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State Regulation of Foreign Investment in the Industrial-Innovative Development of the Country

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Abstract: The article considers the issues of state regulation of foreign investment in the industrial-innovative development of the country by the example of such countries as China, Finland and South Korea, as well as the possibility of using the experience of these countries in the industrial-innovative development of Kazakhstan. Kazakhstan has established various institutions and developed a significant number of programs to support innovation and economic modernization. However, to achieve the set goals, there is a need in coordination of policies and efforts of different institutions. The complexity of the innovation process requires the involvement and effective cooperation of all the parties, including the private sector. Only the joint efforts can make the elaboration of a strategy for future development possible. Systemic vision of the innovative development, which takes into account the interaction between different components of the National Innovation System (NIS), has to result in the strengthening of horizontal coordination mechanisms, which remain relatively weak. The law "On state support of industrial-innovation" provides new mechanisms for coordination, which should be used to the full. Special attention is paid to the analysis of foreign direct investments in the Republic of Kazakhstan, the establishment of state institutions to support innovation, activities of special economic zones and the development of a network of technology parks in the country.

Key words: Innovation · National innovation system (NIS) · High technology products · Foreign investment · Government institutions to support innovation · Special economic zones · Technology parks

INTRODUCTION

Public policy plays a key role in fostering innovation and can include a wide range of strategies and tools that capable to correct market failures, to direct the development of the private sector and to facilitate coordination among the different stakeholders. The development and implementation of these measures should be based on an assessment of the effectiveness of the national innovation system, which ensures the proper diagnosis of the current situation and offers recommendations to improve innovation activities according to national peculiarities and gained international experience [1].

Kazakhstan has focused significant efforts on stirring up the innovations as a means to accelerate economic development and diversify the economy. Initiatives are aimed at improving the components of NIS, in particular at establishing public institutions to support innovation. Attention was also directed to other aspects, such as better performance of companies, regional characteristics of the innovation system and the demand for innovation. However, despite the political decisions, confirmed by some policy documents, the practical activities were mainly focused on the improvement of institutional support. Mechanisms of interdependence of NIS components are still set aside of proper attention.

Consider the experience of the state regulation of foreign investment in the industrial-innovative development of the country by the example of countries such as China, Finland and South Korea.

Second largest economy in the world, China began to build an innovative system from the mid-1980s, as part of the economic reform. By the end of the XX century the National Innovation System was established for a single Chinese economy; it aimed at updating the Chinese Academy of Sciences as a research organization and increasing R and D in GDP (from 0.95% in 2001 to 1.42% in 2006.). Business sector has become the dominant participant of research (up to more than two-thirds of all R and D) [2].

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The country leaders actively support and encourage foreign R and D. Strategic task for China is to get as many foreign technologies as possible. In addition, an important element of China's NIS was reconfiguring the system of public research to support universities. Chinese scientific system has already proven itself internationally. This is obvious from the number of Chinese publications with foreign co-authors, especially from the U.S. and Japan.

Chinese companies were actively encouraged to develop "local innovation" including through "collaborative innovation" with foreigners, or even "improving foreign innovation." In fact, the Chinese companies, relying on second-rate Western technological expertise for all the time from the beginning of the reforms, were to jump over several technological steps for a few years and become equal with European and American technology leaders.

In 2006, the State Council of CPR issued a document "Guidelines for the use of public medium and long-term programs for scientific and technological development for the period 2006 - 2020." It set a goal for China to create a business environment conducive to the emergence of independent innovation, promoted by private companies.

In recent years, high-tech production has been growing particularly rapidly, a few times outpacing the average annual increase in GDP. Export of such products is growing even faster. Today, more than half of them are exported abroad.

The top four in the range of high-tech products are electronics and telecommunications equipment, computers and office equipment. Pharmaceuticals, medical equipment and aerospace industry took lower places. The technological advances in China only insignificantly depend on the progress of the national science and technology, since a huge role in the Chinese economy was played foreign technologies. In the end of 1980 in Beijing, even a special office for the "assimilation of foreign technology" was opened. The share of high-tech component in production and imports grew in direct proportion to the increase of imported technologies.

Previously, high-tech products were produced in China mainly by screwdriver assembling of components supplied from abroad. Foreign capital was absolutely dominant in the production, export and import of such products. This provided a significant number of jobs (which is especially important for the densely populated China) and opened the world market for Chinese exports. This has made China the largest holder of gold and foreign currency reserves.

China has long lagged behind the developed countries in expenditures on basic research. However, in recent years the situation has been changing rapidly. Authorities realized that borrowed technologies cannot provide the stable growth of China's competitiveness and that it was necessary to invest in their own innovations. This decision has born some fruit.

Today, on the number of researchers, China is approaching the U.S. It accounts for 14.7% of scientists of the world; the U.S. share is 22.8%, Japan - 11.7% and Russia - 8.9% [3].

The number of graduates in the field of information technology annually increases by 200 thousand people and it is five times faster than in the West. China sets the task to completely eliminate its dependence on the imports of advanced technology.

In October 2010, Chinese authorities formulated a plan for the development of China for the 12th five-year period, from 2011 to 2015. It gave a priority to the development of seven strategic industries, which ideally should completely change the structure of the Chinese economy:

- Technologies of “pure” energy;
- New generation of telecommunications equipment;
- Biotechnology;
- High-tech equipment;
- New energy;
- New materials;
- Hybrid and electric cars.

It is in these sectors the gap between China and the West should be eliminated as soon as possible. As you know, China does not set unattainable goals and given the current rate of GDP growth, they are achievable. Creation of the economy that can produce innovation is a radical transformation of the public conscience, rejection from the passive absorption and transmission of knowledge and skills for the benefit of enterprise.

In Europe, leaders of innovation are Switzerland, Finland, Germany, Denmark, Sweden and UK.

Finland managed to become one of the leaders of the post-industrial world, thanks to the construction of an effective national system. Even a few decades ago there was neither developed industry, nor a strong scientific base in the country; and basic research has never been given a priority. In just a couple of decades, the Finnish economy has been transformed from natural resource economy to high technologies. Deliberate policy of the state, the effective interaction with the business and long-term investments in science, innovation and education were the basic principles for building the national innovation model that appeared to be one of the most efficient in the world.

Increased investment in research and development in the late 70's was the deciding factor in the rapid change of orientation of the Finnish economy. Even during the economic recession of the early 90's, the funding of science was far from declining, but actually continued to increase, albeit at a slower pace. Finland was the first country to adopt the concept of the national innovation system as a key element of policies in science and technology. In practice, this meant an increase in the number of companies that based their activities on the innovation and know-how, as well as strengthening of organizations involved in research activities. Central role in the Finnish system of innovation financing is played by the state funds of support to science and technology development [4].

In June 2006, the Council for Science and Technology Policy in Finland decided to set up five strategic centers of key importance for the development of Finnish society, business and industry, in particular in the energy and environmental protection, steel and engineering, forestry, healthcare, information and communications industry. These centers are designed to ensure the coordination of distributed research resources in the country and abroad. In accordance with the government program, the investments are focused on these strategic centers for science, technology and innovation, which are funded by the Academy of Finland.

In terms of investment in research and development, Finland is among the leading countries of the world. About 80% of the funds are distributed by the Ministry of Trade and Industry and the Ministry of Education of Finland. University research funding (the bulk of basic research of the country and part of the application) goes through the Academy of Finland, the central administrative body controlled by the Ministry of Education and Science. The Academy includes the Committee on Science and six committees: in natural science, medicine, agricultural, engineering, social sciences and humanities. In terms of funding the Academy of Finland distinguishes the four priority research areas: in medicine, biology and the environment; culture and society; and science and technology. Allocating funds the Academy expects that the funded projects will contribute not only to the development of Finnish science, but also to strengthening of the international cooperation of Finland and distributes most of the budget allocated to applied research.

As a result, universities successfully perform research and provide undergraduate and postgraduate education. Polytechnic universities, being multi-profile (diverse) regional universities, are mainly oriented to applied research. Through the adoption of the concept of national innovation system as a key element of policy in science and technology, other organizations involved in research activities have been strengthened. This resulted in the increase in the number of companies the heart of which activities was the innovation and know-how. Based on the established innovation infrastructure Finland solves one of the main goals of social policy - a guaranteed quality education accessible for all people, which in turn speeds up the innovative development of the country.

In the last few years an important aspect and one of the leading areas of science policy in Finland is the internationalization of research and innovation. Finnish innovation system includes a large number of organizations where technology parks (STP) and business incubators (BICs), are the engines of innovation. Finnish technology parks have collected the best international practices and at the heart of each of them in a university. They produce scientific personnel who are carriers of the necessary ideas and are most able to successfully create this innovative product. For the university it is an additional source of funding and development and for the technology park it simplifies the selection and introduction of a new employee, retention of personnel and professional development.

About two-thirds of Finish technology parks are owned by the company "Technopolis". The founder of "Technopolis" as a company were originally the state and municipal authorities, over 70% of "Technopolis" originally belonged to the state. Gradually the substitution of capital occurred and now "Technopolis" is a private company, which is involved in the IPO, etc. The significant is also that, if the government declares that its aim is innovation introduction in the economy, then it takes on the organization and start-up phase costs [5].

No less impressive is the success in South Korea, achieved this by forming its own innovation system, where private companies and government-funded research institutions play a crucial role and make a significant contribution to the economic development of the country.

Today in South Korea, many universities have departed from their traditional functions of receiving only knowledge. Most of them are engaged in the commercialization, intensely developing innovative business. Many research institutes started their activities in this area as well. The development of these processes has generated interest in various financial institutions and consulting companies, who joined the process of commercialization of R and D results. As a result, in South Korea both the science expenditure and their share of

GDP are constantly increasing. For example, in 2004, they accounted for 2.64% of GDP, which was higher than in many developed countries. The share of the public sector was 24.5% of the total. Expenses of the private sector and foreign investment were 75.1% and 0.4% respectively. The share of external funds directed for R and D in South Korea is at a very low level (0.4%), which is significantly lower than that of France (7.2%) and the UK (20.5%), who have similar amounts of income on R and D activities [6].

The South Korean government changed the system for funding science and began to finance specific projects. In January 1999, they adopted the law on the establishment, operation and development of scientific and research institutions, which were transformed on the basis of the German and the British management system. As a result, all research institutions were under the single control of the Prime Minister, which freed the institutions of the excessive control of the relevant ministries. In accordance with the new control system five research councils were created; these acted as supervising bodies to monitor the activities of the institutions. Despite a number of positive aspects, this approach has some drawbacks: first, in terms of management structure, there is an excessive influence of the government on the Research Council; secondly, as a result of over-functioning competitive system the criteria for the state budget allocation remain unclear; and, finally, the lack of independence and individuality of directors in research institutions affect the performance of individual researchers (low job satisfaction and high turnover).

Korean incubators activity began in 1991 (based on experience of technology incubators in Israel) and was initiated by the Korean Institute of Technology. The first private incubator (Jungbu Industrial Consulting Inc.) was established in 1993. At the same time, the first national incubator (Ansan Business Incubator) was opened. Most incubators were initiated by the government and in spite of the crisis in 1997, contributed to the revival of the national economy and development of the national innovation system. Further, for the development of the regional industry and technology and the successful revival of regional economies the Korean Association of technology parks was established as a body for managing the innovative process in action. Major programs at the time were: the program of infrastructure construction for start-up companies based on advanced technology; special programs for laboratory start-up companies; programs for ideas development, programs for future business development, based on technologies.

Today, the main efforts of the national research program address the transition programs for knowledge-based economy, which will allow South Korea to be reckoned among the countries with developed economies. In order to achieve this goal, the government emphasizes the need for effective use of scientific and technological resources on the basis of the principle of "selection and concentration". Current national programs include the following areas: border research, creative research initiatives, the creation of national research laboratories, the development of biotechnology, the development of nanotechnology, space and aeronautics, etc. The main sponsor of basic research is a research foundation. To encourage scientific research in universities the government defines the research groups that can conduct joint research with research, engineering research and regional research centers. These groups received state funding for nine years, under the condition that they would pass the interim evaluation of their scientific results that are conducted every three years. Today, the funded are 43 projects carried out by R and D centers, 57 projects carried out by engineering research centers and 54 projects carried out by the regional research centers.

An important aspect of further innovative transformation of South Korea is a basic plan of actions aimed at modernizing the management system of scientific and technological development, providing for such measures as investment management of in the research sector, increasing public awareness of science and technology, developing human resources in science and technology and facilitating transfer and commercialization of technology and globalization. It is the founding document to achieve the goals by 2025 and complements the five-year plans of the scientific, technological and innovation development. Its main strategic approach is to invest in scientific and technological sphere based on the principle of "selection and concentration", ensuring effective use of scientists and engineers' creativity, forming links between the internal national innovation system and the global world system, expanding public understanding of scientific and technological development, the effectively using the results of scientific research and technological development. To implement this plan the "road map" that describes the objectives, policies and timetables, as well as the expected results was developed.

Later, the plan was revised and the new version assigned a wider role and a higher status to science and technology, providing a national perspective of the Korean society and contributing to the development and increase of competitiveness of the country. The main directions of the revised plan are the development of national science and technology innovation system, selection and focus on the strategic objectives of scientific and technological development, strengthening

the engines of future growth, organizing regional innovation capacity, creating new jobs that meet the requirements of the knowledge society and involving population to the dissemination of scientific and technological knowledge. In the long run the vision of science and technology development by 2025 includes: the transition of the leading role in the national innovation system from the state to private entities, the improvement of the efficiency of investments in research and development, the convergence of the national system of research and development with the world standards, the compliance of new technologies and outputs and results [7].

We believe that this innovative development of major economies will be of interest for Kazakhstan, where the need for such a development is urgent.

Kazakhstan is the leading recipient of FDI in Central Asia. Although initially most of these investments were made in the mining industry, in 1997 following the adoption of the Law on State Support of Direct Investments, the state began taking steps to invest into other economic sectors. Investment preferences related to priority activities, which list was defined by the government. Besides, the guarantees to foreign investors were provided as well.

In 1998, the Foreign Investors Council (FIC), headed by the President of the Republic of Kazakhstan, was created. The Council serves as an advisory body and its task is to promote direct dialogue between the Government of Kazakhstan and foreign investors to quickly deal with the issues related to the implementation of investment projects and the improvement of the investment climate in the country. The Council is the supreme authority; it has the right to give advice to the President and the Government on the matters relating to investments into economic development and to carry out a detailed analysis of the political issues raised by the President.

In the years 2000-2011, FDI inflows were mainly directed to the natural resource base, including geological work and research (33% of gross FDI), oil and gas (28%), metals (5.5%), trade and financial activities (5%). The developed countries are the main source of FDI, including the Netherlands (23.2% of gross FDI), the U.S. (15.7%), UK (7.8%), France (6.3%), Virgin Islands (5.6 %) and Italy (4.4%). Kazakhstan has demonstrated strong performance in attracting FDI, particularly in the mining industry. But this specialization model does not support the plans for economy diversification and does not promote industrial-innovative development of the country [8].

In this regard, the authorities attach strategic importance to attracting foreign investment in the economy, including the transfer of new technologies, as well as to investing in international companies, which allows access to the new technologies of interest to Kazakhstan.

In Kazakhstan there are a number of institutions involved in the financing and management of the process of modernization, which includes funding for investment, attracting in infrastructure projects and resources for innovation. The major institutions in this field are:

- Development Bank of Kazakhstan (DBK), which provides financial support to the private sector and government agencies by providing medium-and long-term loans at low interest rates. The Bank focuses on infrastructure projects and lending to industrial enterprises. DBK was founded in 2001.
- Business Development Fund (DAMU) was established in 1997 for financial and non-financial support to small and medium enterprises and to stimulate the demand for products and services of these companies.
- Investment Fund of Kazakhstan was created in 2003 for private investments into equity and was fully invested in 36 funds.
- National Innovation Foundation is actively involved in promoting innovation through investment in equity, capitalization of domestic and foreign venture funds, grants for research and development, support to technology parks and stimulation of the innovation culture development. The Foundation was established in 2003 under the Ministry of Industry and Trade.
- Science Foundation was established in 2006. It actively functions in the field of ICT and space technology, nanotechnology, new materials, biotechnology, renewable energy technology and nuclear technology. The fund provides loans to scientists who plan to start a company or sell their findings for the following 3-5 years. Funding ranges from about 50 thousand dollars to $ 2 million. Eleven projects have been supported so far and in mid-2011, the three of them began to repay the credits [9].

This institutional structure, except for DAMU, has been created for the last decade. Financial instruments used for the modernization of the economic structure and support of innovation, focus on equity, soft loans and grants.

In 2008, in order to attract direct foreign investment and support the national export-oriented companies in entering foreign markets the National Agency for Export and Investment "Kazneks Invest" was established.

This agency has filled up a network of development institutions such as the Development Bank of Kazakhstan, Kazakhstan Investment Fund and Business Development Fund "Damu".

In 2010, the National Agency for the Development of Local Content "NADLoC" was established. The main purpose of the agency is to provide support to domestic producers to increase their competitiveness by increasing the share of local content in goods, works and services sold in the domestic markets. Part of its work is the development of appropriate public policies, as well as cooperation with foreign agencies and international organizations, which, among other things, includes the transfer of technology and know-how.

To attract direct foreign investment to the industrial-innovative development of the country special economic zones (SEZs) and technology parks were set up.

SEZ advantages for foreign investors are the tax benefits for a predetermined period of time, a simplified mechanism for hiring foreign workers and legal support. Special economic zones function in the following areas:

- Special Economic Zone "Petrochemical Park Atyrau",
- Special Economic Zone "Seaport Aktau",
- Special Economic Zone "Ontustik" located in the Sairam District of South Kazakhstan region,
- Special Economic Zone "Burabay" - the territory in the resort area Borovoye in Akmola region,
- Special economic zone "Astana-new city",
- Special Economic Zone "Innovation Technology Park Alatau" set at 25 km from Almaty, the area of high concentration of research and development in Kazakhstan and close to the international airport,
- Special Economic Zone Pavlodar,
- Special Economic Zone "Saryarka" created in 2011 in Karaganda,
- Special Economic Zone Khorgos-East Gates founded in 2011 in Almaty region.

Development of a network of technology parks is seen as an essential element of the national innovation system.

National Innovation Fund within the frameworks of internal evaluation revealed nine operating parks, working since 2004:

- Technopark "Algorithm" (Ural Technology Park) based on a SRI "Gidropribor", JSC "CETT" and Agricultural and Technical University,
- Karaganda Technology Park "UniScienTech",
- Almaty Technological Park,
- Technopark KazNTU n.a. K.I. Satpaev,
- Technopark "Altai" in Ust-Kamenogorsk,
- Regional Technology Park in South Kazakhstan region,
- Regional Industrial Park "Aktobe",
- Regional Industrial Park in Astana,
- North Kazakhstan regional technopark "Kyzylzhar".

International co-operation is based on international treaties and agreements between the partner organizations. To date, more than 140 agreements on scientific cooperation were signed. Funds received as a result of international agreements on the provision of grants in Kazakhstan, are not subject to taxation, except for the taxes applicable to individual income.

The Government of Kazakhstan has a number of bilateral treaties and agreements in different areas, some of which have a direct impact on innovation. Some of them can be considered as agreements with a direct focus on innovation, while others (on trade policy, legal regulation and transport networks) have an indirect effect on innovation. National Innovation Fund and other organizations involved in the innovation process, tend to develop and strengthen contacts with international partners.

National Innovation Fund collaborates with organizations in many countries, including Belgium, the UK, Germany, Israel, Malaysia, Russia, the United States, Turkey, Finland, France, South Korea and others. NIF is also working with such international organizations as the Economic Commission for Europe (UNECE), the European Union (as part of "EU Framework"), the Organization for Economic Cooperation and Development (OECD) and the World Innovation Foundation (WTF). NIF is fostering integration in EurAsEC, which contributes to forming a Eurasian innovation system. NIF signed 16 memorandums and agreements on cooperation with foreign organizations that address issues of venture capital, multimedia development, technology parks and business incubators.

To support foreign investment in the industrial-innovative development of Kazakhstan, in early 2012, the government adopted a new law "On state support of industrial innovation", which opens up new opportunities and reflects the increasing awareness of the need to stimulate demand for innovation [10]. However, the effectiveness of government intervention is often limited due to insufficient development of the market for innovative services and market infrastructure.

It is now necessary to extend government support for innovative businesses, particularly through the development of existing initiatives in attracting foreign investment to their funding. Activities to attract foreign investment should be developed considering the demand

structure, characterized by a large number of applicants, focused on incremental innovation projects (minor changes, improvement of product or process with limited risk) and a limited number of projects with significant innovative content. There is a need in a broad set of tools that meet the needs of different types of innovation projects.

It is also necessary to further develop a systematic approach to the development of the national innovation system, aimed at strengthening the relationship of various components of the system and including both technological and other types of innovations in the national innovation system.

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