

Impact of the new Industrialization on innovational development of production in Kazakhstan

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Abstract — The global economy has witnessed tremendous changes over the course of the last few decades with the developed countries having witnessed the importance of industrialisation in terms of renovation of productive structure of economy.

For Kazakhstan as a country with severe climatic conditions a the manufacturing sector seems to be one of the path which the traditional economy can take in order to secure better living conditions for the people. Therefore, industrialisation is seen as being crucial to transforming a backward economy with low productivity.

The main purpose of this paper is to examine the achievements and downfall of the industrialisation in Kazakhstan. At the same time this investigation is devoted to results of Kazakhstan's experience of changing industrial way of activity for further using by other countries. There seems to be a gap in the literature because most research has chosen to highlight the overall GDP growth rates of the Kazakhstan's economy and industrial policy as a whole (Baker, J. (1983), A.Mukashev. (2015) but little has been written about the way of new industrialisation in Kazakhstan, its successful and vain results during emerging different changes in global economy.

Keywords—*new industrialization; diversification; innovations; production; investments; production policy; structural changes.*

I. INTRODUCTION

In light of recent events in the world, it is becoming extremely difficult to ignore the necessity of changes in economical activity of countries. Almost of all developed countries have started to put their efforts to rejuvenate the global economy and agitate the growth through governmental support for leading industries of their economy, i.d the importance of industrialisation has become more crucial among the economists across the world.

Studies of improvement of terms “industry”, and “industrialisation” in different countries show the importance of it from different points of view (Reich, 1982; Landesmann, 1992; Chang, 1994; Huck and Konrad, 2004; Goh, 2005). Reich (1982), a representative of the supporting side of industrial policy in the United States, defined industrial policy as a set of government actions aimed at supporting sectors that have export potential and employment potential, as well as the ability to stimulate infrastructure production. [1] Landesman (1992) believes that the priority in industrial policy is the selectivity of industrial policy. [2] In other words, Landesmann defined industrial policy as a tool for discrimination and choice between different sectors and industries. At the same time, policies should be developed for each selected industry or sector in a particular area separately. Chang (Chang, 1994) defined industrial policy as a state activity based on the creation of production and technological potential in strategic sectors of the economy. Chang believed that such discrimination between different sectors was based primarily on their potential to stimulate economic development in the country. [3] Huck and Konrad (2004) believe that an increase in national income is possible by increasing the competitiveness of local producers compared to foreign producers, creating a cohort of the best producers and subsidizing joint firms. [4] Goh (Goh, 2005) wrote that the Government of Singapore tried to encourage its entrepreneurs to a more active entrepreneurial spirit in the global market. In order to raise the level of Singaporean specialists in accordance with the standards, to be consistent in the global market, as well as to trade and create factories abroad.[5]

So, in the new global economy, industrialisation has become a central issue. It is very important to ask “how” during industrialization processes rather than “why”.

Institutional setting is important but it is tough to design; The practice should be flexible within industrialization; Distinctions exist with respect to the extent to which comparative advantage needs to be challenged, not the principle; The main purpose of industrial policy should be modernization of technology and innovation; An important purpose of industrial policy should be promoting national innovation systems. (W.Naudé, 2010). [6]

Kazakhstan has also been attempting to apply different efficient industrial policies to get stable growth after continuous period of reconstruction of economy. Various national programs and governmental approaches have been adopted for achieving an assortment of economy. For this reason, Kazakhstan has mainly been following the great experiences of several successful countries as Singapore and South Korea. However, Kazakhstan was not able to achieve such growth as those countries did. Kazakhstan has chosen a gradual level of achievement of the main goal and this is confirmed by well-known saying in the people "Slow and steady wins the race". Today, Kazakhstan's industrial policy is focused on developing and supporting priority sectors of the manufacturing industry, creating basic conditions for their effective development with a concentration of efforts and resources on improving the investment climate and implementing system-wide government support measures that do not have a distorting effect on competition. The key task today is the diversification of the economy and the search for new sources of economic growth. This necessitates further structural reforms. The effectiveness of the structural reform of the national economy is directly related to the reform of its industrial policy. In the context of commodity price volatility, falling domestic demand the national economy needs an effective strategy capable of providing high industrial productivity. The strategy should be based on the successful experience of implementing the industrial policy of the countries of the world. Analyzing the main trends and best practices of industrial policies in the world, we find the best solutions for the implementation of the structural reform in the industrial policy of the Republic of Kazakhstan. So, we define that Kazakhstan has its inner issues which are interfere with achievement of planned goals.

II. LITERATURE REVIEW

The first serious discussions and analyses of industrialisation was about results of first industrialisation. (U.Bek, 1992., [7] G.Lepesh, [8] 2011, etc) For this reason it is interesting the history of first industrialisation in the world which was started in 1781 year in England.

Historical information suggests different types of industrialization carried out in the world at different intervals of time. Each of such industrializations underwent several stages and had inherent results. The main reason for the need for industrialization in the world has become, according to scientists, "... first of all, the challenge of world scientific and technological progress and the need for structural changes ...". (Buy Kuok Hung, 1997). [9] As Adam Szirmai (2010) consider "in developing countries, moves towards

industrialisation were scarce and hesitant". [10] The countries with a developing economy of that time did not really differ at rapid rates of change due to object reasons such as post-war recovery, inflation, lack of domestic investment, and not attractive to foreign investors due to unformed financial institutions. Today, according to S. Gubanov (2009), "the historical phases of industrialization are clearly identified and classified. It turned out that this process is far from over in the whole world, including the developed one. Upon completion of the electrification of the economy, the automation phase of the productive forces begins ... This is an objective technological and economic law, by virtue of which the countries of the so-called Third World are lagging behind in neo-industrialization". [11] The importance and significance of industrialization in the world is confirmed by the existing powerful empirical and theoretical arguments in favor of industrialization as the main engine of growth for the economic growth of developing countries. At the same time, Yu.Shishkov (2011) wrote that it is important to emphasize that, despite the existing barriers, the starting potentials for renewing countries "the decisive role in the accelerating advanced growth of developing countries is their industrialization". [12]

Surveys such as that conducted by L. [Blyakhman](#) (2013) showed that ... "a source of economic growth in new conditions becomes innovations ...: new technologies, equipment, products, raw materials, synthetic materials with predetermined properties, renewable energy sources, methods of organizing production, labor and management, encouraging and regulating the behavior of workers, new markets, financial instruments The main method of implementing new industrialization is becoming mass innovative entrepreneurship." This study identified the main trends in the development of industrialization in different countries. Thus, the new industrialization in the United States is based on an increase in investment in science, education, robotization, state subsidies for production, "green" energy, the introduction of strict environmental standards. In Japan, the "economic miracle" was replaced by a quarter of a century of stagnation and is based on doubling the level of monetization of the economy, inflation, as well as the depreciation of the national currency and the growth of government spending. In India, industrialization is accompanied by the democratization of the economic regime. In China, new industrialization is based on the transition from primary processing of raw materials and the export of standard products to the production of equipment, aviation and automotive vehicles, new materials, and the use of renewable energy sources mainly for the domestic market. [13]

In Belarus, consolidation of the ruling elite of Belarus on the basis of nationally oriented industrial capital is one of the fundamental prerequisites of the country's neo-industrial development. While ensuring it, the goals of neo-industrialization are achievable in a planned, consistent manner.

In Uzbekistan, "the innovative way of development is provided by creating the infrastructure of the innovative

business, i.e. a set of institutions and institutions providing technological transfer”. [14] In addition, structures have been created in Uzbekistan to support innovative enterprises.

It is believed that the legislators of industrialization in the world are the United States as receiving the best benefits from it. We will try to understand this phenomenon within the framework of this study. Indeed, referring to the original sources of industrialization, we determined that “the course towards innovation is the basis of American economic policy, focused on competitiveness and leadership, and consisting in the search for promising needs, the satisfaction of which will become a source of continuous economic growth. The solution of the urgent task of ensuring stable economic growth is combined with a strategic focus on the development of human-oriented industries in the structure of the US economy. This happens within the framework of the current model of economic development aimed at innovative growth and future needs. I.V. Rodionova, Kokuytseva T (2010) consider “thus, the United States, implementing its high-tech development strategy, has already set several decades to set the tone for the world. stimulating countries to develop and move towards the same results in their own ways and methods”. [15]

No previous study has investigated industrialisation in Kazakhstan and its results of renewing the economy and constructing new approaches for developing of country. We do believe that the experience of Kazakhstan in introducing new industrialization could be useful for many countries having similar starting points as Kazakhstan for updating the country's industrial development. Few studies have investigated industrialization in any systematic way of implementing new way of development of country after 26 years of Independence. Only domestic scientists and specialists in Kazakhstan are interested in this issue. So far, very little attention from foreign scientists have been paid to the role of industrialisation in Kazakhstan and ways of achieving tasks of this project. However, much less is known about how the project of industrialisation in Kazakhstan is “accelerating”.

III.METHODOLOGY

The aim of the study is theoretical analysis and empirical study of the experiences of implementation of new type of industrialisation processes in Kazakhstan in the period of transformation of the world to new forms of development.

The subject of the study is the opportunities and future of Kazakhstan in the way of construction of new industry.

The theoretical and methodological basis for the study was the scientific works of domestic and foreign scientists such as (Reich, 1982; Landesmann, 1992; U.Bek, 1992., Chang, 1994; Huck and Konrad, 2004; Goh, 2005; G.Lepesh, 2011; L.[Blyakhman](#), 2013; A.Mukashev, 2015 [16]) and others.

This paper traces the development of industrialisation in Kazakhstan after implementation of world experience. This investigation explores the ways in which countries who at the beginning of their industrialisation way or on the first stages of this process. This paper describes the

design of kazakhstani experience and some advice of implementation the best approaches for gaining appropriate results.

There are two primary aims of this study: 1. To investigate variety points of view of scientists from different countries on process of industrialisation and take attention to history of industrialisation in order to define the degree of novelty or similarity. 2. To ascertain governmental approaches of Kazakhstan of implementation of foreign practices with using inner potential of industrial activity.

This study was exploratory and interpretative in nature. Therefore, this study makes a major contribution to research on what interfere for realization of plan of industrialisation in Kazakhstan by demonstrating some features an existing conditions of it.

The reader should bear in mind that the study is based on the discussed points of view of foreign and domestic scientists and experts.

This paper has been divided into four parts. The first part deals with introduction. The second one is devoted to literature review. The third part of paper is about methodology. In the fourth part we are offer the main results of this research. And the last part of paper has a conclusion.

Data for this study were retrospectively collected from statistical agency of Kazakhstan and official information of Ministries and Committees supervising industrialization in country.

IV. RESULTS

Over the past decades, the state has actively pursued a course towards industrialization, diversification and increasing the competitiveness of the national economy. A means to achieve macroeconomic goals related to improving the welfare of the country is to activate the innovation and industrial component in the general system of reform programs.

Since 1997, a number of programs have been adopted to develop the national economy. One of the first major programs for the transformation of the national economic system was the Strategy 2030, which was implemented in two stages - the Strategic Development Plan of the Republic of Kazakhstan until 2010 and the Strategic Development Plan of the Republic of Kazakhstan until 2020.

At the first stage, the Strategy for Industrial-Innovative Development of the Republic of Kazakhstan for 2003–2015 was developed, within the framework of which the Cluster Development Programs and the Concept of Technoparks were adopted. At the second stage, within the framework of the implementation of the Strategic Development Plan of the Republic of Kazakhstan until 2020, the State Program on Forced Industrial-Innovative Development of the Republic of Kazakhstan for 2010–2014 (SPIID) was adopted. Its continuation was the State Program of Industrial-Innovative Development of Kazakhstan for 2015–2019. The state program on accelerated industrial-innovative development of Kazakhstan (SPFIID) was implemented through the Industrialization Map, sectoral

industrialization programs and the programs “Business Road Map - 2020” and “Productivity 2020”. The main leitmotif of the adopted strategies should be noted as a reference point to the industrialization and activation of the innovative potential of the country. Key attention was paid to the development of traditional sectors with the subsequent transition of raw materials production to higher divisions, to industries based on the demand of subsoil users, national companies and the state, to export-oriented production and to the sectors of the “economy of the future”.

Global development trends show that the economy is innovative in next cases: access to information about new knowledge, innovations, results of innovation activity is provided through modern information technologies; the level of development of infrastructures in the country as a whole corresponds to the tasks of creating national information resources necessary to support scientific and technical progress and innovative development; expansion of innovation in different areas is based on radical changes in social structures and institutions of the development of society; new ideas, knowledge, technology is perceived by the society benevolently due to well-developed compensatory mechanisms for reducing resistance to change; the innovations necessary at the given moment of time, based on high industrial technologies, are quickly realized, thanks to the developed innovative infrastructures; complex projects for the development of the region corresponding to the main directions of world technological development are effectively implemented, relying on a flexible system of advanced training and retraining of specialists in the field of innovation and innovation activity. Prospects for the development of Kazakhstan are associated with the formation of an innovative economic system, which is designed to increase the innovation activity of business entities and increase their number to ensure technological modernization of enterprises, increase the competitiveness of the national economy and, ultimately, increase welfare and quality of life of the population.

As world practice shows, the functioning of the most prosperous economic systems, high competitiveness and stable economic growth, first of all, are provided by factors stimulating the spread of new technologies. From our point of view, given the fact that modern competitive advantages are almost entirely provided by advantages in production technologies, management, organization of product promotion, successful development of the competitiveness of the economic system is possible with the integrated use of modern concepts of innovative development. [17]

Thus, the current stage of world economic development is characterized by an accelerated pace of scientific and technological progress and the increasing intellectualization of the main factors of production. Intensive research and development of new technologies based on them, access to world markets and the expansion of international integration in the scientific and production sphere within the emerging global economy have in fact become a strategic model of economic growth for industrialized countries.

An innovative model of economic development is becoming a benchmark for countries of the world. It allows increasing economic growth rates, effectively integrating into the global economic space, successfully solving social and economic tasks, including reducing the income gap of GDP per capita compared with developed countries.

Some countries have already achieved certain results in this direction. Over the past decades, they have managed to partially restore the pre-reform position, increase the growth of industrial production, increase the "manufacturability" of exports while reducing the share of commodities.

Singapore and South Korea were chosen as a guideline for development by Kazakhstan. These countries were characterized by rapid economic growth due to the introduction of a new policy of reform and re-equipment of basic sectors of the economy. Following the example of these countries, Kazakhstan today demonstrates its transformation experience. Consider the main differences in the starting conditions for the development of the economies of Singapore and Kazakhstan to compare the pace and nature of changes, which will show how much borrowed experience has similar or radically different results.

Singapore is a city-state dominated by government. A country with direct access to the sea, and climatic conditions that favorably affect the conduct of business. Singapore is limited in natural resources. Singapore has a favorable geographical position. Singapore is the key to the Strait of Malacca - the main sea route from the Indian Ocean to the Pacific which contributed to the development of the economy as a re-export. Singapore had a cheap and relatively large labor force. In 1964, the unemployment rate reached almost 14% [18]. The state of Singapore had minimal social obligations to hired workers. Singapore inherited a market economy from Britain. The close and friendly relations helped Singapore to solve many complex problems at the very beginning of its independent development. Singapore as a result of the war in Indochina has become an important ally for the United States. which predetermined the influx of American investment. Singapore's economic growth was preceded by inter-ethnic conflict between the Chinese and Malays. Singapore had difficult relations with its closest neighbors: Indonesia and Malaysia, which hampered the inflow of raw materials from these countries to Singapore, which, after processing, was exported to third countries. Singapore is almost entirely without natural resources. Singapore did not have a domestic market.

Under such starting conditions Singapore has relied primarily on large-scale industrialization by massively attracting foreign capital, using tax breaks and preferences: exemption from income tax and import duties for five years in priority sectors of the economy, the right to duty-free transfer of profits and repatriation of capital for foreign investors, investment guarantees, exemption from tax on interest on bank deposits for foreign citizens and so on [19].

The starting position of Singapore has been strengthened by the new vector of development proposed by

the head of state as “the creation of an oasis of the “ first world ”in the “ third world ”region”.

After adopting the policy of import substitution and manufacturing labor-intensive products, Singapore chose the path of development of capital-intensive industries with the subsequent export of manufactured products as the best alternative. “This approach required the availability of qualified labor, therefore, the mandatory requirement for foreign companies that located their production in Singapore was the opening of training centers for training”.

During 1970-2016 Singapore's GDP at current prices increased by \$ 295.0 billion (154.7 times) to \$ 296.9 billion; the change came in at \$ 3.3 billion thanks to a population growth of \$ 3.5 million, and also at \$ 291.7 billion due to a growth in per capita GDP of \$ 51,888.0. Singapore’s average annual GDP growth was \$ 6.4 billion, or 11.6%. Singapore's average annual GDP growth in constant prices was 6.9%. The share in the world increased by 0.34%. The share in Asia increased by 0.70%. For the period 1970-2016. GDP per capita in Singapore increased by 51,888.0 dollars (57.0 times) to 52,814.0 dollars. The average annual increase in per capita GDP at current prices was \$ 1,128.0, or 9.2%.

The next step for Singapore was the implementation of the task of transforming Singapore into a major financial center. To do this, we had to do the following: the state is independent of the sterling zone; attract foreign financial capital for the removal of restrictions on foreign exchange transactions; dollarize the financial system. As a result, over 16 years the number of banks increased by 89 banks with total assets of \$ 65 trillion 700 billion 149 million, of which only 10 banks were national.

The starting conditions of Kazakhstan after it gained independence differed significantly from the starting conditions of Singapore. Kazakhstan has a favorable geographical position, however, it is substantially remote from the sea routes, which is a barrier to the development of international trade. In comparable periods between countries, the level of social security in Kazakhstan was higher than in Singapore because it was a socially oriented state. Kazakhstan experienced a difficult stage of transformation after the collapse of the USSR. Singapore has safely avoided this.

If Great Britain, as a more developed country, provided Singapore with substantial assistance in the early years of independence, Kazakhstan did not have such an opportunity. Kazakhstan managed to completely avoid conflicts on a national basis. Kazakhstan does not have tensions with its neighbors. Kazakhstan is rich in natural resources in contrast to Singapore. The transformation of Kazakhstan into a new state was worth a loss of about 30% of GDP. From 1993 to 1998, industrial production declined by more than 66% [20]. The severity of the economic situation in the country led to the implementation of real liberal market reforms: liberalization of foreign trade; the introduction of private ownership of land; complete rejection of state regulation of prices; housing reform; the adoption of laws on bankruptcy, antitrust, the budget system, the national bank, oil, taxes and obligatory payments, on privatization, state support

for direct investment, the securities market and other; started the privatization of industrial enterprises; tax reform was carried out with the adoption of the tax code and a phased tax cut. The reforms brought an inflow of foreign direct investment, which increased 6.7 times in 6 years (1998 - 2004). [21] At the same time, foreign direct investment mainly went into the commodity sector. [22] The reasons for this were such prerequisites as investment was quickly attracted only to the commodity sector; investment in the commodity sector ultimately had to be reallocated to other sectors of the economy.

Another bet was the development of the financial market. Changes in the regulation of securities trading and in the banking sector led to the fact that from 1998 to 2004, the GVA (gross value added - LS) of the financial sector grew by 55%. Thus, the commodity sector of the economy plays a key, but supporting role in the development of the country. It was possible to increase the technological level of our industry through the development of export potential. Accordingly, it was necessary to solve the following tasks: a) reduce export and import costs; b) it is massive to attract foreign capital into the country, to further develop the financial market more vigorously and thereby reduce the cost of financing and costs; c) pay special attention to the quality of education; d) create a comfortable environment for business. The state, feeling itself against the background of rising oil prices more confidently, began to increasingly strengthen its presence in the economy, both through excessive supervision and regulation, and due to the concentration of assets in its hands. These factors reduced the attractiveness of the country for potential investors and slowed down the development of entrepreneurial activity. The increasing complexity of the transfer of subsoil use rights and the increase in the tax burden on mining companies led to the refusal of foreign investors in cooperation with small and medium-sized mining companies.

Tax concessions and preferences intended for the development of engineering, were not able to compensate for the high export costs and lack of environment for business. Bureaucratic barriers and restrictions did not allow the cost of financing to fall and the rise of small and medium-sized businesses. Bureaucratization and regulation in the field of education has led to the degradation of educational and methodological complexes and a drop in the quality of educational literature. In addition, Kazakhstan faces the problem of “middle income trap”, where it will not be able to compete with both advanced economies with high qualifications and innovations, and low-income economies with low wages and cheap production of industrial goods. As a result, the level of investment in fixed assets from GDP fell from a record 32% in 2005 to 17% in 2014. Similarly, the level of money supply in the economy decreases from a peak of 40.5% in 2009 to 33.5%. The level of urbanization is extremely low, which disperses demand over a vast territory and affects the quality of human capital, increases the costs of doing business. To this day a private initiative is weak, which is influenced by several factors: an unreasonably high state presence in the economy, a high monopolization of a number

of industries, a weak bankruptcy institution with a high proportion of “problem” loans in banks that have frozen part of the pledged assets and indirectly affecting the limitation of tence liquidity in the economy. The key obstacle for further business development remains the regulatory environment issues related to ensuring the rule of law, judicial independence, burdensome tax regulations, permissive systems, excessive antitrust requirements and restrictions for foreign investors in certain industries. Undeveloped infrastructure and complex customs procedures limit export opportunities. High transport costs, inefficiency of logistics, poor quality of roads and ports, high electricity tariffs significantly limit the competitive advantages of Kazakhstan business. The business environment is also characterized by limited access to finance, an underdeveloped stock market and high currency risks. The limiting factor for industrialization and business development is the low quality of human resources and the difficulty of hiring foreign employees. Thus, the experience of Singapore due to difference in starting conditions turned out to be not fully applicable to Kazakhstan as well as the experience of Finland, the United Arab Emirates, and Malaysia.

V. CONCLUSION

Now we can make some conclusions of this paper.

Kazakhstan is a country with a large domestic potential, but the development of which requires time and additional efforts. The application of the experience of developed countries benefited the country. However, it was also connected with the solution of systemic problems that appeared in the way of economic modernization, changing the structure of state bodies, creating new mechanisms for regulating and managing the economy. Today, Kazakhstan has completed the first stage of industrialization, which is characterized by such growth rates as: real GDP growth was 35.5%; real growth in GVA of the non-primary sector was 136.8%; real growth in GVA of the manufacturing industry amounted to 26.12%; the real increase in labor productivity in the manufacturing industry was 157.2%; non-primary exports decreased by 13.5%; GDP energy intensity declined by 18.6% instead of the planned 10%. At the current time, the country has begun to implement the second stage of industrialization, the result of which will be in 2019. The objectives of this stage of industrialization are: 1) to create a favorable investment climate at the level of OECD countries; 2) the development of competition, including through reducing the share of the state in the economy and stimulating private entrepreneurship; 3) improving the quality of labor resources, disseminating advanced knowledge and increasing productive employment; 4) expansion of markets for the sale of non-commodity goods; 5) ensuring the competitiveness of domestic business in the costs. Thus, for Kazakhstan, the main priorities for the development of the economy remain as: reforming the agro-industrial complex and eliminating agrarian overpopulation; development of large cities; liberalization of the financial market; the maximum possible reduction in the presence of the state in the economy.

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