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A Model of Innovation Development of the National Economy of Kazakhstan

Raushan T. Dulambayeva*, Zhansaya Temerbulatova**

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Abstract

Essences, needs and features of formation of national innovative development model of Kazakhstan are proved on the basis of analysis of various research approaches to realization of the modernization that exist in the world economic theory. For studying the problems of innovative development of the country, there was a need for the formulation of a number of definitions, disclosure of their contents, changing the approaches to reform, as well as adjusting their targets. In the article the general scientific research methods used dialectic, abstraction, systemic and situational approach, empirical and theoretical and analytical methods, and logic modeling. The proposed approach to the implementation of innovative development based on the use of evolutionary and institutional approaches to the study of the problems of implementing an effective innovation policy. This approach is intended to contribute to the development of a forward strategy of modernization, innovative development and higher competitiveness of the national economy. The study proved the causes and features of the implementation of innovative development model in Kazakhstan.

Keywords: National economy, Competitiveness, Modernization, Innovation, Innovative industrialization, Innovation policy.

JEL Classification Codes: O10, O14, O30, O38

1. Introduction

The main problem of development of competitive economy is to ensure self-sufficiency and integrity of the national economic

system. The central link in this system is a state whose policy is aimed primarily at providing integrity, and the result will be formation of a competitive economy.

Major factor in effective functioning of economy in current circumstances is forced by modernization and innovation. Kazakhstan, the diversification and competitiveness of the economy are difficult tasks, - with the difference between leading local economists and the degraded state of the manufacturing industry and agriculture, science and technology capacity, which is at extremely low levels throughout the system infrastructure and service quality. country will not only organize the production of new products, but also take measures to improve quality and lower prices, and radically modernize its economy (Esentugelov, 2008).

In Kazakhstan the policy of accelerated modernization was defined when the contradictions clearly manifested. The concept of "sustainable growth" has been added to the next purpose - to be among the 50 most developed countries in the coming decade. The implementation of these objectives in the short term is complicated by existing conditions at that time: for example, type and condition of the institutional environment. Today's innovative modernization has some other motive, and trend of implementation. This is due to the global economic crisis, and the formation of an innovative economy for Kazakhstan, which are an objective necessity and a condition for the country's new growth path.

2. Literature Review

The proposed approach to the implementation of innovative development is intended to contribute to the development of a forward strategy of modernization, innovative development and higher competitiveness of the national economy. It is based on the use of evolutionary and institutional approaches to the study of the problems of implementing an effective innovation policy. General theoretical basis for research in this area are the classic works of famous authors: Smith (1776), Marshall (1890), Schumpeter (1911), Say (1855), as well as the work of prominent western scholars of the later period Solow (1994), Drucker (1967), and Kaplinsky (2000).

An interesting approach is shown to the role of innovation in the development of industrial societies: Rieu (2014) shows the problem of intellectual capital as a factor of growth in transition

* First Author and Corresponding Author, Professor, Department of Economics, High School of Economics and Business. Kazakh National University named after al-Farabi. [170/55 Radostovts Street, Almaty 050060, Republic of Kazakhstan. Email: dulambaeva68@mail.ru]

** Professor, Department of Economics, High School of Economics and Business. Kazakh National University named after al-Farabi. [170/55 Radostovts Street, Almaty 050060, Republic of Kazakhstan. Email: t.zhansaya.s@mail.ru]

economies rise in the works. Statsenko et al. (2013) research which interest related to the formation of innovative systems in the form of sustainable development by Morioka, Saito, and Yabar (2006), implementation of innovation policy and research programs investigated by Mieszkowski and Kardas (2015) by the example of Poland .

A great contribution to the theory of global innovation is made from Russian school, in the face of Kondratiev, Yakovets, and Abalkin (2002), Kurenkov and Popova (2001), Gelvanovsky (1998), Pilipenko (2005), and Sukharev (2007).

Significant influence on the formation of the author's position had the works of Russian scientists in the field of formation of the concept of a harmonized development of the economy of Kazakhstan. They are: Kenzheguzin (2002, 2005), Baimuratov (2008), Dnishev (2013), Dulambayeva (2011), and others.

In domestic economic literature researches on adaptive adjustment of conceptual, terminological apparatus address the problems of innovative development, identifying ways to implement this process in Kazakhstan through a particular model of economic policy. There are different points of view to determine the nature of the processes of industrialization, innovation, in the fields and forms of implementation. The results in the classification of new factors influencing the effectiveness of the government's economic policy for the implementation of industrial and innovative processes. These vectors all clearly indicated a tendency to strengthen the convergence of Kazakhstan and western points of view. However, innovative processes in Kazakhstan have their own characteristics and complexity. Developed entrepreneurial sector lacks in country, and the concentration of capital is mainly in the mining sector and in the sphere of circulation. In this connection, the role of public policy to enhance innovation processes more updated. Today It is very important for Kazakhstan to determine the correct approach to the development and implementation of a model of innovation and industrial development.

3. Methodology

Theoretical and methodological basis of the study served as the research scientists of the Commonwealth of Independent States (CIS) countries, Kazakhstan economists, as well as the laws and regulations of the Republic of Kazakhstan.

During the study, there was a need for the formulation of a number of definitions, disclosure of their contents, changing the approaches to reform, as well as adjusting their targets. Thus, the innovative component is a whole segment of the economy, with its own infrastructure, development institutions, and inter system communication. The approach to the study of the same system must be using a wide range of methods of scientific analysis. As a general scientific methods of research followings are used dialectic, abstraction, systemic and situational approach, empirical and theoretical and analytical methods, and logic modeling.

For applied research used classification, grouping, and meth-

ods of economic and statistical analysis, analysis of the dynamics and structure of the innovation process, scientific logic and prognosis.

4. Results

Problems of innovation in our country actualized since independence and the transition to a market economy framework. In the 90 years of reform processes, modernization of the national economy was innovative phenomenon, without universally accepted definition of social and economic modernization in the literature yet. There was a general approach according to which modernization is the transformation of something taking into account the new requirements. The process of modernization is an objective process. In modern conditions the pace is largely determined by the activities of the State, and covers all aspects of society, including the economy, politics, and social sphere. And it allows defining the concept of "modernization" as a socio-economic form of qualitative transformation of society. In conditions of the crisis approach to the implementation of reforms and changes reflected in the emphasis on innovation component in the reform process. As part of the definition of self-sufficiency economy can be an innovative social and economic modernization described as the process of achieving adaptability, resilience of the national economy negative influences of the environment. Constantly adapting and changing, the system is functioning in the mode of modernization acquires the properties of integrity, and hence competitiveness. The main directions of this process are the progressive structural changes capable of ensuring the competitiveness of goods and services, improvement of the institutional structure, to create incentives for the development of a competitive environment, human capital formation, the further development of the social sphere and the public sector.

Regarding to the methods of modernization in economic theory, it has developed several research approaches. Traditional neoclassical concept in the 80s is known as the Washington Consensus. It based on liberalization, macroeconomic stabilization, and privatization.

The second approach suggested an evolutionary economic theory, which originated from the theory of economic development of Y. Shumpeter, now the most famous in the interpretation of R. Nelson and S. Winter (Inshakov & Frolov, 2002). Under this approach, new laws and institutions will only be effective if they are ripe, and rooted in society, not simply been imposed upon him. the different ways of reforms in different countries can't be tailored to the unified theory. Proponents of this approach are not going to say about transition, but the "transformation".

In the last decade in the "mainstream" economics has entered a new institutional theory of applying neoclassical methods to the analysis of economic and social institutions. The focus is given to the qualitative transformation of the specification of property rights, which in conditions of competition are able to

offset the costs associated with inefficiencies in other institutional and structural reforms.

The fourth area is conventionally called the "dirigiste" of this trend here was the chief World Bank economist Stiglitz (1997). A necessary condition for accelerated modernization is to increase the state's role in the regulation of socio-economic processes. is a qualitative improvement of the public intervention, the coherence between economic policies at all levels, achieving a uniform orientation of measures taken by government, business and society (North, 1990).

Innovative modernization is a transformation of socio-economic structure of society, and the transition from one system to another model of development. Methods of implementation vary depending on the basic conditions for economic development. main approaches are liberalization (bottom-innovation, the result of the interests of economic entities) and dirigiste (innovation from the top, initiator is the state).

During the development of public policy in this area, it must be taken into account the differences between the innovative development of Kazakhstan's and foreign practices. While, innovation is an imminent part of the business sector in developed countries, in Kazakhstan the mode of production of the national system does not involve a commitment of private capital to innovation. This is due to the fact that entrepreneurship is concentrated mainly in the sphere of circulation (commerce, banking) and the mining sector, which have to restrict innovation because of the specificity. The real sector, which is the basis for large-scale innovation, is underdeveloped in Kazakhstan.

But in condition of globalization, innovation is an objective necessity, and this process may involve only the state. In turn, an active innovation policy is an essential condition for economic diversification, which leads to the formation of a competitive in-

novative economy. However, intensification of innovative activity of the state leads to a dual effect: on the one hand, this position is an objective necessity of the state; on the other hand, the active state of innovation in the private sector contributes to the loss of the innovative business skills.

However, in modern conditions the positive effects of innovation under the influence of the state, in our opinion, will exceed the negative effects of government intervention in these processes.

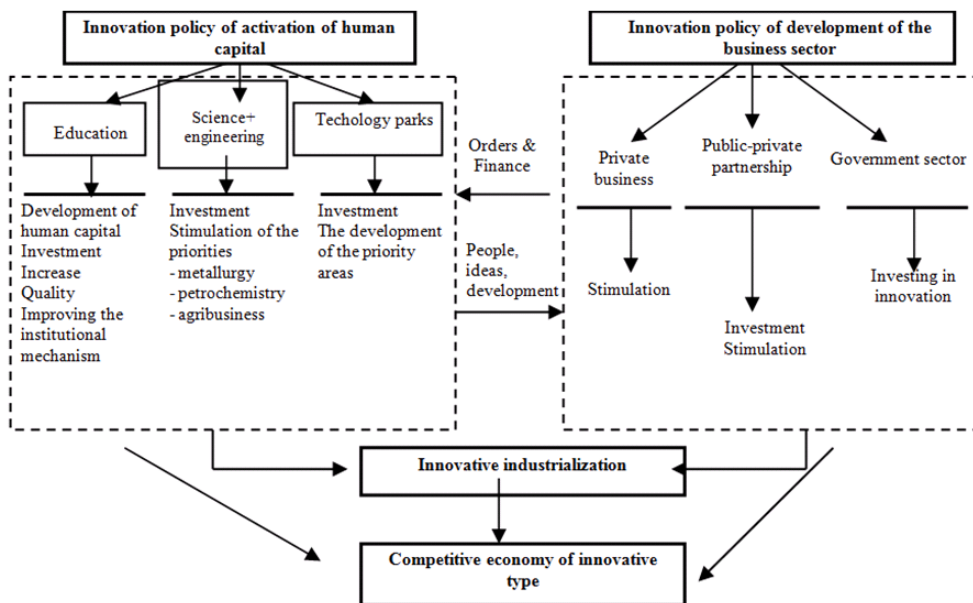
Thus, there is an active role of the state in the formation of a competitive innovative economy in Republic of Kazakhstan (RK). National innovation policy will be effective in the case of a system to ensure the relationship of the two main areas: strengthening the human potential and development of innovative business sector type. In other words, between these elements it is necessary to ensure a close relationship, without which the innovation policy of the state is inefficient (Figure 1).

In this case the priority is to enhance the human factor, i.e. creation of intellectual nation. implies the development of education, science, basic and applied research, which is the basis for the development of innovative business sector.

With this in mind, it can be defined as a state innovation policy, which is a policy with aim at creating a competitive economy through the provision of innovative type relationship of the two major elements of innovation macro: human development and the business sector.

This means that it is necessary to build a chain of science and engineering, coupled with an effective mechanism of investment for the development of the business sector. This is an innovative industrialization. The country needs to build and develop the industrial sector, which in turn will generate innovation.

Engineering is a collection of works of applied research, in-



<Figure 1> Model of formation of innovative national macro system

cluding feasibility studies, the necessary laboratory and experimental refinement technologies of industrial elaboration, and follow-up services and advice. Thus, engineering is a necessary coherent link in the chain of scientific results. Only a clear alignment of the vertical linking science, engineering, and given sufficient funding will allow for innovative full-scale industrialization. And those are needed for Kazakhstan to develop and implement in basic industries are: oil and gas, petrochemical, mining and energy, ferrous and non-ferrous metallurgy, telecommunications, transport and transport infrastructure, agriculture, etc.

Every industry engineering has three main components:

- Engineering basic technological processes (basic techniques);
- Engineering process automation;
- Engineering IT-security processes and businesses.

Innovative industrialization requires a balanced amplification of all three main components, which is the most urgent task of the industrial development of Kazakhstan's economy.

Kazakhstan has sufficient objective prerequisites of innovative industrialization. It is well known that any new economic order based on the existing basis of development of the country. Here it should be noted that raw material orientation of the current economy of Kazakhstan is not a real obstacle of innovation industrialization. On the contrary, the presence of rich natural resources can be a key factor in the success of innovative industrialization.

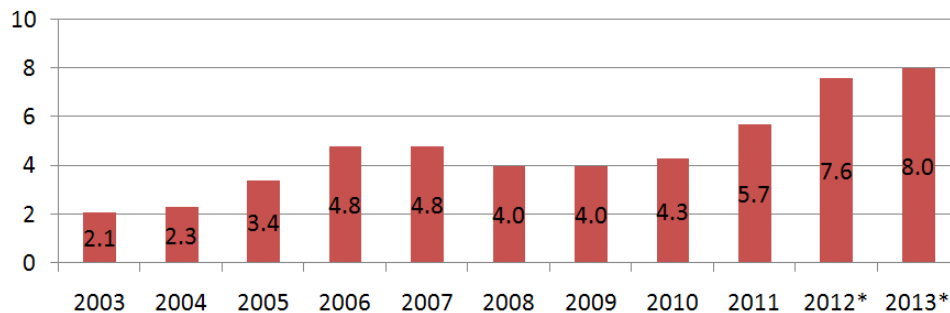
The list of its own technology and the structure of the industry concentrated in a country reflect its achievements in sci-

ence, education, culture and social structure. The success of the industrialization of Kazakhstan and the transition to an innovation economy will determine its place in the new world order. In the context of current geopolitical developments and trends in the global development of the world economy, the major factor of Kazakhstan in the transformation of the country from technotronic innovative economy is strengthening the independence. Modernization and development of the basic branches of industry, in combination with the generation of high-tech innovation as an engine for development, is one of the keys to ensure the prosperity of the country.

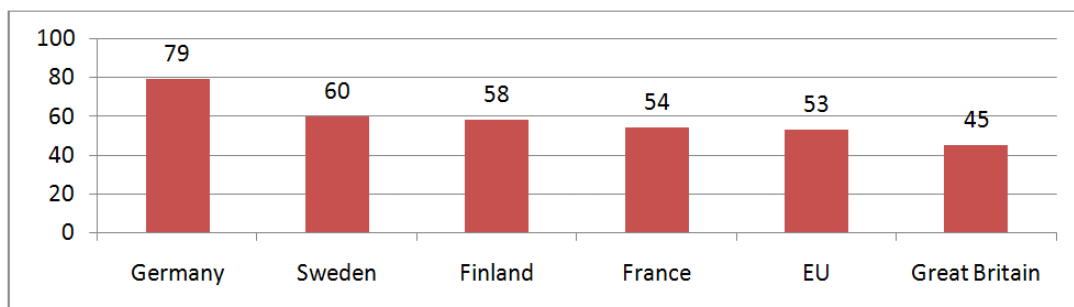
Innovation aspect of development is an objective need for Kazakhstan. Otherwise, being influenced by such circumstances with the lag in technological plan, the availability of the national benefits of the resource type (territory and natural resources), and lack of competitiveness of domestic products, Kazakhstan may lower its economic security.

Today, according to the report World Economic Forum's "Global Competitiveness Report of 2013-2014", Kazakhstan takes the 50th position, while it held in 2006-2007 - 61, 2008-2009 - 66, 2009-2010 - 67 position, 2010-2011 - 72 positions.

At the same time, the position of Kazakhstan in "innovative capacity" section tend to be lower: in 2013 we took 84th place and in 2014 - 85. There is a particularly noticeable deterioration of Kazakhstan's position in this area in terms of technological readiness, which reflects the innovation and industrial component of the country's development. Thus, according to this indicator,



<Figure 2> The level of innovation activity of enterprises in Kazakhstan for 2003-2013, %



<Figure 3> The innovative activity of enterprises in the context of countries in 2012,%

Kazakhstan went down 4 position with 57 seats in 2013 to 61 in 2014. The significant gap figures show the use of technology at the enterprise level: 78 positions in 2013 to position 90 in 2014 (WEF, 2014).

According to Global Innovation Index 2013 (GII, 2013), Kazakhstan took the 84th place in the world, while in 2012, our country was on the 83 place. The Global Innovation Index is calculated as a weighted sum of the scores of the two groups of indicators: the resources and conditions for innovation, and achieved practical results of the innovation (GII, 2013).

Despite the fact that the dynamics of the innovative activity in the country has a positive trend in recent years (see Figure 2), this figure is generally quite low (Statistics Agency, 2013a).

In comparison, the level of innovative activity in the USA is about 50%, in Germany - 79.3%, in Sweden -60%, in Finland - 58% <Figure 3> (NIF, 2013).

The development of innovation is directly dependent on funding. Increased funding of science to the level of not less than 3% of GDP is the key to the creation of new high-tech industries. In this regard, one of the main directions of the state policy in the field of science should be the establishment and improvement of mechanisms of R & D funding. Countries such as Korea, Israel, Finland, Sweden, Japan, Denmark, Germany, Austria, the United States, who are at the stage of development of innovative economy proved this need.

In these countries, there is an annual increase in funding of basic and applied research, accelerated development of innovations by promoting the integration of science with the private sector, all possible assistance to the establishment and development of the corporate sector of science, orientation of scientific and technological capacity to address pressing economic and social problems <Table 1>.

<Table 1> The share of expenditure on R & D of GDP by country, %

Year Country	2004	2005	2006	2007	2008	2009	2010	2011	2012
Korea	2,68	2,79	3,01	3,21	3,36	3,56	3,74	4,04	4,36
Israel	3,99	4,15	4,22	4,52	4,4	4,17	3,97	3,97	3,93
Finland	3,45	3,48	3,48	3,47	3,7	3,94	3,9	3,8	3,55
Sweden	3,58	3,56	3,68	3,43	3,7	3,62	3,39	3,39	3,41
Japan	3,13	3,31	3,41	3,46	3,47	3,36	3,25	3,38	3,35
Denmark	2,48	2,46	2,48	2,58	2,85	3,16	3	2,98	2,98
Germany	2,5	2,51	2,54	2,53	2,69	2,82	2,8	2,89	2,98
Austria	2,24	2,46	2,44	2,51	2,67	2,71	2,8	2,77	2,84
USA	2,49	2,51	2,55	2,63	2,77	2,82	2,74	2,76	2,79
France	2,16	2,11	2,11	2,08	2,12	2,27	2,24	2,25	2,29
Belgium	1,86	1,83	1,86	1,89	1,97	2,03	2,1	2,21	2,24
Estonia	0,85	0,93	1,13	1,08	1,28	1,41	1,62	2,37	2,19
China	1,23	1,32	1,39	1,4	1,47	1,7	1,76	1,84	1,98
Russia	1,15	1,07	1,07	1,12	1,04	1,25	1,13	1,09	1,12
Kazakhstan	0,25	0,28	0,24	0,21	0,22	0,23	0,15	0,16	0,17

Note: Compiled by the author based on sources (Statsenko et. al, 2013; Morioka, 2006)

According to Table 1, these countries release of more than 3% of GDP on research and development. While in Kazakhstan since 2003, there has been decline in funding for science from 0.25% to 0.18% (2013) of GDP. According to the R. K. Statistics Agency funding ,domestic expenditure on research and development is carried out by the state (the national budget, municipal property), private sector (non-government entities and their associations, including the state and foreign capital, public and religious organizations) and the foreign sector (legal and financial entities) <Table 2>.

From Table 2, it can be seen that domestic expenditure on research and development of the state has been allocated 3 times more from the national budget in 2013, compared to 2004. As well, costs of communal ownership increased by 3.6 times.

In the private sector, expenditure on research and development is conducted mainly by the state owned enterprises, and without foreign participation, in terms of funding followed by ownership of companies with state participation (without foreign participation). Ownership of joint ventures with foreign participation and a variety of organizations are very small. Over 10 years funding of private sector has increased 6 times.

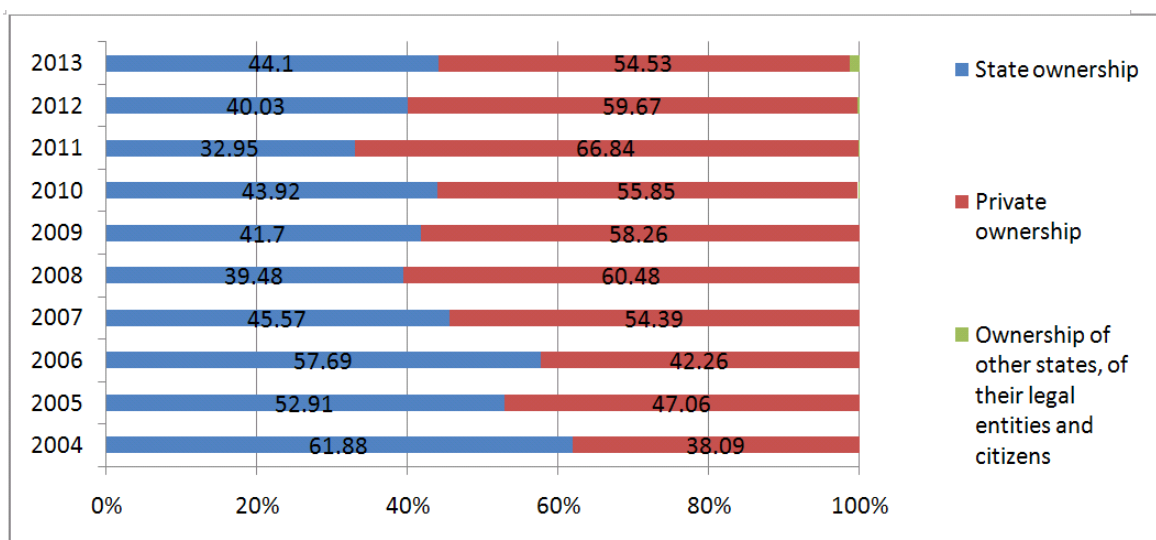
Ownership of companies with state participation(without foreign participation) as a form of public-private partnership in the field of science, industry, does not generate sufficient cash flow (education, health, sport, housing and communal services) became available in 2012 (Public-private partnerships law, 2013). From 2004 to 2012 domestic spending on research and development by the ownership of companies with state participation increased 2.86 times. At the same time in one year, in 2013, compared with 2012, this index increased 1.5 times. However, the cost structure of its share in the last 10 years, hovering around an average of 10-11%.

The foreign sector is represented by foreign legal entities and individuals. Their funding of domestic expenditure on research and development for the years 2004-2013 has increased 182 times from 4648 thousand tenge to 846,317.7 thousand tenge. The rapid growth of investment by foreign entities began in 2010. However, in structural terms, this growth was not reflected much: in 2004 the share of foreign sector was 0.03%, increasing in 2013 to 1.37%. Over the last decade there has been some shift in the structure of domestic spending on research and development by type of ownership: government funding decreased from 61.88% to 44.1%, due to growth in funding from the private and foreign sectors, with 38.09% up to 54 53% and 0.03% to 1.37% respectively <Figure 4>.

<Table 2> The dynamics of domestic expenditure on research and development in the Republic of Kazakhstan by types of ownership for 2004-2013, thousand tenge

Type of ownership	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	2	3	4	5	6	7	8	9	10	11
All	14 579	21 527 364	24 799 866	26 835 525	34 761 607	38 988 738	33 466 817	43 351 644	51 253 087	61 672 657,9
State ownership	9 022 280	11 390 075	14 308 089	12 227 743	13 723 702	16 259 750	14 699 221	14 284 944	20 516 627	27 197 979,7
Republican ownership	8 987 624	11 288 733	14 248 895	12 195 053	13 670 179	16 113 232	14 610 376	14 207 015	20 419 814	27 070 943,7
Communal ownership	34 656	101 342	59 194	32 690	53 523	146 518	88 845	77 929	96 813	127 036,0
Private ownership	5 552 907	10 130 433	10 479 773	14 596 266	21 024 937	22 713 377	18 692 141	28 977 578	30 583 429	33 628 360,5
Ownership of non-state entities and their associations	5 552 907	10 130 433	10 479 773	14 596 266	21 024 937	22 713 377	18 692 141	28 977 578	30 583 429	33 628 360,5
Ownership of enterprises without state and foreign participation	3 761 789	6 724 067	7 593 228	10 679 874	15 949 721	17 719 015	14 239 348	24 404 438	24 358 257	25 526 655,0
Ownership of companies with state ownership (without foreign participation)	1 705 722	2 471 677	2 153 369	3 493 104	4 239 416	3 944 351	3 746 971	3 912 672	4 890 810	7 120 764,0
Ownership of joint ventures with foreign participation	85 396	900 697	667 228	380 694	788 716	1 050 011	686 241	629 068	1 334 362	980 941,50
Ownership of public, including religious associations	-	33 992	65 948	42 594	47 084	-	19 581	31 400	-	-
Ownership of other states, of their legal entities and citizens	4 648	6 856	12 004	11 516	12 968	15 611	75 455	89 122	153 031	846 317,7
Ownership of foreign legal entities	4 648	6 856	12 004	1 790	4 968	5 000	61 605	74 122	139 614	846 317,7
Ownership of foreign individuals	-	-	-	9 726	8 000	10 611	13 850	15 000	13 417	-

Note: Compiled by the author based on the source (Mieszkowski and Kardas, 2015)



Note: Compiled by the author based on the source (Statiscis Agency, 2013b).

<Figure 4> Dynamics of changes in the structure of domestic spending on research and development by type of ownership in the Republic of Kazakhstan for the period from 2004 to 2013, %

Today in the funding of innovative processes, the predominant role is played by public funding. In Kazakhstan, innovations are primarily state with little participation of the private sector and universities. A similar situation is observed in countries such as Mexico, South Africa, Slovakia, Hungary, Poland and Iceland.

5. Discussion

Thus, the role of the state is associated with the promotion of economic development. But this role is filled with different contents depending on the model of modernization. Innovation involves the definition of the top national priority at the highest levels of government and major public investments in priority sectors, providing them with incentives and subsidies, and giving them the accelerated development.

Active state intervention is necessary in the event that there is a certain distrust of business and market forces. But it may well prove futile when catch-up industrialization.

For innovative modernization bottom, enhance the role of the state in this area is also necessary, but it should be directed to the improvement and development of market mechanisms. There are competition policy, regulation of lobbying activities, the maintenance of information systems, transparency of business and other organizations.

The major direction, due to the economic functions of the state, is a support for innovation and venture capital of business, focused on the creation of new markets, new products, and new technologies. Top priority is an investment in science and education. All these areas are focused on the development

and promotion of private initiative.

An equally important function of the state is to eliminate the errors of the market. However, the important thing to remember is the "failures of the state", indicating the inefficient activity of the state, when the area of responsibility are blurred, the impact of the policy is reduced, and correcting market failures creates new distortions. Despite the external effects of public participation in the revitalization of the state of modern conditions (Stiglitz, 1997).

State enterprise may be considered as a way to prevent "failures" of the market or promote economic development as a way to implement structural changes in public investment.

Consequently, the use of a particular model makes it necessary to define the initial conditions and to properly assess the capabilities of the methods and tools for the implementation of innovative processes.

The basic theoretical assumptions which enhance the innovative development of national economy in order to increase competitiveness can be considered:

- 1) absence of an element in the chain of evolutionary development of competitive relations, and related difficulties;
- 2) of the tasks late industrial and post industrial development;
- 3) of the strategy of innovation and industrial development, which is also impossible without large-scale government intervention through the establishment of the optimal structure of the economy, the formation of markets for knowledge, information and innovation.

Thus, the implementation of an innovative model of economic development because of the prevailing objective conditions in need of increasing the public impact, as Kazakhstan will address a range of socio-economic problems. The main means of

implementing this type of development are: structural changes, improvement of the institutional structure, human capital formation, further development of social sphere and the public sector.

One of the factors of strategy of innovative development is primarily institutional change. It is about adapting the skills, rules of conduct, relevant institutions and organizations of the new conditions of development of technology, economy, and social life, their ability to promote or hinder positive changes in the economy. Difference in competitiveness of the states is largely due to the flexibility and variability of the institutions. The peculiarity of the institutions is a slow change. It is possible to accelerate the pace of development and change. One of the reasons for the ineffectiveness of the reforms in Kazakhstan is the imperfection of the institutional framework.

With the introduction of new institutional forms, it is important to consider their impact on the already existing institutions and the risk of institutional gaps, with their rejection of the new rules (Sukharev, 2003). In Kazakhstan, the formation of institutions actively initiated by the state and based on the study of the economic environment. An institutional framework of economic reform in the modern period is the solution of problems of increasing innovation activity of the economy. Most of the institutions in the developed world, created by the state, are innovative. Their activities are aimed at improving the competitiveness of business entities, and their adaptability to external factors.

More specifically, the state innovation policy consists of three components: government legal support for innovative projects, their financing, as well as the establishment of innovation infrastructure. In the latter part of the network of distribution centers of innovation, counseling centers, science and technology parks, business incubators, and various innovation funds.

At the present stage for activating of innovative processes need exploit the potential of business entities - companies.

We are talking about the need to respect a certain proportionality of innovation and production areas. The innovation policy often ignores the fact that in the process of innovation the main subject are enterprises. The national program of formation and development of NIS terms the appearance of innovative companies paid little attention. In the domestic economy, there are a small number of innovative companies, and there are not major economic entities in this area.

According to the U.S. National Science Foundation, each invested company in research and development employing up to 1000 people brings to the market 4 times more innovation than companies with fewer than 1000 people. Development of innovation in small structures are up to an average of 2 years and in large - 4 years. Despite the fact that the main potential scientifically industrialized countries are concentrated in large companies, small and medium-sized companies have leading positions in the generation of innovations. Further developing and bringing these innovations to consumers is provided by high specialization and diversification of the economy, based on the effective coexistence of enterprises of different sizes.

Another significant factor that negatively describes the sit-

uation of the national economy in the innovative development is the fact that innovation in Kazakhstan is mainly done by attracting foreign direct investment. On the one hand, there are benefits in the form of acquisition of new technologies, licenses on the other hand this trend is the country's dependence on foreign technological developments, which reduces the skills to innovate domestic business entities.

Thus, it is necessary to develop the forms of the revitalization of the businesses that will strengthen their positions, the needs and interests of domestic macro subjects.

6. Conclusion

The specificity of Kazakhstan is that there is not only incomplete stage of late industrial, but also medium industrial development. Therefore, innovative modernization should aim at the modernization of the forced passage of these stages, and then out on the trajectory of post-industrial development. The complexity of the problem requires greater state presence. In this connection it is worth remembering the state preferential loans in the structural policies of postwar Japan, which has already become a catalyst concentration of capital in the priority areas of business development, referring to the European practice of "big projects" also.

The liberal approach can't be recognized dominant even when the modernization in developed countries, although the relationship between business and government can vary in favor of the first. And in terms of post-transit economy, particularly the economy of Kazakhstan, where a country has to solve more complex problems, the traditional neoclassical prescriptions can be dangerous. Therefore, the use of dirigisme is preferable modernization from above.

It is necessary to form a model of a competitive innovative economy based on a combination of two main elements of innovation macro system: human development and the business sector.

We are talking about the need to build a vertical science and engineering, coupled with an effective mechanism for the development of entrepreneurial investment, especially the industrial sector. This is an innovative industrialization. The country needs to build and develop the industrial sector, which in turn will generate innovation.

In this model, engineering is a necessary coherent link in the chain of scientific results. Only a clear alignment of the vertical linking science, engineering, and given sufficient funding will allow for innovative full-scale industrialization. And they need to be for Kazakhstan to develop and implement in basic industries: oil and gas, petrochemical, mining and energy, ferrous and non-ferrous metallurgy, telecommunications, transport and transport infrastructure, agriculture, etc.

Changing patterns of economic development should be linked to the setting of the public administration of the whole process of expanded reproduction, since the phase of scientific and technical training of reproduction to the final consumption. In

this connection it is necessary to strengthen the innovation-based growth factors through the development of an effective mechanism for legal, tax, financial support for innovation. This step is conducting a major structural reversal of Kazakhstan's economy in view of current trends in the global economy. are talking essentially about the need to develop new industrialization strategy, designed for long-term implementation. I must work the effect of "innovation multiplier", which will involve a set of potentially possible scientific, technological and institutional innovations that make the economy self-sufficient type is formed.

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