing problems, it is necessary to work to establish an attractive investment climate, which will attract investors to the machine-building industry.

For the growth of demand for engineering products, a number of objective factors, such as an increase in the volume of mineral extraction, an increase in the output of related industries, the wear and tear of the fixed assets of industry, and others.

The total park of locomotives in Kazakhstan totals 1,689 locomotives; the operated park makes 1220 units (78% from an inventory park).

The analysis allows determining a number of common problems of this industry:

- investment resources are concentrated more in the commodity sector;–
- engineering products are not competitive;–
- domestic machine-building enterprises are still not adapted and are not flexible enough to change the factors of different nature;–
- worn-out stock of fixed assets;–
- insufficient level of partnership and cooperation of machine-building enterprises producing interconnected products, lack of flexible production complexes "[4].

As we can see, the problems presented are in one way or another connected with the current investment policy of this sector of industry. At the same time, it is necessary to take into account the importance and prospects of the machine building complex for the country's economy. When determining the direction of the investment policy of the machine-building complex, the state should apply a whole range of measures interconnected with the involvement of various state and non-state institutions as executors.

At present, the Government of the Republic of Kazakhstan is carrying out purposeful work to improve the country's investment climate and create favorable conditions for investors. The result of the systematic work being carried out is the positive assessment of international experts. In the Rating on the

level of business conditions, a study is conducted on the indicator of the favorable nature of doing business. To do this, calculate the arithmetic mean of the 10 indicators [5].

According to the rating, in 2017 Kazakhstan ranks 35th among 189 countries, having improved its position compared to 2016. The state policy on improving the investment climate is positively estimated at the international level. Achievement of these indicators became possible as a result of the policy of the Government to create a favorable investment regime [6].

To enhance investment activity in various sectors of the machine building complex, a rationally organized management process is needed. The effectiveness of investment policy in the machine building complex largely depends on the scientific validity of the investment management process.

The investment policy of Kazakhstan is aimed at providing a favorable investment climate and is based on the principles of economic pragmatism: profitability, return from investment and competitiveness, as well as ensuring the growth of economic potential through the development of new points of economic growth and the definition of new market niches. Attraction of investments will be carried out on conditions of transfer of technologies and creation of high-tech productions, which requires ensuring the most competitive conditions for investment activities and business [7].

In the aim of attracting investments in economics of Kazakhstan we plan to strengthen bilateral co-operations with China, we realize 51 projects with of united Kazakhstan-Chinese industrial programs. According to the results of Organization of Economical Cooperation and Development and united revise of investment policy Kazakhstan will be participant of the Comitee on investments of Organization of Economical Cooperation and Development as “associate member” and will join to Declarationof Organization of Economical Cooperation and Development about international investments and multinational corporations. [8].

The growth of investments and the formation of a favorable investment climate in the country is a strategic task of development and the most important condition for the modernization of the domestic economy. It should be stressed that despite the importance of investing in fixed assets, investments are still high in the negotiable. And the growth of its volumes creates the prerequisites for maintaining high rates of economic recovery.

For working capital, a favorable climate is formed by the reduction of commercial risks and interest rates, which favors more rational use of own funds and, accordingly, increases the efficiency of their economic activities.

The main reason for the existence of high risks in the economy is an inadequate level of trust in the economy both to the state and the government, and to business people. The revival in the economy already in itself generates hope for the future, which is the main component of a positive investment climate.

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ҚАЗАҚСТАННЫҢ МАШИНА ЖАСАУ КЕШЕНІНДЕГІ ИНВЕСТИЦИЯЛЫҚ САЯСАТТЫНДАҒЫ МЕМЛЕКЕТТІҢ РОЛІ

Аннотация. Осы мақалада Қазақстан машина жасау кешеніне инвестиция салу мәселелері қарастырылды. Машина жасау кешені кез-келген экономиканың маңызды салаларының бірі болып табылады. Мақалада саланың даму қарқынын бәсеңдететін инвестициялық үрдістер, проблемалар мен факторлар көрсетілген. Машина жасау кешенінің инвестициялық саясат бағытын анықтауда мемлекеттің рөлі қарастырылады. Қолайлы инвестициялық режимді құру жөніндегі мемлекет саясатының нәтижелері халықаралық деңгейде оң бағаланады. Машина жасау кешеніндегі инвестициялық саясаттың тиімділігі негізінен инвестициялық басқару процесінің ғылыми негізіне байланысты. Авторлар саланың инвестициялық тартымдылығын арттыру жөніндегі мемлекеттік шараларды ұсынған.

Түйін сөздер: инвестициялар, машина жасау кешені, мемлекеттік саясат.

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РОЛЬ ГОСУДАРСТВА В ИНВЕСТИЦИОННОЙ ПОЛИТИКЕ МАШИНОСТРОИТЕЛЬНОГО КОМПЛЕКСА КАЗАХСТАНА

Аннотация. В данной статье рассмотрены вопросы инвестирования машиностроительного комплекса Казахстана. Машиностроительный комплекс является одним из значимых отраслей промышленности любой экономики. В статье приведены тенденции инвестирования, проблемы и факторы, которые сдерживают темпы развития отрасли. Рассмотрена роль государства при определении направления инвестиционной политики машиностроительного комплекса. Результаты политики Правительства для создания благоприятного инвестиционного режима находят положительную оценку на международном уровне. Эффективность инвестиционной политики в машиностроительном комплексе во многом зависит от научной обоснованности процесса управления инвестиционной деятельностью. Авторами представлены меры государства для повышения инвестиционной привлекательности отрасли.

Ключевые слова: инвестиции, машиностроительный комплекс, государственная политика.

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KAZAKHSTAN IN THE CONTEXT OF THE GLOBAL INDEX OF INNOVATIVE ACTIVITY

Abstract. The article analyzes the position of the Republic of Kazakhstan in the Global Innovation Activity Rating of Countries, compiled by the World Intellectual Property Organization (WIPO), Cornell University and the INSEAD Research Institute. The rating of countries on the index of innovative development of the most close to the economy of the Republic of Kazakhstan and advanced economies such as: Australia, Belarus, Brazil, Britain, Germany, India, Canada, China, Kyrgyzstan, Mongolia, Russia, Singapore, Turkey, Ukraine, Switzerland, South Korea, Japan. In addition, an analysis of the innovation system of Kazakhstan was done and the main problems that hampered the development of the innovative economy were identified.

Keywords: Innovation, a global index of innovation, scientific and technological progress, the level of innovative development, public-private partnership.

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КАЗАХСТАН В КОНТЕКСТЕ ГЛОБАЛЬНОГО ИНДЕКСА ИННОВАЦИОННОЙ АКТИВНОСТИ

Аннотация. В статье анализируется позиция Республики Казахстан в Глобальном рейтинге инновационной активности стран, рассчитывающейся Всемирной организацией интеллектуальной собственности (ВОИС), Корнельским университетом и исследовательским институтом INSEAD. Сделан рейтинг стран по индексу инновационного развития наиболее близких к экономике Республики Казахстан и стран с развитой экономикой, таких как: Австралия, Беларусь, Бразилия, Великобритания, Германия, Индия, Канада, Китай, Кыргызстан, Монголия, Россия, Сингапур, США, Таджикистан, Турция, Украина, Швейцария, Южная Корея, Япония. А также, проделан анализ инновационной системы Казахстана и выявлены основные проблемы, препятствующие развитию инновационной экономики.

Ключевые слова. Инновации, глобальный индекс инноваций, научно-технический прогресс, уровень инновационного развития, государственно-частное партнерство.

Введение. На протяжении нескольких веков важнейшим фактором экономического развития является научно-технический прогресс, который непосредственно связан с инновационным процессом, основу которого он составляет.

Уникальность инновационного процесса состоит в том, что он объединяет науку, технику, экономику, предпринимательство, управление и простирается от зарождения научной идеи до ее коммерческой реализации, охватывая при этом весь комплекс отношений: производства, обмена, потребления полученного в результате этого процесса новшества.

Для оценки уровня инновационного развития страны международными организациями разрабатываются обобщающие индексы, которые учитывают, как правило, три составляющие: инновационный потенциал, инновационную активность и инновационные результаты. Так, например, «Индекс глобальной конкурентоспособности» (Global Competitiveness Index), публикуемый в отчетах Всемирного экономического форума (г. Давос), рассматривает факторы инноваций и усовершенствований как самостоятельный 3-й раздел показателей, формирующих общий рейтинг конкурентоспособности и «Глобальный индекс инноваций» (The Global Innovation Index), который представляет наиболее полный комплекс показателей инновационного развития по различным странам мира. Данный рейтинг рассчитывается с 2007 года по методике международной бизнес-школы INSEAD (Франция).

Теоретические и прикладные аспекты инновационной активности широко исследованы в трудах таких российских ученых-экономистов: Фатхудинов Р., Трифилова А., Кузнецова Н., Балашова С., Шурина С., Трилицкая О.,КапреевaЕ.и мн. Других[2-6].

Среди ученых Казахстана можно отметить следующих экономистов, которые поднимали основные вопросы развития инновационной деятельности в организационно-экономическом аспектах как на макро-, так и на микроуровнях: Абдыгаппарова С., Алшанов Р., Мухтарова К., Купешова С., Тургинбаева А., Кажымурат К., Кенжегузин М., Мылтыкбаева А. и мн. другие.

Особо можно отметить статью доктора PhD Мылтыкбаевой А.Т. «Измерение национального развития Республики Казахстан в контексте глобального индекса инновационного развития» анализируются параметры системы измерения индекса глобальной конкурентоспособности (ИГК),которые в совокупности обеспечивают эффективность развития и конкурентоспособность страны, а также в зависимости от степени влияния и учета важности каждой из 12 составляющих ИГК они сгруппированы по субиндексам и стадиям развития экономики. Указаны весовые доли каждого субиндекса на определенном этапе развития. Согласно классификатору развития стран мира, показано место Казахстана [7].

Не смотря на широкую исследованность сферы инноваций, очень редко можно найти труды посвященные конкурентоспособности Республики Казахстан по индексу инновационной активности.

Методы исследования.

По определению данной международной бизнес-школойINSEAD«Глобальный индекс инноваций» – это глобальное исследование и сопровождающий его рейтинг стран мира по показателю уровня развития инноваций. По данной методике индекс рассчитывается как взвешенная сумма оценок двух групп показателей, которые представлены в таблице 1.

Таблица 1 - Группы показателей, используемые при расчетеглобального индекса инноваций

Располагаемые ресурсы и условия для проведения инноваций (InnovationInput)	Достигнутые практические результаты осуществления инноваций (InnovationOutput)
Институты; Человеческий капитал и исследования; Инфраструктура; Развитие внутреннего рынка; Развитие бизнеса.	Развитие технологий и экономики знаний; Результаты творческой деятельности. Креативность он-лайн
Примечание: составлено авторами по данным The Global Innovation Index, 2017 международной бизнес-школы INSEAD [1]	

Таким образом, из таблицы1 мы можем сделать вывод, что итоговый Индекс представляет собой соотношение затрат и эффекта, что позволяет объективно оценить эффективность усилий по развитию инноваций в той или иной стране .*Субиндекс входа* отражает условия и факторы, необходимые длясоздания инноваций и включает следующие группы показателей: 1. Институты; 2. Человеческий капитал и исследования; 3. Инфраструктура; 4. Устойчивость рынка; 5. Устойчивость бизнеса. *Субиндекс эффекта* обобщает итоги инновационной деятельности и

включает группы: 6. Научные результаты; 7. Творческие результаты и в методологии отчета за 2012 г. добавился новый показатель – креативность он-лайн. Из 84 показателей, входящих в Глобальный инновационный индекс (ГИИ) 57 – это показатели входа, характеризующие инновационный потенциал страны и 27 – показатели эффекта, описывающие эффективность использования данного потенциала.

Вычисление итогового индекса, как правило, основано на принципе среднего значения используемых параметров, однако с некоторыми с предварительной нормировкой. Статистические значения по каждому из параметров нормируются по принципу [8]:

$$X_{норм.} = \frac{x - min}{max - min}$$

где *min*– минимальное значение индикатора; *max*– максимальное значение по выборке.

После чего вычисляетсясреднее значение по каждому из параметров и итоговый индекс.Таким образом, способ измерения инновационного развития отличается у разных организаций по набору входящих параметров, их количеству в зависимости от их особенностей, целей и задач, однако в целом схожи по принципу математических подсчетов. А также, наибольшее распространение для диагностирования инновационных факторов получили экспертные методы, корреляционно-регрессионный анализ, факторный анализ, метод главных компонент, нечетких множеств, индексный анализ (Образцова О.И. [9], Багриновский К.А. [10], Бандман М.К. [11], Варшавский А.Е. [12], Коротков А.В. [13], Леонтьев В. [14], Татаркин А.Н. [15]). На выбор модели оказывает влияние как сложность исследуемого объекта, доступные данные, освоенный математический аппарат.

Такимобразом можно утверждать, что во время определения индекса инновационной активности могут быть использованы различные методы в зависимости от целей и задач исследования, а также сложности структуры инновационной системы стран.

Результаты и обсуждение

Если мы рассмотрим двадцатку стран сразнымуровнем экономического развития из доклада «Глобального инновационного индекса - 2017», подготовленным Всемирной организацией интеллектуальной собственности (ВОИС), Корнельским университетом и исследовательским институтом INSEAD, то можно утверждать, что за последние два года в основном на лидирующих позициях находятся страны экспортеры технологически новых товаров и услуг ежедневного использования (потребления). Такие как: Швейцария, США, Великобритания, Сингапур, Германия, Южная Корея, Япония, Канада и Китай. Китай же в 2017 году смог подняться еще на 3 ступени, заняв 22-е место в рейтинге инновационного развития, благодаря высоким результатам сразу по ряду показателей, включая количество компаний, осуществляющих научно-исследовательские и опытно-конструкторские разработки (НИОКР) в стране, штат исследовательского персонала на предприятиях и количество поданных патентных заявок.Казахстан же в данном рейтинге находится по данным 2016 года на 75 месте, а по данным 2017 года потеряв две позиции, расположился на 78 месте. Из постсоветских стран Казахстан опережают только Россия и Украина, которые по данным 2017 года расположились на 45 и 50 местах соответственно (таблица 2 и рисунок 1).

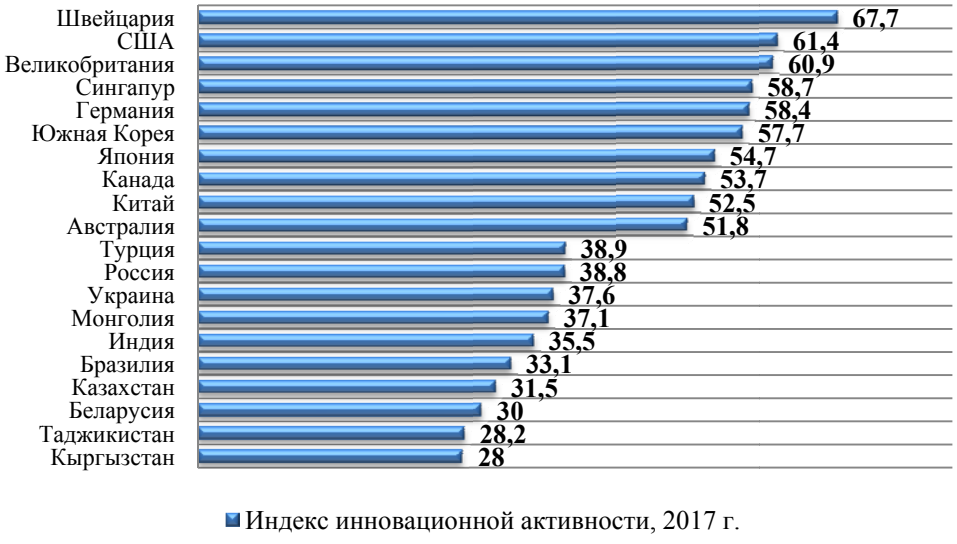
А что касается рейтингапо уровню инновационной активностистран Центральной и Южной Азии, Казахстан также замыкает в тройку лидеров, пропустив вперед только Индию и Республику Иран. Индия же уже седьмой год подряд остается безусловным лидером в этом регионе, поднявшись в 2017 году еще на 6 позиций по сравнению с 2016 г. (с 66-го до 60-го места). Следом за Индией, как и в 2016 году, идут Иран (75-е место в рейтинге 2017 г.) и Казахстан (78-е место) (таблица 2 и рисунок 1).

Таблица 2 - 20 стран из глобального рейтинга инновационной активности с разным уровнем экономического развития

№	Страны	2017		2016	
		индекс	место	индекс	место
1.	Австралия	51,8	23	53,1	19
2.	Беларусь	30,0	88	30,4	79
3.	Бразилия	33,1	69	33,2	69
4.	Великобритания	60,9	5	61,9	3
5.	Германия	58,4	9	57,9	10
6.	Индия	35,5	60	33,6	66
7.	Казахстан	31,5	78	31,5	75
8.	Канада	53,7	18	54,7	15
9.	Китай	52,5	22	50,6	25
10.	Кыргызстан	28,0	95	26,6	103
11.	Монголия	37,1	52	35,7	55
12.	Россия	38,8	45	38,5	43
13.	Сингапур	58,7	7	59,2	6
14.	США	61,4	4	61,4	4
15.	Таджикистан	28,2	94	29,6	86
16.	Турция	38,9	43	39,0	42
17.	Украина	37,6	50	35,7	56
18.	Швейцария	67,7	1	66,3	1
19.	Южная Корея	57,7	11	57,1	11
20.	Япония	54,7	14	54,5	16

Примечание: составлено авторами по данным The Global Innovation Index, 2017международной бизнес-школы INSEAD [1]

Если рассмотреть данные таблицы 2 в виде диаграммы, то можно увидеть следующую картину, которая представлена на рисунке 1, где мы отчетливо видим, что на лидирующих позициях находятся страны с высоким уровнем экономического развития. Как известно, что в современных условиях экономический рост достигается за счет инновационной активности экономики. Что удивительно, в данном рейтинге Казахстан опережает Монголия, которая обычно ассоциируется страной с наиболее низким уровнем экономического развития по сравнению с Республикой Казахстан. Однако, страны соседи Казахстан, как Киргизия и Таджикистан, которые представлены в докладе The Global Innovation Index и занимают 95 и 94 место соответственно.

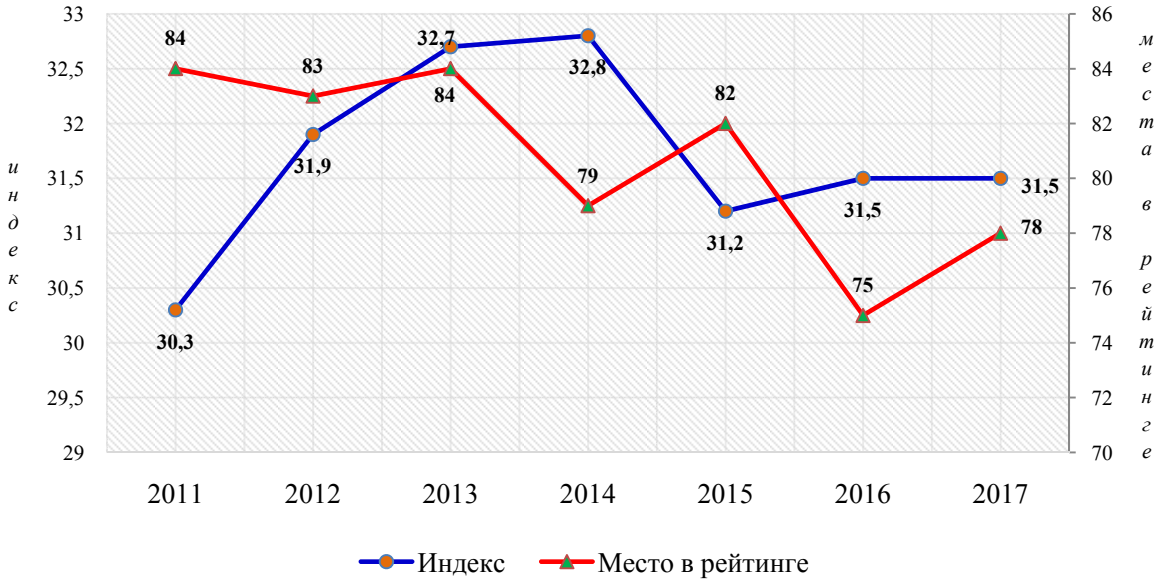


Примечание: Составлено авторами по данным TheGlobalInnovationIndex, 2017 международной бизнес-школы INSEAD [1]

Рисунок 1 - Двадцатка стран из глобального рейтинга инновационной активности с разным уровнем экономического развития, 2017 г.

Несмотря на стабильные позиции Казахстана в глобальном инновационном индексе, эксперты АО «Институт экономических исследований» считают, что улучшение отдельных составляющих индекса, развитие национальной системы поддержки и внедрения инноваций Казахстана находится на стадии формирования, тем самым объясняя отставание от ведущих стран мира.Эффективность инновационной деятельности зависит от общей экономической ситуации в стране и государственной научно-технической стратегии, от полноценного ресурсного обеспечения, конъюнктуры рынка, наличия профессиональных кадров и эффективного менеджмента.Для улучшения расчетов ежегодно пересматривается методика расчета рейтинга. В этом году были введены новые качественные показатели. Так как некоторые процессы не могут быть представлены соответствующим образом, модель глобального индекса инноваций не является определяющей в оценке инновационного развития страны. Чем и объясняется потеря позиций в данном рейтинге Казахстана.

Рейтинг Казахстана в глобальном инновационном индексе



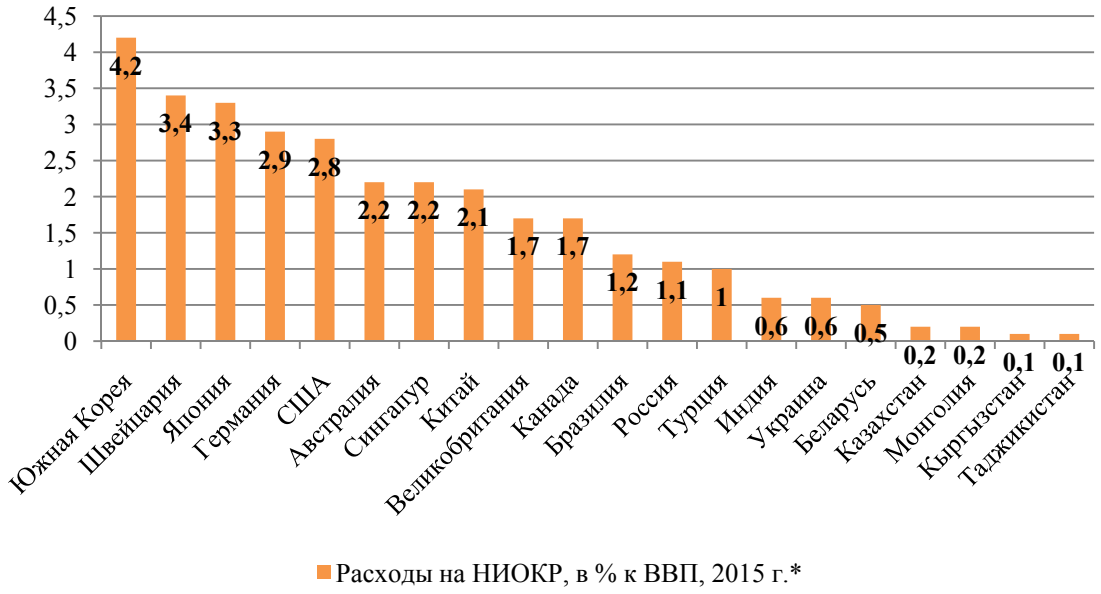
Примечание: составлено автором по данным TheGlobalInnovationIndex международной бизнес-школы INSEAD [1]

Рисунок 2 - Рейтинг Казахстана в глобальном инновационном индексе за период 2011-2017 гг

В разные годы позиция Казахстана в Глобальном индексе инноваций была разной. Из рисунка 2, мы можем видеть индекс инновационной активности и рейтинг за период 2011-2017 гг. За семь лет Казахстан улучшил свою позицию на 6 пунктов, а индеек инновационной активности увеличился с 30,3 до 31,5. Однако в 2013 и в 2014 года результат инновационной активности составлял 32,7 и 32,8 баллов соответственно.

Во многом развитие национальной инновационной системы зависит от доли финансирования НИОКР в % соотношения к ВВП. Если мы рассмотрим страны, которые взяли как пример в нашей работе, то сможем заметить, разницу объема финансирования НИОКР и увидеть объективную причину развития инновационной экономики у лидирующих стран из списка Глобального индекса инноваций.

По данным KNOEMA, где за 2015 год представлены 78 стран мира, Казахстан расположился на 67 позиции с расходами на НИОКР 0,2% к ВВП, тогда как рекомендуемая Международным академическим советом доля расходов для развивающихся стран составляет 1-1,5 % от ВВП. Лидирующие позиции в данном списке занимают: Израиль (4,3% к ВВП), Южная Корея (4,2% к ВВП), Швейцария (3,4% к ВВП) и Япония (3,3% к ВВП) (Рисунок 3).



Примечание: составлено автором по данным литературы [16-17]

Рисунок 3 - Расходы на НИОКР в % соотношении к ВВП стран мира, 2015 г.

Таким образом, резюмируя изложенные выше данные можно сделать следующие выводы, что из списка странприведенных в данной выборке с разным уровне экономического и инновационного развития Республика Казахстан находится на этапе становление своей инновационной системы. Индекс инновационной активности с 2011 по 2017 годы колеблется между 30,3 и 32,8, когда как у лидера в данном рейтинге Швейцарии индекс инновационной активности составляет 67,7 баллов, что свидетельствует о том, что данные страны опережают Казахстан в два раза в сфере инновационного развития.

Выводы и заключение.

Проделав анализ инновационной системы Казахстана можновыделить следующие основные проблемы, препятствующие развитию инновационной экономики, а также снижению позиций Казахстана в международных рейтингах [18]:

1. Невысокий уровень финансирования науки в Казахстане. Расходы на научные исследования из бюджета составляют 0,2% к ВВП. По данным ЮНЕСКО мировая экономика выделяет на науку 1,7 % от ВВП.
2. Низкая доля финансирования частного сектора на развитие страны в отличие от развитых стран.
3. Слабая материально-техническая база.
4. Низкая результативность и конкурентоспособность результатов НИР на внутреннем, так и на внешнем рынках. Примерно на 17 тысяч ученых приходится по 1-2 международных патента.
5. Сохраняется разрыв между наукой, образованием и бизнесом.

Таким образом, международные рейтинги инновационной активности казахстанской экономики выявляют, по сути, одни и те же уязвимые ее места. В основном это факторы институционального и регулятивного характера, влияющие на развитие НИОКР и инновационной экономики в целом. Во взаимодействии государства и бизнеса в инновационной сфере на первый план выходят два аспекта. Первый связан с институциональными основами этого взаимодействия. Второй – с финансированием исследований и разработок.

В основном все проблемы связанные с низким уровнем развития инновационной деятельности в стране связано со слабым финансированием инноваций. В этой связи мы предлагаем внедрять в инновационную сферу механизмы института государственно-частного партнерства, который сможет решить ряд проблем возникающих во время жизненного цикла инновационной продукции. Посредством ГЧП формируется инновационная инфраструктура, активизируются инвестиции в малый и средний бизнес, повышается процент коммерциализации инновационных разработок по средствам внедрения в производство, улучшаются показатели социально-экономического развития.

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ҒАЛАМДЫҚ ИННОВАЦИЯЛЫҚ БЕЛСЕНДІЛІК ИНДЕКСІ ЖАҒДАЙЫНДАҒЫ ҚАЗАҚСТАН

Аннотация. Мақалада Қазақстан Республикасының Әлемдік зияткерлік меншік ұйымы және INSEAD зерттеу институты мен Корнель университетімен есептелетін мемлекеттердің жаһандық инновациялық белсенділігінің индексіндегі орны сарапталады. Қазақстан Республикасының экономикасының даму деңгейіне біршама жақын және экономикасы дамыған келесі мемлекеттердің инновациялық даму индексі бойынша рейтинг жасалды: Австралия, Беларусия, Бразилия, Ұлыбритания, Германия, Үндістан, Канада, Қытай, Қырғызстан, Монғолия, Ресей, Сингапур, АҚШ, Тәжікстан, Түркия, Украина, Швейцария, Оңтүстік Корея, Жапония. Сондай-ақ Қазақстанның инновациялық жүйесіне талдау жүргізіліп, инновациялық экономиканың дамуына кедергі келтіретін негізгі мәселелер анықталды.

Түйін сөздер. Инновация, инновацияның жаһандық индексі, ғылыми-техникалық прогресс, инновациялық даму деңгейі, мемлекеттік жеке меншік серіктестік.

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