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FACULTY OF ECONOMICS

MASTER'S THESIS

**AN ANALYSIS OF INDUSTRIAL POLICY IN KAZAKHSTAN**

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## INTRODUCTION

Industrial policy of the state as part of the overall economic policy is one of the most widely discussed and, at the same time, one of the most controversial concepts in economic literature. As most of developed countries have started to put their efforts to revive the global economy and incite the growth through financial support for different sectors of their economy, the importance of industrial policy has become more crucial among the economists across the world. As it was always, industrial policy still plays a significant role in motivating industrial changes, modernization and diversification towards more sustainable and competitive sectors of economy as well as supporting “green” and socially responsible industries. The main purpose of industrial policy is to foresee the changes in economy structure, contributing it by removing barriers and regulating for market failures (Syrquin, 2007).

During the Second World War and the first decades following it, the industrial policy of many countries was associated with direct state regulation. The public sector in this period had a significant share up to 40%. From the early 1950's to the early 1970's industrial policy was seen as the panacea to growth and development problems. The apparent success of some East Asian economies had for a long time supported the conviction of those who were in favour of such policies. However, since the end of the 1970's and until recently such conviction has been challenged. Evidence was provided to show that industrial policy may lead to misallocation of resources, not improve long-run growth, and give rise to rent-seeking. Therefore, economists could only agree on the limited role of the state mainly to the protection of property rights and contract enforcement, maintenance of macroeconomic stability and the creation of a good general-purpose business environment, in addition to public goods provision and social protection.

According to Chang (1994) most economic literatures of the public sector focus on influence of the government to the efficiency of economic sectors. It can also consider the main activities and services that have to be managed by the government and which should be done by the private sector as well as what kind of incentives the country can use to affect the decision-making processes of the private agents. It is worth mentioning that these actions can more concentrate on macroeconomic policy and also policies that relates to education, health and pension systems. Therefore it does not directly connect with industrial policy itself.

As ever, industrial policy has been primarily focusing on having macroeconomic stability for the development of industries and achieving the planned goals in economy of the country. The example of fast development of Asian tigers-countries such as Hong Kong, Singapore, South Korea and Taiwan for last four decades gave optimism for economists that applying industrial policy, if performed in right way, could bring some contribution to economic growth (Goh, 2005).

One after another East Asian countries have taken off from a stagnant state to achieve an annual economic growth rate 10% per year on average. The fact that such high economic growth rates are being sustained, along with observations based on growth convergence regression that prior economic and social conditions do not seem to have warranted such rapid growth, has led most economists to call the East Asian growth miracle. As in the record of its growth has been impressive, especially when compared to that of other developing countries.

During the last two decades Kazakhstan has also been attempting to implement effective and efficient industrial policies to get sustainable growth. Numerous programs and strategies have been adopted in order to diversify the national economy and become one of the “Asian tigers” in the region. Therefore, as we will show, Kazakhstan has mainly been following the experiences of East Asian countries, especially Singapore and South Korea, in diversification of the economy and implementing different approaches of industrial policy. Despite this, the state was not able to achieve such growth as those countries did. Therefore, the major research questions that this master thesis will strive to answer are:

- What was behind the economic miracle of East Asian countries?
- What kind of stages did they pass through in order to succeed in the region?
- What was the role of government while implementing the policies in those countries?
- What have been the main economic achievements of Kazakhstan since the beginning of its independency?
- What kinds of initiatives were taken by the government to diversify its economy?
- Which state programs and strategies were adopted by Kazakhstan for industrialization processes in the country?
- What were the main results of implemented policies and programs in Kazakhstan?
- What has been done wrong by the Kazakh government while implementing industrial policies, compared to East Asian countries?
- What lessons can Kazakhstan draw from it?

The purposes of this master thesis are (1) to analyze the economic development of Singapore, Korea and Kazakhstan (2) to describe and discuss the different stages of industrialization processes in those countries and (3) to identify the main advantages of industrial policies implemented by the governments of Singapore and Korea.

The main goal of the thesis is to evaluate Kazakhstan’s industrial policy and based on that to summarize and develop recommendations for the Kazakh government for further economic development of the country. In order to achieve the main goal, we decided to manage the following tasks:

- First of all, to consider the theoretical foundation of industrial policy. It includes disputes of different authors in terms of definition, types and approaches of the policy. The same time to study new views of industrial policy in the present time;



- Secondly, to study eastern economists' explanation of the “miracle” in the region, with an emphasis on Singaporean and South Korean industrialization experiences;
- Thirdly, to conduct a deep analysis of the economy of Kazakhstan and to structure stages of industrialization in the country;
- Fourthly, evaluation based on the theoretical model and comparison with the successful stories of Singapore and Korea in the policy implementation. Based on this evaluation to conclude the thesis with a list of recommendations.

## **1 THEORETICAL FOUNDATION OF INDUSTRIAL POLICY**

### **1.1 Definitions of “industrial policy”**

The idea of economic policy considers the state actions in implementation various strategies in order to achieve certain objectives and goals. Macroeconomic and microeconomic policies are the main two categories of the policy. The macroeconomic policy covers such policies as fiscal and monetary, impacting on aggregate variables in the short term, while the latter influences firms and consumers in a long term. Microeconomic policies in most cases focus on sectoral elements, including industrial, technology, competition policies and others. Therefore, macroeconomic policies usually can form the size of production, employment and prices, whereas the micro one deals with such issues as the structure, industrial production and employment (Chang, 1994).

Today the literature determines industrial policy differently focusing on numerous actions of the government intervention in order to motivate the development and growth of the business sector. Reich (1982), one of the defenders of industrial policy in the United States, determined industrial policy as the composition of state actions developed to encourage those sectors that have a significant export potential and employment capacity, in the same time ability to support the production of infrastructure. Pinder (1982) suggests extensive definition that involves the policies to support industry, including different incentives programs in the field of fiscal policy, state investment and public procurement programs, investments in R&D, supporting programs for small and medium businesses and “picking winners” approaches in important sectors of economy. This statement of the policy comprises direct supporting such policies and programs as trade and competition policies, programs for supporting labor-intensive activities, measures to protect from cartels formation. Johnson (1984) defines industrial policy as one of the tools for the country to improve international competitiveness through supporting the development of specific sectors of the national economy. Landesmann (1992) pays his more attention to the selective aspects of industrial policy. Based on his idea, industrial policy can be used as a tool to discriminate and select among different sectors, industries and the policy is designed concretely for each selected industry or sector within a specific area-region. Chang (1994) suggests defining industrial policy as the state activities that support to generate the production and technological capacity in industries which are strategic in the

national economy. This explains that the discrimination among different sectors and agents based on their potential to force economic development in the country. Thus, this approach leads to broader discussion of the policy since not all sectors are equal in their ability to generate growth and they have different impact of industrialization on the development processes.

“UN Conference on Trade and Development” (1995, p.1) defines industrial policy as a “concerted, focused, conscious effort on the part of government to encourage and promote a specific industry or sector with an array of policy tools”. The World Bank considers industrial policy as government efforts to alter industrial structure to promote productivity-based growth. Pack and Saggi (2006, p.2) provide a more detailed definition: “any type of selective intervention or government policy that attempts to alter the structure of production toward sectors that are expected to offer better prospects for economic growth than would occur in the absence of such intervention, i.e., in the market equilibrium.”

Industrial policies can be implemented in various sectors of economy both manufacturing, agriculture and service sectors. For example, Dani Rodrik (2007, p.2) states that industrial policy “is not about industry per se”, but that “policies targeted at non-traditional agriculture or services qualify as much as incentives on manufacturers”.

On the other hand, Akkemik (2009, p.10) defines an industrial policy as, “a set of policies designed for the development of selected industries to increase the welfare of the country and to achieve dynamic comparative advantages for these industries by use of state apparatus in resource allocation”. This clearly points out the concentration on the transformative intention and aim of industrial policies.

Generally, industrial policy can be defined as a term of functional sense and closely related to so-called competitiveness or productivity policy. Therefore, the term industrial policy is consimilar to the current approach such as growth strategy or “supply-side” policy. The approach like that still gives priority to the idea of “sectoral supporting”: for instance, the European Commission (2002, p.3) defines it as follows: “Industrial policy is horizontal in nature and aims at securing framework conditions favorable to industrial competitiveness. Its instruments, which are those of enterprise policy, aim to provide the framework conditions, in which entrepreneurs and business can take initiatives, exploit their ideas and build on their opportunities. However, it needs to take into account the specific needs and characteristics of individual sectors. It therefore needs to be applied differently, according to the sector. For example, many products, such as pharmaceuticals, chemicals, automobiles, are subject to detailed sector-specific regulations dependent on their inherent characteristics or use. Industrial policy therefore inevitably brings together a horizontal basis and sectoral applications”.

## **1.2 Types of industrial policies**

According to Caves (1987) and Gual (1995) there are three different types of industrial policies to increase economic efficiency. They are horizontal (as one of example, despite the sector of economy to support innovation that will address to knowledge externalities); vertical (e.g., supporting a specific industry sector to capture some profits or so-called strategic trade policy); structural change (e.g., in order to prevent too fast adaptation to changes of new technologies and comparative advantages and temporarily support a declining industry). Additionally besides improving economic efficiency, industrial policy also plays an important role in increasing equity (e.g., instead of supporting economic efficiency to support uncompetitive sectors based on social and regional income distribution). All abovementioned four types are briefly discussed below.

### **1.2.1 Horizontal industrial policy**

The meaning of “horizontal” in the frame of industrial policy indicates that there is no any selectivity approach during supporting the individual firms or sectors in the country. Put differently, horizontal type of the policy applies to a broad range of sectors or firms. Telling more in a wide sense, as used by European Commission (2005), the horizontal policy covers the broad set of conditions for sectors to operate, including rule of law, defense of property rights, macroeconomic stability, absence of administrative obstacles and bureaucracy, good public management of sectors and others. To be more precise, horizontal industrial policy denotes the measures of the economic activities that are generic to most of the sectors and firms in the national economy. In the same time it is common for the sectors that are worried by the market failure, namely the presence of spillover effects in the processes. One of the most favorite examples of the horizontal policy aiming at specific economic activity is to support innovation. In general, knowledge can be considered the benefit of the entire society. In other words it can be divided among a lot of numbers of clients and its creation is linked with positive externalities (one firm shares with another one). In most cases, because of maximizing own profits, private companies do not invest too much in innovation and it leads to ignoring the broad spillover effects to the entire economy. That is why the public innovation support would be guaranteed for spillover effects and assured public support does not discriminate among different sectors and industries, hereof does not generate any distortions.

### **1.2.2 Vertical industrial policy**

In comparison with the horizontal approach of industrial policy, vertical one intends to support a specific industry, sector or individual firm. There are three main economic grounds to conduct such selectivity: spatial externalities; the shifting of the benefits from foreign rivals with market power to local producer or so-called “strategic trade policy”; last but not least “domestic merger” meaning the process of domestic merger to a local producer.

According to Krugman (1993) and Baldwin et al. (2003) spatial externalities take into consideration sectors that can be described by economies of scale during the production and by the effects of market size. As for economies of scale, most producers wish to locate their production in geographically advantageous market where they will have only few of the rivals. In the same time, producers try to concentrate on the market with a high demand in order to minimize their transportation costs. In spite of this, the more producers the higher demand can be in the market. Therefore, relocation of production in the national economy depends relatively on the strength of agglomeration and dispersion of forces. From the point of view of economic efficiency, agglomeration can be useful in the sectors of economy where positive spatial externalities are significant. However, it is not desirable if agglomeration leads to negative externalities, such as stagnation.

The main purpose of strategic trade policy, as one of the approaches of vertical policy, is to grab surplus profits of foreign producers within imperfect competition in the market, and thus increase domestic income by earning on the costs of other states. Brander and Spencer (1983) claim that strategic trade policy, as a starting point, should consider economies of scale of the sector when there is only foreign producers in the market. The presence of economies scale is accompanied by market power and excess profits for the current foreign producers, as they restrain potential new entrants by threatening to undercut them (for example, by deliberately maintaining excess capacity) whenever they try to enter the market, which makes entry seem unprofitable from the beginning.

According to Huck and Konrad (2004) the increase in national income is possible by using industrial policy and more precisely by initiating domestic merger in the country. They claim that the government is able to improve competitiveness of the local producers compared with the foreign producers by creating “national champions” and subsidizing the merged firms. Consequently, the state can create such situation when local producers and home economy will benefit from this. As it was already mentioned in the case of strategic trade policy, the profit is mainly generated by the costs of foreign countries and economies. Also, it is worth mentioning that government intervention in the form of subsidizing the domestic merger can be economically sensible at least for the home country in the case if the costs are higher than benefits.

### **1.2.3 Industrial policy to support structural change**

It is well-known fact that industrial policy also plays an important role in contributing structural changes in the national economy of the country. The idea of that is the policy can motivate some changes, which by the government intervention tries to ease the market failure that leads to slow down or prevent the development of new sectors in the economy. However, it can be vice-versa, when the intervention seeks to prevent failures in the market from devastating or declining industries in the economy.

### 1.2.4 Industrial policy to support equity objectives

It is worth mentioning that industrial policy that equity-oriented is one of the widespread used approaches in the global economy. During evaluation of industrial policy based on its merits and failures it is crucial to remember the difference between the policy that seeks to force efficiency and industrial policy that tries to support equity purposes. According to Gual (2000) as an example of equity - oriented policy can be the EU state aid that supports steel, shipbuilding and coal sectors of the economy. In the same time, aids that relate to railway and regional support are both equity and efficiency basis. As for efficiency grounds, support of small and medium businesses, innovation and foreign trade can be a good example of it.

### 1.3 Different approaches of industrial policy

After the World War II the thoughts about necessity of industrial policy has been gone through the evolution. Many authors have studied different industrial policy thinking for a long period and finally could clarify the evolution of the industrial policy (Naudé, 2010). Basing on this literature, different stages of various thinking of industrial policy can be described in the beginning as traditional industrial policy. However, the development of industrial policy thinking did not stop only in traditional approach. It was also followed by different policies, such as market-driven, laissez-faire and others. During the development, the laissez-faire approach faced the issue of market failure, which then came up with the understanding of importance of government role in motivating development of capabilities. Recently, the authors agreed also with the role of government in encouraging systems, establishing institutions and coordination among them. Table 1 demonstrates the evolution of thinking for post-war periods.

Table 1. Evolution of theory and practice of industrial policy

Periods	Main ideas
From the 1940's until late 1960's	Industrialization is very important for development; Market failure as a system of warning to protect automatically from happening this; In most cases developing countries face the problems of market failures; Industrial policy is necessary, namely for infant industry protection, government coordination and state ownership.
From the 1970's till the 1990's	Practical barriers on the way to industrial policy are considered crucial; Market failure is considered better than state failure; As the key elements for growth and industrialization are considered trade liberalisation, attracting foreign direct investments (hereinafter: FDI) and privatisation, also positive macroeconomic environment and minimum state intervention in the economy (Washington consensus);

table continues

continued

## Evolution of theory and practice of industrial policy

Periods	Main ideas
From the 2000's to present	<p>State and market failures are reality;</p> <p>It is very important to ask “how” during industrialization processes rather than “why”;</p> <p>Institutional setting is important but it is tough to design;</p> <p>The practice should be flexible within industrialization;</p> <p>Distinctions exist with respect to the extent to which comparative advantage needs to be challenged, not the principle;</p> <p>The main purpose of industrial policy should be modernization of technology and innovation;</p> <p>An important purpose of industrial policy should be promoting national innovation systems.</p>

Source: W.Naudé, *Industrial Policy: Old and New Issues*, 2010, p.10.

Taking into consideration abovementioned evolution table and basing on the discussion in Sharp (2001), the following different approaches can be defined:

- Laissez-faire;
- Traditional approach, government support and ownership;
- Neoclassical, correcting market failure;
- New development/growth based on technological capabilities;
- Systems-based.

As for the **laissez-faire approach**, there is a belief that it is not necessary to have a “dynamic” industrial policy in the country. This approach considers less targeted policy. According to the laissez-faire approach, the market is able automatically to choose sectors or industries to guarantee efficient distribution of resources among them. The main role of the state is to create favorable business environment, to regulate in appropriate way labor and capital markets within the country, to provide a good macroeconomic environment and financial stability and others. According to this approach industrial policy is a form of trust in the effectiveness of market mechanisms and a policy that concentrates on primary conditions; nevertheless it has never been in such ideal form. One of the examples of the laissez-faire can be Great Britain in nineteenth century and the United States of America in the twentieth century. In spite of these, the examples have demonstrated that in those countries the state intervention has been witnessed even within free market conditions. The main idea of industrial policy was found by the end of the 20's century in the framework of so-called Washington Consensus. Because of failures and lack of success during implementation of industrial policies in the 1960's and the 1970's the laissez-faire approach has started to lose its importance and popularity (Warwick, 2013).

The main idea of **traditional approach** is to stimulate specific sectors in the national economy. The main tools of stimulation by the government are subsidies for production,

different forms of state aids, “picking winners” based on nationalization, stimulation of domestic mergers and preferential procurement policies. According to supporters of this approach of industrial policy the main benefit of this form is creating of backward linkages between different economic sectors across the country. It is worth mentioning that manufacturing sector always played one of the important roles in this approach, due to the connections with other sectors, knowledge spillovers from R&D investments and effect of economies of scale. In spite of using market failure arguments in order to support traditional approach of industrial policy, in most cases sectors or industries were selected based on weak criteria, subsequently leading to rent-seeking behavior from the agents sides in economy.

The next approach of industrial policy is **neoclassical or market failure approach**. This approach has proved that state intervention is necessary to correct market failures (e.g., capital market failures) and to ensure procuring of public goods. As usual, market failures can demonstrate discrepancy between the structure of social and private benefits in a specific economic activities. In the same time market failure can be associated with positive externalities (foreign direct investments, manufacturing, innovation and etc.) and informational asymmetries, meaning that private investments do not meet the level of social desires. The policies that deal with correction of market failures can be either horizontal (state investment in R&D, competition policy and others) or the policy might be targeted. The case of market failure can be often arguable for policies such as selective one, nevertheless following Crafts (2010) next three forms of market failure can be emphasized: infant industry-related capital market failures; agglomeration externalities; and rent-switching via strategic trade policy.

Perhaps, infant industry protection approach is one of the most favorite types of industrial policy that justify state support of capacity-building in industry. The concept of infant industry has different variants to protect domestic producer from import competition. In order to protect arising sectors in the economy the government can implement various policies in the field of tariff, import quotas and others. These arguments often based on the historical evidence where most developed countries with the largest market faced the numerous of barriers to trade during their industrialization processes. In the framework of disputes on the theme of infant industry protection the following two types of market failure have initiated debates around these topics: imperfect capital markets and problems of appropriability (Warwick, 2013).

There are a lot of forms of appropriability problems. However, it depends on the idea. As it always happens a new type of industrial policy can create some form of social benefit and business usually is not compensated for that. For example, a new entrepreneur in a new industry is able to create the supply side and relevant inputs in the market and doing so those firms provide beneficial information to other potential entrants. Provided information can be in the field of relative achievements of various business models, services, potential market, products and moreover different marketing tools. This explains that even the

failure of newbie can provide the priceless information and helps to develop right strategies for potential entrepreneurs to enter the market (Warwick, 2013).

A number of evidences in the field of economic geography claim that agglomeration economies take place when knowledge spillovers among different economic activities situated within the same geographical cluster and activities are characterised by economies of scale. The main advantages of dislocation in the same place are accessibility of intermediate inputs and necessary specialized knowledge as well as abundant labor market. In such cases, there might be benefits from intervention policy that brings to extension of an agglomeration and moreover the establishment of successful cluster with first-mover privileges. This kind of effects can be seen in advanced manufacturing or service sectors, for instance creative industries and services in the field of finance (Warwick, 2013).

The concept of strategic trade policy was discussed by Brander and Spencer (1985). The idea of the concept as following: there are two countries A and B. Those countries are exporters and they sell their goods to a third country that does not produce them. Country A subsidizes its exporting sectors, in the same time the exporting industries in the country B should decrease their production. As a result, rents are moved from B to A and from taxpayers A to customers in the third country. Based on the size of these rent shifts the country is able to increase its national welfare through subsidizing export-oriented sectors of economy. Despite this, there is also a critical view about such approach. The problem is that it requires more information than the government has access to and collecting needed information is quite complicated, because subsidies will have impact on cost structure not only of subsidized industry but also the entire related industries in the market. The state has to understand in details whole complex of industries that compete for resources with the targeted one (Krugman & Obstfeld, 2009). Having inaccurate information could bring to huge costs. Additionally, strategic trade policy can cause risks of external retribution.

As it was already mentioned before the externalities and appropriability of rents play an important role in the neoclassical approach, however, it is also significant within **endogenous growth or new growth theory** models. Sharp (2001) explains that these theories introduce dynamical expansion of the neoclassical approach. Firms can benefit not only from the scope and scale of economies but also from aggregated learning during the process of creating and supporting production. Particularly the theories stress on the externalities related to R&D and degree of the growth uprising from technological advances is endogenised. This approach focuses on investment in R&D, education and training, technology associated with generation of knowledge spillovers and benefits. According to this approach investment in tangible and intangible capital are justified.

The last but not least, **“systems-based”** type of industrial policy. This approach is broader than the “market failure”, but does not replace it. It focuses on the wider complex of cooperation among the groups of the main institutions that create favorable environment for operation and learning context for the members. The main idea of the systems approach is that state can interact with firms in different ways and therefore, an important role of



government is to carry on the dialogue with business to identify where state support is best applied and capitalize positive externalities.

To sum up, any industrial policy approaches implementation needs collaboration and mutually beneficial relationship between the private and public sectors that will lead to sustainable growth in the future. As Chang (1994, p.3) explained in his work: “One interesting thing that has emerged from the debate on industrial policy of the last two decades or so is the recognition that industrial policy is more about broad “vision” and coordination than about doling out subsidies or providing trade protections. Many commentators have pointed out that the East Asian countries do not necessarily spend more money on industrial policy than others, but that their industrial policy is more successful because they have a dense institutional network of coordination that facilitates information flows between the government and business, on the one hand, and between firms, on the other hand. It is also pointed out that industrial policies in these countries work not only by providing detailed solutions to specific sectoral problems but also by providing a broad “vision” of the future of the economy, along which a voluntary coordination of activities could be achieved by private sector agents. In short, the recent debate has revealed that the issue of organizational design and institutional building is as much, if not more, important in determining the success of industrial policy, as the issue of designing incentive schemes.”

#### **1.4 Rethinking industrial policy**

For a long period industrial policy has been considered a poor tool to diversify and enhance the economy of the countries. The main arguments were government intervention and “picking” winner strategy that led to the failure in the market. That is why in this chapter we decided to consider different three views of industrial policy where the role of government is being discussed. They are Stiglitz and Greenwald (2014), Spector et al. (2009) and Aghion et al. (2011) approaches. The Stiglitz and Greenwald approach claims that government intervention is crucial in order to accelerate the development and diversification of industrial sectors. In order for government intervention to be successful it has to be run in such a way that it generates spillovers in the economy. The second approach argues that politicians can lobby for their own interests during the implementation process and therefore competition between companies is considered as the main tool for growth. Finally, the third approach is the combination of the two approaches. Further on we will consider briefly each approach.

##### **1.4.1 Stiglitz and Greenwald approach**

Industrial policies where the state interferes in the distribution of resources among the industries or gives priority some technologies over others are able to help “young” economies learn. The process of learning can be more notable and beneficial in some sectors (e.g., manufacturing sectors) than in others and generate more spillovers to the entire economy. Such implemented policies have been always under the criticism. The

opponents claim that the government does not have to be involved in picking winners and market is way better to do that selection. However, the goal of industrial policy is not to pick winners. In fact, industrial policies help to identify sources of positive externalities - sectors, where learning can develop spillovers in other sectors of economy (Stiglitz, 2014).

Stiglitz and Greenwald claim that protectionism as one of the forms of industrial policy can be beneficial for the country, especially for developing economies. They believe that the government should protect infant industries while firm is learning by doing and prevent other risks within other areas. For example, liberalization of financial market can disrupt an ability of the country to learn other skills, for instance allocation of resources and risk management, which can be important for development (Thoma, 2014).

Also Stiglitz and Greenwald believe that knowledge is the most important determinant of economic growth. Thus, learning and the acquisition of knowledge ought to be at the forefront of economic development strategies. From the perspective of the economy as a whole rather than the individual firm, the spillovers from learning are a positive outcome. The more firms need know-how during its production and other activities, the more growth the economy will have.

The main measures and characteristics of industrial policy approaches proposed by Stiglitz and Greenwald were “broadband measures”. According to their opinion the measures can include: 1) “low” exchange rate: firms select the “winner” by themselves; 2) to stimulate manufacturing due to high spillovers to the rest of the economy; 3) to stimulate trade, if it contributes to learning; 4) FDI and outward bound investment can play an important role in learning; 5) programs for development of small and medium sized companies: an important measure to improve inter-generational disturbances (Prašnikar, 2014).

#### **1.4.2 OECD approach (Spector et al.)**

The second approach is a contradictory view to Stiglitz and Greenwald. Spector et al. (2009) argues that the best industrial policy can be only “competition policy” to speed up economic development, increase innovation and increase knowledge spillovers in the market. The supporters of competition policy approach highlight that intensive competition between firms and innovative newcomers are way better tool of growth than bureaucratic industrial policies full of rent-seeking behaviors.

Spector et al. (2009) advocates that the favoring of protecting existing champions is weak. Reallocation of resources between different firms can bring to the increase in productivity and moreover most of innovations come from new entrants. Therefore, a regular protection of the existing industries can end up with the decline of growth both developing and developed countries. They offer that efficient industrial policies have to support newcomers with new initiatives in the market rather than supporting national champions. Additionally, rivalry makes firms stronger and resistance by increasing investment in R&D and innovation.

The second approach considers “horizontal measures” as the main tool to enhance economy and foster innovation activities in the market. Within this idea they suggest favoring new entries to the market instead of supporting “national champions” and use competition to stress out the main issues of traditional industrial policy (Prašnikar, 2014).

### **1.4.3 Aghion et al. approach**

According to Aghion et al. (2011), there are three main factors that make us rethink industrial policy and the role of government in it. The first issue is climate change. Nowadays without government intervention it is impossible to control and motivate massive private investment in clean technologies and discourage investment in dirtier technologies. Secondly, a new post-crisis realism: the laissez-faire approach of the policy has led to mis-investment in different economy sectors. The third challenge is emerging economies (e.g. China) that are big deployers of growth-enhancing sectoral policies.

Aghion et al. (2011) argue that the “new” industrial policy has to include government actions and competition policy while implementing industrial policy in the country. The authors believe that the following approaches should be taken into consideration: 1) support market forces instead of counteracting them; 2) increase competition instead of favoring individual large companies; 3) to foster broad technologies instead of picking winners; 4) support government targets in “green” technologies. New policies should be based on innovation and education and connected with competition and regional policy to shape a “systemic industrial policy” (Aghion et al, 2011).

One of the main factors, which Aghion et al. have mentioned in their “new” industrial policy, was also positive macroeconomic environment. Macroeconomic instability has a tendency to harm development and innovation in more credit-forced countries and businesses. Representatives of this approach advocate that investments, which generate growth (skills, R&D and structural capital) should be supported for a long-term development. However, supporting such investments is quite tough for businesses, particularly for firms with credit constraints. As a result, it becomes an obstacle for them to invest more than they wish to. In this way, one of the main role of the government intervention is to somewhat outflank credit market imperfections and thus help firms to keep their growth-enhancing investments over the long period (Aghion & Cage, 2012).

Regarding education policy Aghion et al. argue that investment in education involves knowledge spillovers and in the case of a laissez-faire economy private agents will tend to generate only a small amount of the investment in the education system. Therefore government intervention is required to reallocate resources towards high-growth firms or sectors in the economy (Aghion et al., 2009)

As a conclusion the authors believe that the debate should no longer be for or against industrial policy, which is being implemented in any case in one form or another by many countries globally. Rather, the issue should be on how to avoid first order mistakes through proper policy design and governance (Aghion, 2011).

## **2 EXPERIENCES OF INDUSTRIAL DIVERSIFICATION IN ASIAN COUNTRIES**

In this chapter we try to analyze industrialization processes in Asian countries, namely in South Korea and Singapore. The reason to choose this specific region of the world was the successful implementation of various industrial policies by “Asian Tigers” countries during their economic growth. The main purpose of the analysis is to identify the main advantages of the policies used by the states and determine different approaches used during the implementation of industrial policies in these countries. In order to achieve our goals, first of all, we decided to explain the main theoretical aspects behind the Asian way of diversification of the economy. Then analyzing economic development of Asian countries, we tried to show how the “Asian miracle” has actually happened especially in South Korea and Singapore. Since Kazakhstan has been mainly following the experiences of Singapore and South Korea in implementation of industrial policies, we decided to consider in details all the processes and approaches used by these two countries during their industrial diversification. Based on the results we will try to develop recommendations for further industrial development in Kazakhstan in the following chapters.

### **2.1 Theoretical aspects of the Asian way of diversification**

For quite a long time Eastern and Western economists have been discussing the theoretical basis of successful development of East Asian countries and the presence of government intervention while implementing industrial policies. An agreement between economists has been achieved after publishing of World Bank report “East Asian miracle” in 1993. However, they could not fully find a compromise on this topic and the disputes on the role of government in economy are still being discussed. The successful growth of Asian countries’ economy has been explained by World Bank in the framework of neoclassical economics. As it was noted by one of the authors of the report John Page: “The success of the East Asian countries is due to both fundamental and mysterious causes” (Page, 1994).

The supporters of fundamental approach claim that one of the reasons of the Asian countries to be successful is their competence to accumulate production factors and efficient distribution them during the increased macroeconomic stability and moreover they could provide the trustworthy legal system and constant human capital development. As for the latter, health system and education development have been always the main focus of those countries. According to econometric analysis there is a negative relationship between macroeconomic fluctuation (perverted foreign exchange markets, inflation rate, fiscal deficits and etc.) and economic growth, therefore strong fundamental factors can justify economic growth. As for the advocates of the “miracle” approach, they believe that the market mechanisms are not able to define the needed industries in economy in order to grow. That is why there is a belief that, implementing industrial policies and allocation of resources in economy should be led by the state.

According to World Bank report (1993, p.5), properly distributed preliminaries of the growth, such as upbuilding and right allocation of resources and technological catch-up, were the main reasons of the success of the Asian countries. In comparison with countries with similar income in the world, these countries invested more in human and physical capital. Due to the suitable taxation systems agriculture sector has been also demonstrating substantial growth in productivity, in spite of declining share of the sector in the structure of economy. It is worth mentioning that well-educated nation and well-organized public administration were a good starting point for the region. Another reason of happened “miracle” was state activities to guarantee a positive macroeconomic and banking system environment that subsequently led to the growth of foreign investments and savings. Despite the positive fundamental factors mentioned above, state intervention in those countries has been taking place largely in systematic basis and through targeting specific sectors of the national economy.

There were many types of state intervention while implementing industrial policies. It was done by using the following approaches: targeted subsidizing loans, protection of local producers, supporting declining sectors of economy, financing the formation of state-owned banks, investments in R&D and limiting the upper limit of interest rates on deposits. They also implemented quite good policies in the field of supporting export-oriented industries: development of standards for export sectors, creation specialized institutions to encourage exports and additionally, they provided with a broad exchange of information between private and public sectors. The main reasons of successful intervention processes in the Asian countries were well-designed monitoring and evaluation systems, which eventually led to controlled and goal-oriented intervention programs. It is worth highlighting that the government always tried to limit costs from the intervention processes in interest of macroeconomic stability (World Bank, 1993). According to World Bank experts, one of the controversies that has arisen after the report “East Asian miracle” concerns to what extent the success of those countries depends on the industrial policies implemented.

In order to explain the phenomena Japanese scientists and economists offered their western colleagues a concise explanation on the spirit of Eastern philosophy of how this process was done. In 1935, a Japanese scientist Kaname Akamatsu using the example of the textile industry of Japan formulated the general theory of economic development. In his view countries go through a consistent gradual industrialization development of their economies by shifting production of goods import stage - local production - export in the following order (Akamatsu, 2007):

1. Industrial goods are imported and lower-tech goods or raw materials are exported by a developing country with an open economy.
2. Domestic production of imported goods gradually begins to develop due to the presence of an internal market for such products formed with imports. This process is accompanied by the growth of a national consciousness to economic independence,

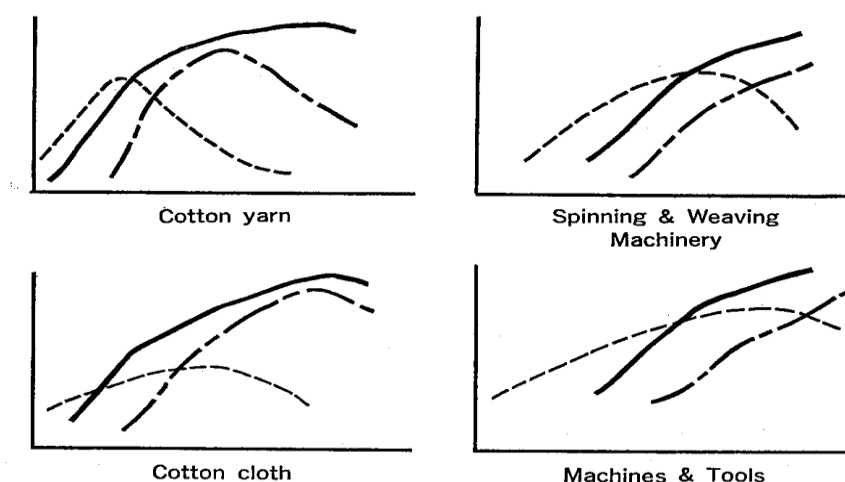
advocate protection policy of the state to support infant industries. Import of less tech (consumer) goods is reduced by the state. In order to develop domestic production of consumer goods, the country starts to import more capital goods.

3. Domestic production of consumer goods is so developed and competitive that the excess begins to be exported. At this stage, the country enters a phase of export growth.
4. On the last stage, the country will gradually reduce the export of consumer goods in favor of capital-intensive goods. The production of consumer goods will gradually begin to build in other less developed countries.

Through these steps Akamatsu demonstrated that in terms of international trade developed countries specialize in the production of capital goods, while the differences in salary between developed and less developed countries make imports of consumer goods profitable for developed countries. By observing several branches in Japan in the period from 1870 until the Second World War Akamatsu saw that this process takes the form of a triangle without a base, or form of flying wild geese (Figure 1).

Akamatsu uses the model of “Wild-Geese-Flying” in order to explain the process of industrialization of less developed countries that gradually transform their imported sectors of economy to export-oriented industries. He advocates that through technological catch-up the states are able to slightly move from primary goods to more technologically innovative products. He uses the same model to explain the catching-up countries: less developed countries during their industrialization try to follow countries with established high-tech industries. This process looks like a flock of flying geese, where the “leading goose” is a developed country. At the same time, he notes that all countries do not necessarily evolve at the same rate. It is possible that some of the countries can be slow in their development, while others can be fast enough to make even the structure of its economy as the same as the economies of developed countries.

*Figure 1. Wild-Geese-Flying pattern*



Note. Production ———, import ———, export . . . . .

Source: K. Akamatsu, *A historical pattern of economic growth in developing countries*, 2007, p. 12.

Followers of Akamatsu have developed new models, adding to its analysis the role of capital accumulation, learning in the process (“learning-by-doing”), the role of transnational corporations and foreign direct investment. One of the first students of Akamatsu, Kojima (2000) improved the model of Akamatsu and introduced it based on next two dimensions:

- rationalization of production - a slight transformation from elementary to complex production of goods, subsequently leads to the increase in productivity and value added in the sector;
- diversification of production - this dimension considers coherent development of new sectors from customer goods to capital-intensive products and at the end to develop export-oriented industries in economy.

Kojima (2000) believes that it is possible to diversify economy through accumulation of capital and thru transformation from labor-intensive to capital-intensive sectors of economy. As Kojima said in his explanation, the first thing that was done by the Japanese government was creation new key industries in order to diversify the national economy and afterwards this process followed by the process of rationalization. Complementary rationalization and diversification result in the growth of production and trade extension. In the same time increasing FDI inflow has a great impact on these processes in developing countries. Therefore, using the factors of foreign investments, Kojima attempts to describe the four stages of regional transmission in accordance with the Akamatsu’s model: due to the fact that developed countries have high labor costs, they begin to build their factories in developing countries with abundant cheap manpower. Doing that they also transfer own technologies, skills and invest in local businesses (Kojima, 2000).

The model “flock of flying wild geese” has been further modified with an additional element of transnational corporations (hereinafter: TNC). Particularly, the existence of TNCs speeds up the model by skipping the phase of import, therefore, foreign country is able to adjust own production and export without any losing time on the consistent basis. In general, as noted in the report of United Nation Conference of Trade and Development, Japan, South Korea and Taiwan relied heavily on foreign TNCs in the development of individual sectors and only afterwards they started to build own strong sectors. Finally, one of the most crucial quality of the Asian countries' success is their capability of adaptation to any changes happened around mainly because of attracted FDI and technology, ability to imitate and learn from the successful and advanced countries, including thru targeted policies of the country (UNCTAD, 1995).

## **2.2 Review of economic development in Asian countries: Japan, Singapore and South Korea**

According to the Global Competitiveness Index 2013-2014 rankings, developed Asian countries are rated as one of the most competitive states in the world (Table 2). The ranking is formed by the indicators such as efficiency of labor market, development of

financial market, institutional systems, the existence of infrastructure with international standards, quality of higher education, efficiency of commodity markets and others.

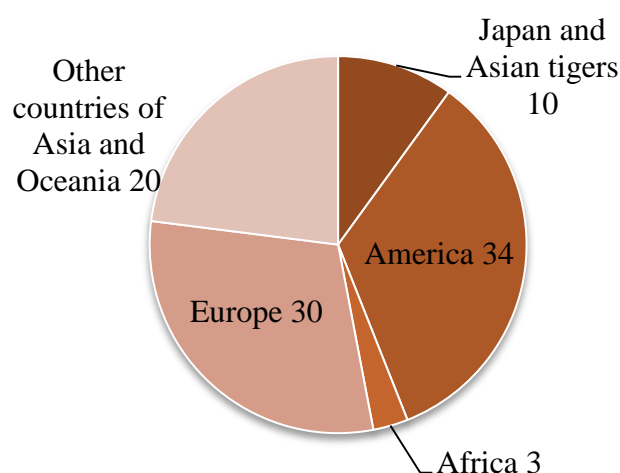
Table 2. Top-10 of the most competitive countries in Asia

№	Country	Rank of competitiveness index	Score of competitiveness index
1	Singapore	2	5.61
2	Hong Kong SAR	7	5.47
3	Japan	9	5.40
4	Taiwan, China	12	5.29
5	Qatar	13	5.24
6	United Arab Emirates	19	5.11
7	Saudi Arabia	20	5.10
8	Malaysia	24	5.03
9	South Korea	25	5.01
10	Brunei Darussalam	26	4.95

Source: World Economic forum, *The Global Competitiveness Report 2013-2014*, 2013.

The success of the East Asian region can clearly be seen and affects the dynamics of their performance. The role of the Asian countries in the global economy has been gradually increased for the recent decades. For the last half century the share of Japan and the Asian tigers in the world GDP went up two times from 5% to 10% in 1962 and 2013 respectively. Nowadays, the total volume of the economies of the five most developed countries of Asia approached 7.3 trillion USD, which is 32% of the total GDP of the whole region of Asia and Oceania (Figure 2).

Figure 2. The share of Japan and the Asian tigers in the world GDP in 2013, %



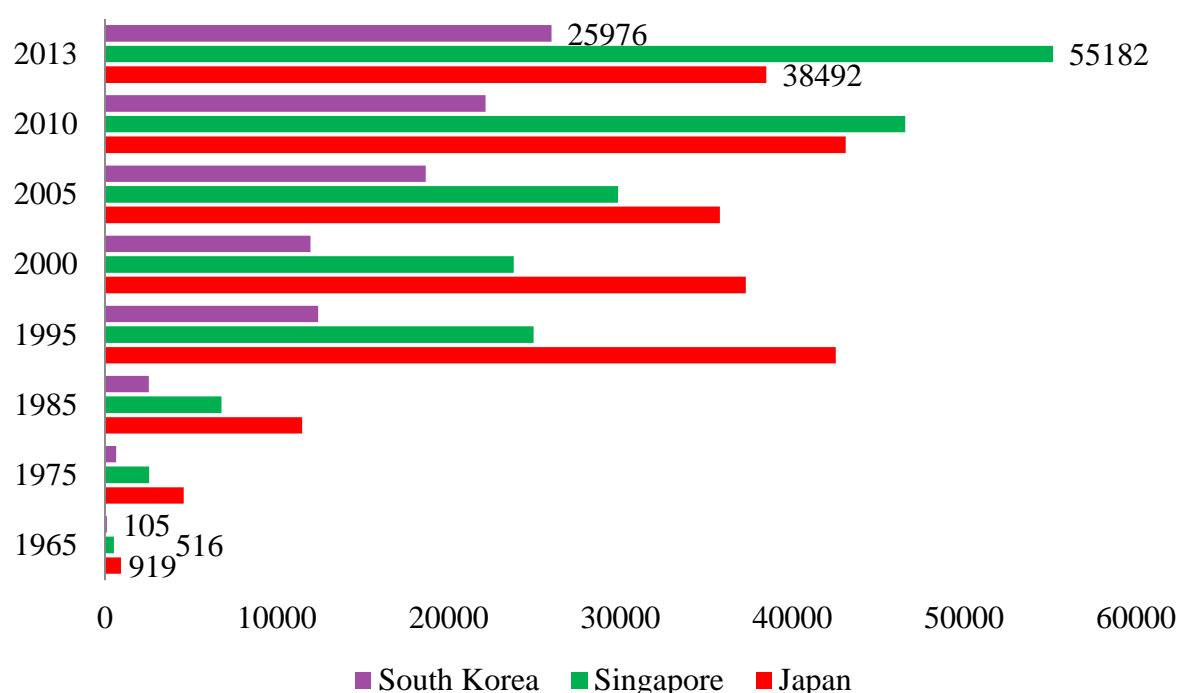
Source: Development Bank of Kazakhstan, *Review of industrial diversification of Asian countries*, 2014.



According to the World Bank data, in monetary terms, the total GDP of the most successful countries in Asia increased 102 times over fifty years. It is higher than the growth rate of nominal global GDP by 1.8 times. The greatest economic growth among the Asian Tigers was in Singapore. The GDP per capita in Singapore increased in real terms by 48 times in the period of 1960 – 2013. In the same time the Japanese economy increased 9 times.

Before the start of economic reforms in the region the average per capita GDP of the analyzed countries was approximately 515 USD. Later the indicator increased until 38000 USD and 40000 USD in 2010 and 2013 on average respectively (Figure 3).

*Figure 3. GDP per capita of Japan, Singapore and South Korea for 1965-2013, USD*



Source: World Bank, *In World Bank database*.

The main influence on the industrial development of Asian countries had political and economic interests of industrialized countries, mainly the Soviet Union and United States. In order to confront the influence of the Soviet Union in the region, the scope of the political interests of the United States spread especially to South Korea. The country received substantial economic assistance in the form of foreign direct investment and technology transfer. Economic reforms, a hierarchical political system to ensure the safety of investments along with economic factors contributed to the intensification of capital and with other developed countries in the face of large multinational companies (Development Bank of Kazakhstan, 2014).

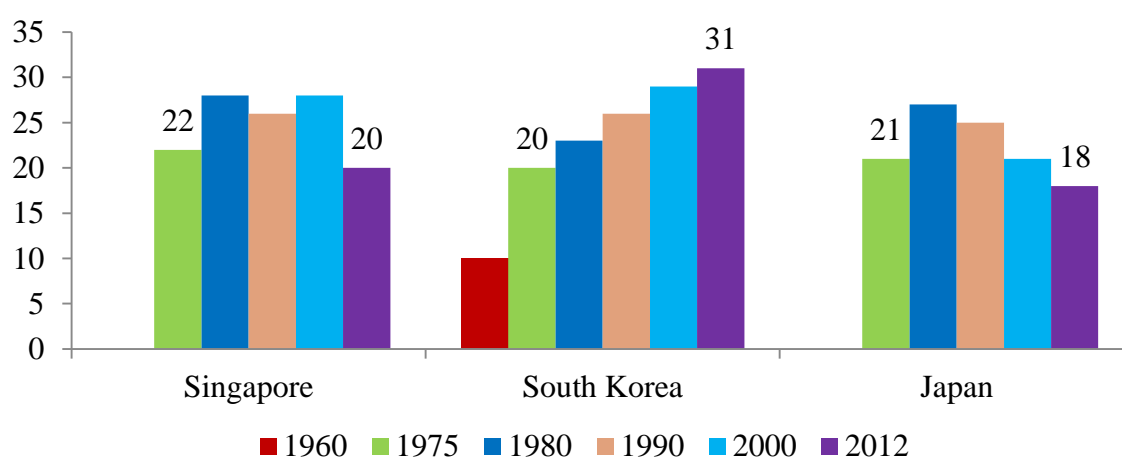
The Asian way of economic development can be described by different forms of political interference in economy, namely from almost free market to extremely selective approach

especially in South Korea and Singapore. The main development model of new industrialized countries represents effective and flexible model of export-oriented economy, including the usage of import substitution policy while implementing strategic industrial development. As the experience of the most successful Asian countries demonstrates export orientation and import substitution policies can be combined in a balanced manner. So, by beginning the formation of modern production structure newly industrialized countries have tried to rebuild the traditional sector of the economy, so that they could industrialize. For instance, in the 50's South Korea had dominated policy of import substitution. The exception was, to the certain extent, Singapore because of historical conditions, geographical location and limited domestic demand, they oriented their productions mainly for export.

The entrepreneurial capital (both foreign and domestic) in Asian countries was directed mainly in the manufacturing industry. In the 50's and 60's traditional Asian industry had been developing due to low labor costs (production of textile raw materials, clothing, shoes and so on.), later on selective measures for development of new industries led to a change in investment priorities in the region's industry and the subsequent structural transformation in the economy (Development Bank of Kazakhstan, 2014).

In the early 1960's, the share of the manufacturing sector in the GDP was comparably low in all analyzed countries. Due to the technology transfer and development of labor-intensive industries in Asia, the economic structure underwent a significant change in the past. In 1980, the share of manufacturing in the GDP was around 23% to 28%, and by the early 2000's the proportion of manufacturing remained high in Singapore and South Korea (Figure 4).

*Figure 4. Dynamics of the share of manufacturing in GDP of Asian countries, %*



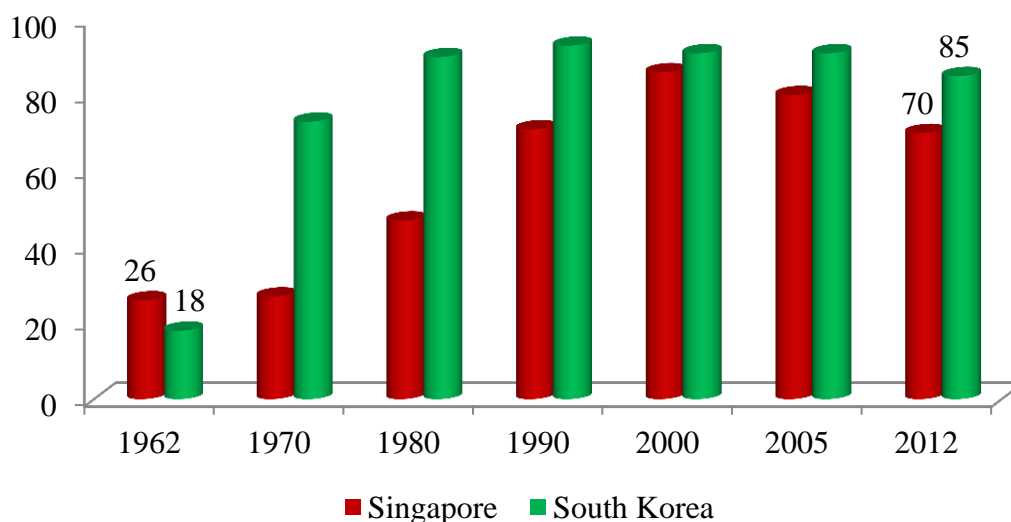
Source: World Bank, *In World Bank database*.

Due to the gradual development of manufacturing sectors the Asian countries have also started to change their industrial preferences towards external market, so that actively implement state mechanisms to encourage and support export. In the period of 1960-1980

total exports of three “Asian dragons” (Singapore, Hong Kong and South Korea) increased 31 times from 1.9 billion USD till 57 billion USD. During the analyzed period, there was also a sharp increase in the export of Japan. By the end of 1980’s total export grew 32 times and accounted for 288 billion USD (World Bank, 1993).

However, after 20 years of successful development and significant growth of income the Asian countries have become uncompetitive in the terms of exporting labor-intensive goods (e.g., textile, shoes production and etc.) that hired cheap and unqualified manpower. Therefore, taking into account above mentioned changes the Asian countries decided to develop their own heavy and chemical industries with high productivity. As a result of measures taken to support the selective processing industries non-commodity exports increased significantly. Due to the implemented programs on selectivity approach of supporting manufacturing sectors, there was a significant growth of non-commodity in the share of total export of the Asian countries. As a result, the average share of processed goods in the structure of export increased in the countries from 22% in 1962 to 78% in 2012 (Figure 5).

*Figure 5. Increase in the share of processed goods in exports of Asian countries, %*

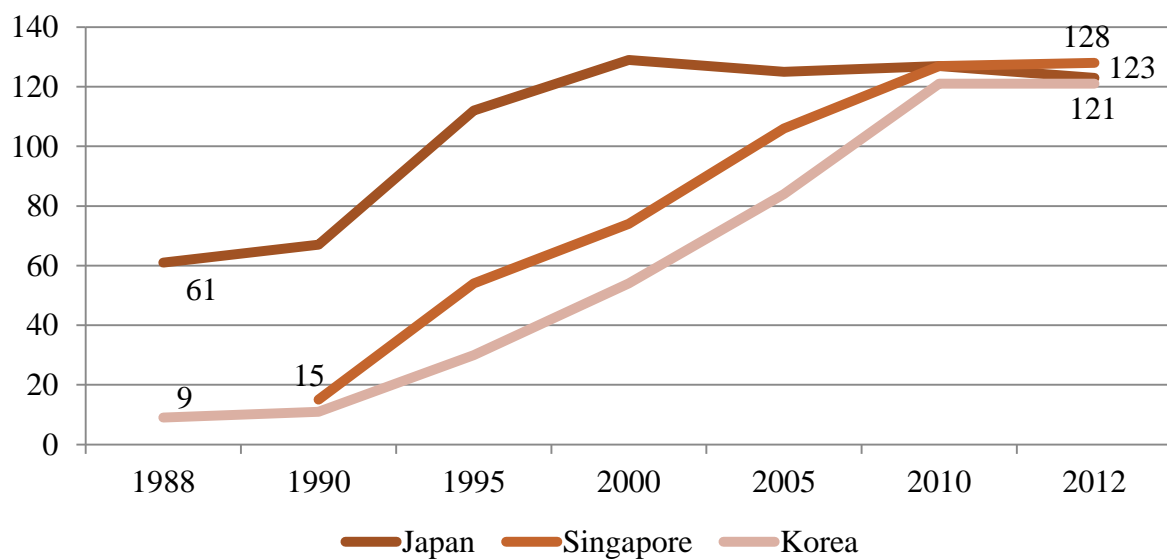


Source: World Bank, *In World Bank database*.

Considerable experience and the rapid process of accumulation of knowledge in the process of adaptation of foreign technology in national production have allowed Asian countries to gradually expand the scope of research activities and switch to create their own technologies. At the same time, investment and increased export earnings have allowed companies to increase slightly the funding for basic and applied research, as well as to provide an increase in spending on education with a point focus on the needs of business in promising industries.

Developing labor-intensive and export-oriented production, Asian countries have started to focus also on the direction of capital-intensive industries with high technologies. The main leap in the development of high-tech industries has occurred since the early 1990's. The dynamic growth in external demand for Asian ships, cars, appliances, and computer components contributed to an increase in total exports of high-tech products of three Asian tigers from 31 billion USD in 1990 to 133 billion USD in 2000. At the same time, in recent years, Singapore and Korea equaled the high-tech products export of Japan. In aggregate, the share of Asian countries in world exports of high-tech products now stands at 12% (in 1990 - 8%) (Figure 6).

Figure 6. Export growth of the high-tech products in Asian countries, billion USD



Source: World Bank, *In World Bank database*.

It should be noted that currently the main focus of the economic strategy of the newly industrialized Asian countries is the release of high-technology (“knowledge-based”) products. Labor-intensive and unprofitable productions are transferred to the less developed Asian countries with low labor costs such as the Philippines, Vietnam, Cambodia and others.

Taking into consideration the results of our analysis, we can see the general approaches of Asian countries in implementing different policies during their economic growth. The following summarize the main features of Asian countries’ experiences:

- state policies in favor of supporting export-oriented industries with high value added;
- supporting programs on trade policy towards the market of developed countries; focus on cooperative trade while promoting on the foreign markets and in the region; the policy of slight diversification of economy;

- promoting marketing research for domestic producers in order to find potential markets and niche in the global market; to encourage to apply innovations in production processes;
- transformation from labor and capital intensive to “knowledge-based” production approaches, and from import, import-substitution to export-oriented strategies.

### **2.3 Introduction to South Korean economic miracle**

The success of South Korea’s economy in the past 50 years has been remarkable. In 1962 Choi (1994, p.233) notes that South Korea was among the poorest nations in the world, with a per capita income less than that of Zaire, Congo, and Sudan, and in the next three decades South Korea experienced a growth miracle in which real per capita income increased about 20 times. In contrast, the growth of the real per capita income in the United States was only sevenfold for the same period. In the last thirty years South Korea’s economic growth has been much higher, compared to US economic growth. This remarkable economic growth began roughly at the same time as President Park’s Third Republic was established in 1961.

After declaring independence from Japan and being divided into two parts after World War II, South Korea was for the most part an agricultural country. The share of agricultural sector was 68% in the structure of the national economy. The less share in the structure of GDP with 15% belonged to the manufacturing sectors. In the beginning of independency Korean GDP per capita was less than 100 USD and moreover there was a negative trade balance in South Korea. Thus, the government of South Korea decided to go through main three stages of industrialization. The first stages covered period of 1953 - 1961, the second - from 1961 till middle of 70’s and the last one was from the end of the 70’s until the 90’s (Kei-Mu, 2008).

### **2.4 Different stages of industrial policy in Korea**

**First stage (second half of 1950’s).** In order to be prepared for radical changes, important preparatory measures were carried out in the country. First of all, Korea conducted agrarian reform in the country, where the government decided to privatize the land for agrarians. Secondly, the elimination of illiteracy among population took place.

The agricultural sector of the economy had had a dominant position in South Korea for a long period. In spite of this fact the share of agricultural sector in GDP decreased from 68% till 56% during 1953-1960. The next important parts of the economy structure were trade and manufacturing. The latter had faced the biggest changes and went up by half in the same period. At the same time the production of consumer goods, so-called “sambek-conop” (including flour milling, sugar production and processing of cotton), also had an important share in the national economy.

The domestic market demanded mainly end products, especially consumer goods. During this period, economic development was based on the rise of local industry and reducing

imports of goods that could be produced in the country. The first stage of industrialization can be generally characterized by import-substitution and protectionism. In order to generate growth and spillovers in the economy the government decided to focused on labor-intensive industries such as cotton, footwear, food, wood industries. At the same time, there was implementation of principles of market economy, promotion of private initiatives and government intervention to get independency of the economy. The only solution for Korea was to develop manufacturing industries in the country.

**At the second stage**, during the 1960's, South Korea actively applied industrialization policy, emphasizing light industry of the country. In order to start industrialization Korea had to restore the existing functional industries, to extend and upgrade industrial infrastructure so that to prepare basis for new capital-intensive industries. The main peculiarity of this stage of industrialization was the shifting from import substitution policy towards export-oriented model of economic development. It was done in some extend due to the lack of foreign currency and low purchasing power of the population.

In the sixties key sectors of the national economy became textile and shoe industries. Also further development of wood and food industries took place. Orientation to these labor-intensive productions made it possible to provide employment for cheap labor. A protectionism approach in the domestic market remained the same during the second stage of industrialization.

**At the third stage**, during 1970 and the 1990's, South Korea moved to the next stage of industrialization. The government decided to actively develop heavy industry including metallurgy, machine building, and chemical sectors. An important development was the creation of a large steel industry that allowed the country to significantly increase the production of iron, steel and rolled. From the beginning, the industry has been focused on the most advanced technologies such as arc furnace, basic oxygen furnace. Due to these facts South Korea became second after Japan in steel-making productions in the Asian region. At the same period the production of non-ferrous metals had been increasing as well.

On the basis of industry development the car industry had an opportunity to develop in South Korea as well. One of the leading industries was production of machine tools along with shipbuilding sector. In the group of vehicles it had a significant share in the total export of cars and spare parts (more than 9% of total exports). The production of supertankers, bulk carriers, container ships, tankers, methane carriers was also mastered by Korean specialists in the same period.

During the aforementioned period the chemical (fertilizers) and petrochemicals (plastics, chemical fibers) industries had rapid development and growth in the country. The government built more than 10 nuclear reactors, which produced half of the total electricity.

Further on Korea headed its direction to the development of high-tech and knowledge-based industries. The Korean government decided to create industrial and technology parks, to develop new technology, while encouraging the import of advanced foreign technology. The most striking example of high-tech industries is the electronics industry. As the first step, Koreans mastered the production of lamp receivers, transistors, diodes, black-and-white television, then tape recorders, color TVs, computers and chips, afterwards video recorders, laser video players, microwave ovens and personal computers. By the early 1990's, the Republic of Korea had become the sixth biggest producer and exporter of electronic products in the world. The share of electronics and electrical products increased to 25% of exports. Table 3 demonstrates the changes in the commodity structure of the export of the Republic between 1980 and 1998.

Table 3. Commodity structure of the export of South Korea, %

Items	1980	1990	1995	1998
Food production	6.2	3.5	2.4	2.0
Textile	31.2	19.4	11.5	14.4
Shoes production	5.1	6.2	1.5	0.3
Chemistry	1.6	3.7	6.0	6.6
Metals	14.5	8.7	5.4	7.3
Machinery and equipment	18.9	27.2	39.3	35.1
Telecommunication	7.2	8.6	7.0	5.9
Electrical engineering	10.7	12.4	14.5	12.8
Car industry	1.9	5.1	8.1	9.2
Shipbuilding	2.7	5.2	4.3	6.4

Source: World Bank, *In World Bank database*; World Trade Organization, *International Trade Statistics yearbook*, 2014.

It is worth highlighting the so-called second “five-year plan” of economic development of South Korea in the period of 1967-1971. This period was remarkable with the state support of heavy and chemical industries (hereinafter: HCI). A key strategy of HCI was to increase production capacity of factories in accordance with international standards in order to improve their competitiveness. The HCI products were mainly export-oriented due to the small market of Korea. The main approaches of state policy to support HCI were protection of local producers, targeted subsidizing loans, barriers to entry into the industry, as well as through direct government intervention in decision-making.

In the 1980's the importance of R&D went up dramatically in South Korea. In order to develop industrial technologies the government decided to increase investments in R&D activities in the country (Park, 1991). Even though Korea already initiated national innovation system in the early of the 70's, for the most part it was led by the policy in the

field of science and technology. The policy mainly supported transformation of technology to firms and the learning process of imported technology (Park & Koo, 2012). In general, state - funded research institutions established already in the 1960's and then in the 70's took the initiative to develop technologies in the 1980's. Due to the importance of technology-intensive industries the expenditure for R&D gradually increased after the 90's. The state spending for R&D went up over 2% in 1993, 3% and 4% in 2007 and 2011 respectively (Table 4).

Table 4. Research and development expenditures in Korea

	1990	1993	1996	1999	2002	2005	2007	2009	2011
R&D expenditure, % of GDP	1.1	2.3	2.42	2.25	2.4	2.79	3.21	3.56	4.04
Share of R&D expenditure of private companies, %	68.4	70.5	73.2	71.4	74.9	76.9	76.2	74.3	76.5
Share of R&D expenditure of public institutes, %	16.8	16.5	16.2	14.5	13.4	11.9	11.7	13	11.7

Source: World Bank, *In World Bank database*; United Nations Educational, Scientific and Cultural Organization, *In UNESCO database*.

However, there was a positive trend of supporting R&D in South Korea. By the mid of the 80's Korean economy witnessed a shift of supporting innovation and research activities from public to private sector. By participating in different national R&D projects, later on private sector started to extend their activities and moreover to build also own private research centers and institutes. Subsequently, the share of public spending in R&D sharply decreased from 50% in the 1970's till 13%-14% after the 2000's. In the same time, the share of private sectors in this field dramatically increased from 30% in the 1970's till 76% in 2011 (Table 4). In monetary terms the R&D expenditure of private institutes was 31,5 million USD in 2011 compared to 9,9 million USD in 1975. In general, the spending of private sector went up 3,100 times, and as for total expenditure it grew about 1,170 times (Park and Koo, 2012).

The economy of Korea can be summarized in two ways: from the viewpoint of industrial structure it is export-oriented manufacturing, at the same time from the standpoint of industrial organization it can be described as growth of conglomerates. The government has played an important role in managing implemented policies and economic growth. However, there was another power "Chaebols" that influenced the development of the country. The "Chaebols" is a conglomeration of different Korean sectoral companies. The development of HCI policies in the 70's was one of the influencers to the rapid development of Chaebols and further growth of the system in Korea (Park, 2000). Korea had been therefore using the vertical industrial policy during the third stage of



industrialization. As a result Korea became one of the most competitive nations in the world.

Among the various instruments of state support, financing was the most crucial, as the HCI require huge investments. Due to the fact that Korean corporations were limited in their ability to attract foreign capital, the state has adopted two important decisions. The first decision was the provision of guarantees for the compensation of all foreign loans (public and private). Second, the government settled the business relations with Japan, despite the anti-Japanese sentiment. These government measures attracted more inflows of foreign capital and technology, especially from Japan.

Moreover, the government established a system for the National Investment Fund (hereinafter: NIF) to promote long-term financing of plants and technology of heavy and chemical industries in 1973. The share of heavy and chemical industries in 1970 was only 8.9% of GDP. Due to the NIF share of HCI increased to 20.4% in 1980 and 22.2% in 1988 (Table 5). Thus, with the support of public policy, South Korea was able to change the industrial structure towards development of heavy and chemical industries and through that to provide country with the strong economic growth.

Table 5. Changes in the economy structure of South Korea between 1970 -1988, %

Sectors	1970	1975	1980	1985	1988
Agriculture	14	9.2	8.3	7.6	4.2
Manufacturing	28.3	37.2	38.4	41	47.3
Light industry	25.4	19.3	14.2	11.3	10.1
Heavy and chemistry industry	8.9	16.5	20.4	21.1	22.2
Service	23.4	17.8	18.7	19	16.2

Source: Bank of Korea, 2015.

Supporting heavy and chemical industries, as a strategic export-oriented sector, helped to increase the range of product variety of Korean economy and provided domestic producers with the opportunity to take advantage of economies of scale. Adoption of the state program of sharing the risks of private business also greatly influenced the successful implementation of the third stage of industrial policy.

**New IP of South Korea.** By the beginning of the 21st century the Korean government has faced the issues to find new sources of the growth along with innovation development. As a new engine of the growth Korea has decided to choose development of green industries, convergence of high-technologies and high value added service sectors (Ministry of Knowledge Economy, 2013). Implementing the green industries policy the government seeks to develop environmentally friendly technologies, renewable and solar energy, modernization of production capacities and other sources of sustainable development. In

the framework of high-tech convergence, Korea intends to integrate new technologies with industries and build future economic productivity based on convergence of high-tech. In 2003 Korea has already paid its attention for the development of high-technologies and created so-called 6T that includes: biotechnologies, nanotechnologies, space, information technologies, environment and cultural technologies. Within these 6Ts next ten industries have been emphasized: development of smart robots production, digital broadcasting, development of green and electric cars, creation of new generation of mobile communication, building smart houses, design of new software solutions, development of biomedical products and others. Last but not least, a new phenomenon of the 21st century – “knowledge-based” economy. The Korean government believes that knowledge-based economy will contribute to solve the problems with employment in the post-industrial and post-manufacturing society. Thus, since the mid of 2000’s Korea has been improving the competitiveness of service sectors in the national economy (Sakong & Koh, 2010).

To sum up this chapter, the Republic of Korea has put forth tremendous efforts in order to develop its economy and to become the most competitive nation in the world for the last 50 years. There are not any doubts that this economic “miracle” has happened due to the implemented industrial policies and government intervention during its development. The government did apply different strategies and policies to develop its economy in different years. As the analysis demonstrates the core of any policies, implemented in Korea, was manufacturing sector of the economy. Since Korea doesn’t have enough natural resources, the country has been developing and protecting the sector by import-substitution, different tools of public supports (subsidies, loans, sharing the risks and etc.), “picking winners” strategy, and later export-oriented approaches that gave a great impetus for the economic growth of Korea. In spite of the success that South Korea has achieved, the country is also facing the issues “what is next”. Therefore nowadays the state has decided to switch the policy towards “green”, space, environment, bio-, nano-, and cultural technologies, but taking into consideration further development of manufacturing sector of the economy, which once again proves its crucial role in the economy structure of South Korea.

## **2.5 Economic development overview of Singapore**

The Singaporean economy has gone through various phases of economic development in its history. The national economy of Singapore faced a shifting from labor-intensive approach to capital-intensive development as it happened in the most countries of South and East Asia. The manufacturing sectors of Singapore also experienced the changes during industrialization processes and resulted with technology-intensive sector and additionally created high value added service sectors. Singapore has managed to become a hub for trading, telecommunication and transportation sectors as well as the government could attract the headquarters of MNC in the country and turn to the base of export manufacturing in the region. The history of industrial development and economic growth of Singapore is a success story. GDP per capita is among the highest in the world in 2013 it amounted to 55182 USD, which is approximately 100 times more compared to 1960’s

indicator. During its independency history, Singapore has been paying its attention mainly for manufacturing sectors, industries and high-tech sectors that led to the economic growth in the country (Table 6).

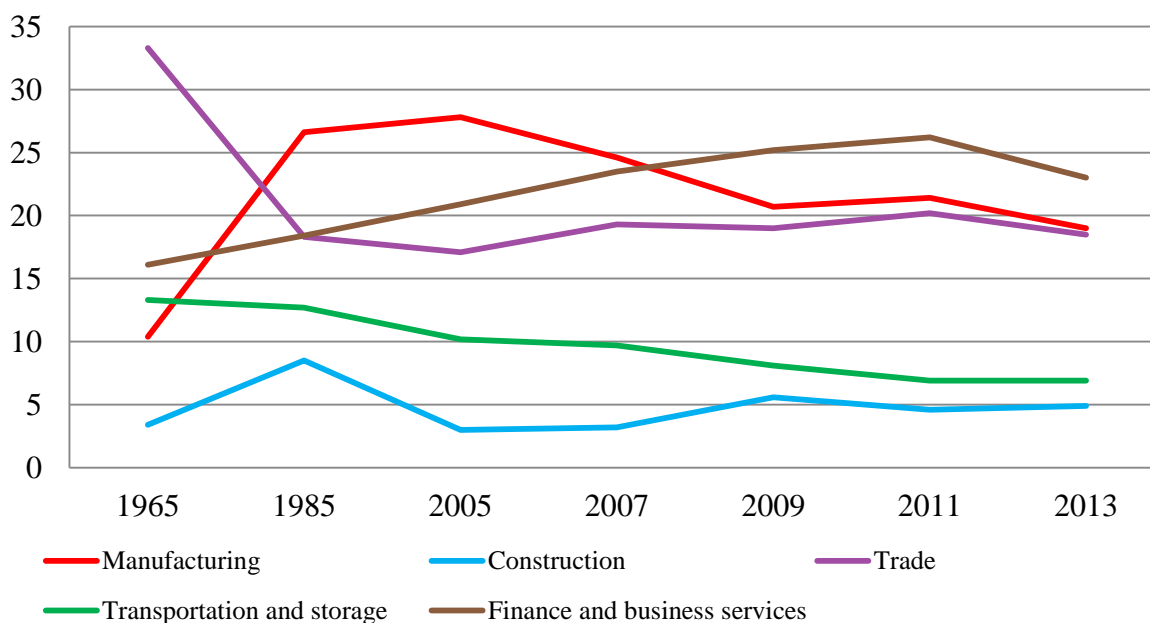
Table 6. Development indicators of Singapore for the period 1960-2013

Indicators	1960	1970	1980	1990	2000	2010	2013
GDP per capita	427	925	5004	12766	23793	46570	55182
Manufacturing (% of GDP)	11	15	27.5	25.7	27.8	21.4	18.8
Share of manufacturing in export (%)	19	27.5	46.7	71.6	85.6	73.1	74.5
Manufacturing capacity (mln.USD)	1964	2017	3204	9490	24783	47700	52577
Share of high-tech in export (%)	-	-	31.2	39.9	62.8	49.9	51.3
Share of agriculture in GDP (%)	-	2.3	1.6	0.3	0.1	0.04	0.03

Source: World Bank, *In World Bank database*.

The key of success was the successful implementation of industrial policy, which was based on the continuous development and modernization of the industry. After the Second World War, the government focused on manufacturing, financial and business services sectors development. Over time the share of these sectors in total GDP has increased significantly (Figure 7).

Figure 7. Share of different sectors in GDP of Singapore, %



Source: Statistic Agency of Singapore, *SingStat Table builder*, 2015.

Taking into consideration poorly developed agriculture sector and lack of natural resources in the country, the government decided to emphasis the development of high-tech products production, transformation of the country into industrial city-port and development of science during development of the state. In order to achieve that Singapore had to pass through several stages during its economic development. They are (1) labour-intensive industrialization of the 1960's; (2) export-oriented industrialization of the 1970's; (3) cost-competitive and high value added industrialization of the 1980's; (4) high-technologies development industrialization of the 1990's and (5) new wave of industrialization (Yue, 2005).

## **2.6 Industrialization stages in Singapore**

### **2.6.1 Labour-intensive industrialization of the 1960's**

In the case of Singapore, the country was not rich for natural resources as neighboring states such as Brunei Darussalam, Indonesia, Malaysia, Thailand and the Philippines that had abundant resources in the beginning of their industrialization processes. Another problem of Singapore, as a new independent state, also was a high unemployment rate among population. Therefore, a key strategy of implemented industrial policies was to decline a number of jobless and create new work places in the country. The government understood that the only way to decrease unemployment was to develop manufacturing industries in Singapore. However, taking into consideration the high dependency of the economy on entrepot trade, as a result undeveloped manufacturing sector, Singapore needed financial capital for the growth of manufacturing industries in the country (Tan, 1995).

The role of Singaporean governmental institutions was absolutely crucial to start any reforms in the country that period. From the early beginning official authorities started to invite experienced economic advisors who had been faced with such conditions taking place in 1960's in Singapore. One of the first initiatives that advisors decided to start with was establishing a special institution that would take care of foreign investments inflow to the island-country. The institution had to provide one-stop general and procedural information to foreign investors about investing in Singapore. This considered easing of the transfer of investment into the country by allowing foreign investors to bypass a lot of government bureaucracies. Based on this initiative "Economic Development Board" (hereinafter: EDB) was established in 1961.

One of the main responsibilities of EDB officers was to visit huge American and Western European corporations in order to attract them to build relatively inexpensive manufacturing bases in Singapore. The advantages that Singapore was able to offer were stable political situation, qualitative manpower and no language barriers. In addition, to attract the MNCs, the EDB went on to provide a manufacturing base in Singapore with the development of the Jurong Industrial Estate and its ready-to-move-in factories (Bock, 2002).

These two developments (EDB and Jurong) marked the start of Singapore's industrialization programme that began with factories producing garments, textiles, toys, wood products and hair wigs. Along with these labour-intensive industries were capital and technology-intensive projects from companies such as Shell Eastern Petroleum and the National Iron and Steel Mills (EDB, 2014). As it can be seen from table 7, Singapore has been able to decrease unemployment rate since 1961 and increase the share of manufacturing in 1970.

Table 7. Main indicators of Singapore for 1960's

	1961	1963	1965	1967	1970
GDP growth, annual growth %	8.13	7.12	7.5	12.3	13.8
Unemployment rate, %	8.8	8.8	8.6	7.8	6.0
Share of manufacturing in GDP, %	11	12.4	13	13.7	15

Source: World Bank, *In World Bank database*.

During the first stage of industrialization, Singapore was able to increase GDP growth until 13.8% by the end of the 1960's. By attracting FDI and developing manufacturing sectors of the economy, the government could reduce the unemployment rate from 8.8% in 1961 till 6.0% in 1970. As for manufacturing sector Singapore managed to increase the share of the sector in GDP and reached at 15% at the end of the 1960's (Table 7). More importantly, the entry of foreign corporations into the island has enabled Singapore to adopt the technology brought in by the investors.

## **2.6.2 Export-oriented industrialization of the 1970's**

The main economic challenges of the second stage of industrialization were losing part of the market and still high unemployment rate in Singapore. After separation from Malaysia the country lost of its expected large domestic market in 1965. In the same time the British announced their plans to phase out their military bases by 1971, which employed nearly 20 per cent of Singapore's labour force and generated nearly 20 per cent of Singapore's GNP. In order to respond to such threats the Singaporean government decided to shift to export-oriented industrialization in the beginning of 1970's.

To support the shift to export promotion, Singapore decided to attract TNCs and implement a new tax incentive system and reforms in labor market that should lead to improvements in the investment climate in the country.

In order to establish export-oriented industries, the government of Singapore appealed to TNCs from developed countries to build their factories on the territory of the state. Singapore was able to create a positive business environment by offering favorable conditions for FDI, supportive bureaucracy and good administration, and moreover developed infrastructure. Due to the taken actions by the government TNCs have become one of the main engines in establishing export-oriented industries in Singapore. As a result,

TNCs have generated almost 90% of Singapore's manufactured exports, over 70% of capital expenditure, and almost 70% of total manufacturing value added (Dunning, 1985).

Singapore also has introduced strict labor measures in order to improve the investment climate in the country. Moreover, there was a special organization so - called Trade Development Board, which assisted domestic producers to develop export markets. In order to stimulate exporting the government also introduced tax incentive programs in Singapore. Among all other countries surrounded in the region, Singapore was a pioneer in attracting FDI and MNC investments. The Singaporean government also cleverly used the situation with quota restrictions in Hong Kong, China and Taipei (China) so that attracted garment factories from those areas to Singapore. Additionally, by the 1970's the oil exploration boom in Southeast Asia also was beneficial for Singapore.

The EDB decided to reconsider its tax incentives scheme in order to attract more foreign investments to the island. The "pioneer" status was amended in 1970, extending the tax relief to a fixed five-year period, before it was amended again in 1975 to a fixed ten-year period. Then in the late 70's, the tax incentives scheme was extended to support Singapore-owned small manufacturing firms, as well as providing benefits for firms who provided services to the existing firms (Ermisch & Huff, 1999).

In order to provide a positive labor environment that had to attract more FDI, the government of Singapore also started to control the labor condition in the country. In the early 1970s, the government of Singapore through the Employment Act formed standards of employment to prevent and solve problems between employee and employers. Also, in 1972, the government of Singapore formed the National Trade Union Congress (hereinafter: NTUC) as the single national labor union to oversee employment and wage problems. Table 8 demonstrates the main achievements of the second stage of industrialization in Singapore.

Table 8. Main indicators of Singapore for 1970's

	1971	1973	1975	1977	1980
GDP growth, annual growth %	12	11.1	5	7.5	10
Unemployment rate, %	7.4	4.5	4.5	4	3.5
Share of manufacturing in GDP, %	15.4	18.1	22.2	23.3	25
FDI, million USD	116	353	292	291	1236

Source: World Bank, *In World Bank database*.

Due to the different initiatives taken by the government worked well up to the end of the 70's. By the end of the 1970's, the unemployment rate had declined till 3.5%, while the manufacturing sector continued to grow and reached at 25% of the GDP in 1980. Despite this, during the second stage of industrialization, Singapore did not witness a very high

amount of FDI inflows. It wasn't until the initiation of Singapore's "Second Industrial Revolution" in 1979 that foreign investment began to flow into the country (Table 8).

### **2.6.3 Cost-competitive and high value-added industrialization of the 1980's**

By the beginning of the third stage of industrialization, unemployment was no longer a pressing social problems of the state. Industrialization has been already established in several sectors of industry such as electronic parts manufacturing, construction and building engineering, logistics, and banking and finance. But the recession of 1985 showed the weak sides of Singapore economy. The government was faced with two economic challenges. First of all, erosion of the country's cost competitiveness forced many companies to move their business to the new emerging low-cost economies in the South-East Asia. Secondly, Singapore in the 1980's faced a very tight labor market with increasingly high pressures on workers' wages. That is why the state decided to shift its strategy into development of high value-added industries and service sectors in a pair with manufacturing industries.

In order to respond to the recession the government along with Economic Committee has been forced to find new engines and ways for further development to avoid negative consequences in the national economy. Due to the cost-cutting measures taken by the government, Singapore was able to keep a growth rate of 1.8% by the end of 1986. Taken initiatives to cut wage costs and improve flexibility in the compensation system could help to recover Singapore's cost competitiveness. After the recession the government decided to design new strategies that aimed at developing manufacturing and service sectors together as the main drivers of the growth. By the end of the recession Singapore figured out important stuff to take into consideration in the future: to remain cost competitive; to be linked to other production sectors of economy; to encourage firms to apply new cost structures to stay competitive (Giget, 1997).

To realize the purpose of having a highly skilled labor force Singapore established National Computer Board (hereinafter: NCB) in 1981 to create knowledge and trainings for workers in the field of IT industries. At the same time the government also started to open technology institutions with Japan, Germany and France to meet the specialized manpower needs of hi-tech industries.

From 1983 the EDB began to grant pioneer status not only to manufacturing sectors, but also to financial service providers. Additionally the EDB was considered as an effective tool in providing schemes for benefits and tax incentives for MNCs who decided to establish their headquarters in Singapore. Through these initiatives the government of Singapore attempted to set up an international trading and service hub in the South-East of Asia region (Ministry of Trade and Industry Singapore, 2012). Table 9 presents main achievements of the Singaporean government over the third period of industrialization. As it can be seen the country was able to improve its situation after the recession of 1985.

Table 9. Main indicators of Singapore for 1980's

	1981	1983	1985	1987	1989
GDP growth, annual growth %	10.7	8.5	-0.6	10.75	10.04
Unemployment rate, %	3	3.2	4.4	5	2.4
Share of manufacturing in GDP, %	27.5	22.3	20.9	25.09	26.7
Share of service in GDP, %	62.7	63.01	65.6	65.4	65.8
FDI, million USD	1660	1134	1047	2836	2887
Education spending, million USD	942	1611	1812	1654	1765

Source: World Bank, *In World Bank database*; Statistic Agency of Singapore, *SingStat Table builder*, 2015.

As it can be seen from Table 8, the economy of Singapore continued gradually its developing till the beginning of the 1990's with the only a slight dip in 1985. The reason for economic development decline was a recession in 1984-1985. Since 1986 the Singaporean economy has stabilized and the growth in manufacturing and service sectors took place in the country. By the end of third stage of industrialization the share of manufacturing and service increased and reached 26.7% and 65.8% share of GDP respectively. In the same time based on the initiatives undertaken by the state the inflow of FDI to the island went up and summed up at 2887 million USD in 1989. Also, the government increased its spending on education due to the lack of high-skilled labor force in Singapore (Table 9).

#### 2.6.4 Industrialization of the 1990's

By the beginning of the 1990's the Singaporean economy was characterized by strong government dominance as it has happened generally with whole East Asian Economies. It became clear for the government that heavy reliance on only export economy could lead to unsustainability and make the country economically dependent on it. They realized that in raising global competition such an approach wouldn't work anymore. Moreover Singapore couldn't compete with rapidly developing neighbor countries such as China, Malaysia, Indonesia, India, Philippines, Thailand and Vietnam with abundant manpower, industrial land and natural resources.

In order to respond for the new challenges that Singapore faced in the beginning of the 1990's, the state decided to maximize potential for economic growth through supporting entrepreneurship and shift from low-skilled labor force to more skilled workforce to develop high-technology industries.

Singapore also tried to support business in the country. In order to achieve that the government started to invest in the public sectors and also implement incentives for the private sector to promote expenditure of individual firms. The government tried to encourage their entrepreneurs to have more entrepreneurial spirit in the global market. The reason for that was to increase the level of the Singaporean specialists in accordance with



international standards, so as to be consistent in the world market. Taking into consideration small and over-saturated local market, Singapore initiated a new program that motivated domestic producers to trade and establish factories abroad (Goh, 2005).

The Singapore-Johor-Riau (hereinafter: SIJORI) growth cooperation was established in the beginning of the 1990's to relocate Singapore's investments in manufacturing to the nearby areas of Johor in Malaysia and the Bintan and Batam islands of the Riau province in Indonesia. In this cooperation Singapore played a role of the main financial center, in the same time other members were the source of manpower for processes in manufacturing sectors. All countries had own benefits from this triangle. The advantages for Singapore were availability of territories, needed resources (gas, water and etc.) and cheap labor force. Malaysia and Indonesia had spillover effects from Singapore financial expertise by learning from them and opportunity to grow and develop infrastructure in their countries (Grunsvén & Egeraat, 1999).

In the 1990's the Singaporean government continued to increase expenditure for high-technology industries development across the country. Through the NCB, the state spent about 2 billion Singaporean dollars from 1991 to 1995 and 4 billion Singaporeans dollars from 1996 to 2000 for the purpose of development of high technology plans. Combining high-technology parks and high institutions such as National University of Singapore, the Nanyang Technological University, Institute of System Science and other tertiary institutes, the government formed clustering of high-technology institutions (Cahyadi et al., 2004). Table 10 shows the Singaporean shift to knowledge – base, high-technology economy and, meanwhile, to continue developing of manufacturing and service sectors in the country.

Table 10. Main indicators of Singapore for 1990's

	1991	1993	1995	1997	1999
GDP growth, annual growth %	6.7	11.5	7	8.3	6.09
Unemployment rate, %	3.3	2.1	2.2	2	3.8
Share of manufacturing in GDP, %	25.7	25.9	25.7	23.6	24.3
Share of service in GDP, %	65.7	65.8	66	66.7	67.1
Education spending, million USD	2816	2902	3443	4449	4857
Number of research scientists and engineers with degree, people	5218	6629	8340	11302	13817

Source: World Bank, *In World Bank database*; Statistic Agency of Singapore, *SingStat Table builder*, 2015.

Generally, during the 1990's the Singaporean economy continued its growth gradually with a slight dip in economy in 1998 because of the Asian crisis. The share of service in GDP went up steady by the end of 1990's and reached at 67.1%. Due to the reforms to shift to high-technology industry the government increased its expenditures on education

and grew 2 times at the end of fourth stage of industrialization. In the same time the number of researchers rose almost 2.5 times during the analyzed period (Table 10).

### **2.6.5 New wave of industrialization**

In 2001 the government of Singapore decided to establish a new organization so-called “*Economic Review Committee*” (hereinafter: ERC). The main responsibilities of ERC were to reconsider the Singaporean development strategies and develop new one to upgrade, revive and transform the national economy of the country. Doing that the government tried to respond to the recession and apply new measures for a long-term development. In the same time ERC appeals to transform Singapore into international financial center with a diversified economy along with rapid growth in the sectors of manufacturing and service (Economic Review Committee, 2003).

Due to the losses of competitive and comparative benefits in labor-intensive products, the government of Singapore has decided to restructure manufacturing sector of economy. The report of ERC suggests that Singapore has to develop new clusters thru new technologies, enterprise and market development. Singapore should become an inventor of innovative products and industries by linking all necessary members such as R&D, different sectors and intellectual property protection. The government of Singapore should also take care of gap between research and commercialization processes.

To sum up, since the early 1960’s, Singapore has gone from a regional transit point to the export-production platform and service hub. Nowadays government has been shifting their policy towards an economy based on knowledge. Key elements of the industrial strategy of Singapore can be characterized by the following: (1) strong state intervention; (2) reliance on free trade and foreign direct investments; (3) investment in physical infrastructure and human capital in order to reduce restrictions in the field of logistics; (4) stable macroeconomic environment and industrial relations; liberal use of tax incentives to reduce the tax burden on business.

## **3 INDUSTRIAL POLICY IN KAZAKHSTAN**

In this chapter we intend to analyze the experiences of Kazakhstan in the industrialization process of the economy for the last two decades. Therefore, we decided, first of all, to consider the macroeconomic environment of the country from the beginning of independency till today. The purpose of the macroeconomic overview was to show the economical achievement of the country and government’s attempts to stabilize the macro indicators to implement industrial policy in the country. Further on we consider the main stages of industrial policy that have been implemented in Kazakhstan from its independency onwards. We conclude this chapter with an evaluation of industrial policy.

### **3.1 Macroeconomic overview of Kazakhstan**

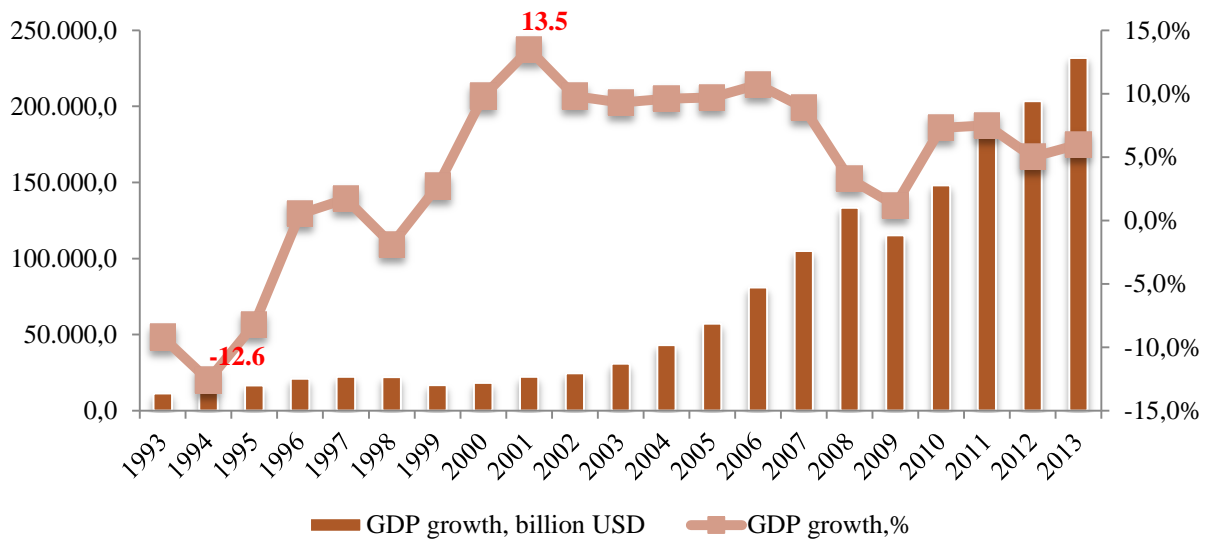
On 16 December, 1991 the Republic of Kazakhstan declared its independency from the Soviet Union. Kazakhstan is the ninth biggest and landlocked country in the world. The total territory of the country is 2.7 million km<sup>2</sup>. Kazakhstan has common borders with China, Russia, Kyrgyzstan, Turkmenistan and Uzbekistan. According to statistic agency of Kazakhstan the population of the country was 17.4 million people in 2014. More than 130 nationalities live in peace and harmony in the country. The largest nationality groups are Kazakhs (65.52%), Russians (21.47%), Uzbeks (3.04%), Ukrainians (1.76%) and others. The state language is Kazakh, which is one of the largest in Turkic group of languages. In the same time Russian language is used equally with Kazakh and considered as an interethnic language in the country. The national currency is tenge since 1993. The capital of Kazakhstan is Astana since 1998.

The Republic of Kazakhstan, according to the constitution, is a democratic, legal, unitary, secular republic with a presidential form of government. Foreign policy of the Republic of Kazakhstan is determined by the President and implemented by the work of the Ministry of Foreign Affairs of the Republic of Kazakhstan. Nowadays Kazakhstan is an active member of different world organizations such as “United Nations”, “Shanghai Cooperation Organization”, “Organization for Security and Cooperation in Europe”, “Organization of the Islamic Conference”, “Collective Security Treaty Organization”, “Commonwealth of Independent States” (hereinafter: CIS), “Eurasian Economic Union” and others.

Over 20 years of independence, Kazakhstan's economy has passed a series of complex steps. During this short period the country has experienced the effects of several crises. The first systemic crisis of the Soviet Union, the second Asian crisis of 1998 and the last, the global financial and economic crisis of 2007/08. Kazakhstan started its national economy development with a sharp break of economic ties, which was a part of unified national economic complex. The essence of the insistence of Kazakhstan in preservation of the existing economic cooperation with the other republics, especially Russia, was based on the fact that Kazakhstan was the most integrated in the Union's economy. Loss of large market for Kazakhstan's economy meant the loss of not only markets, but also automatically led to the collapse of the entire production sector in the country.

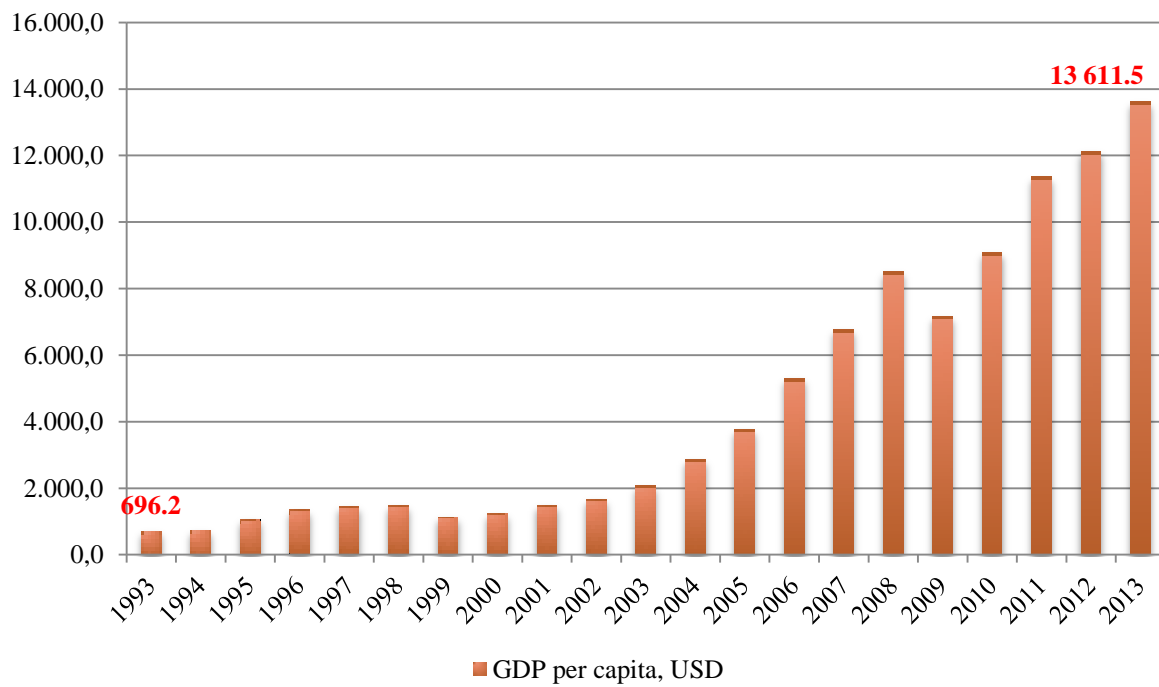
In spite of many difficulties that the country has faced since its independency, nowadays Kazakhstan is the strongest economy in Central Asia region and among the CIS countries. For the last two decades GDP of Kazakhstan has increased 22.3 times and amounted to 231875 billion USD in 2013. The most successful period of economic development was in 2000 – 2008. During this period the annual growth of GDP was on average 9% per year. In the same period GDP per capita has been gradually rising up and amounted to 13611 USD per capita in 2013 (Figure 8 and 9).

Figure 8. GDP growth of Kazakhstan in nominal and percentage during 1993-2013



Source: Statistic Agency of Kazakhstan, 2014; own calculations.

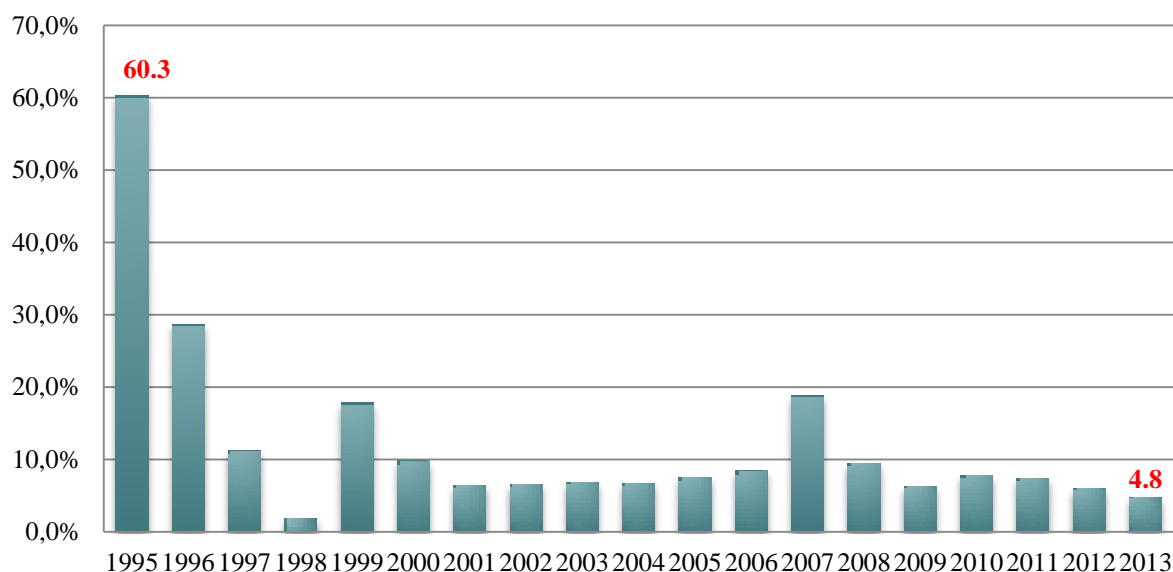
Figure 9. The growth of GDP per capita in Kazakhstan during 1993-2013



Source: Statistic Agency of Kazakhstan, 2014; own calculations.

In the beginning of the independency the country was faced with hyperinflation, especially in the period 1992 - 1995. The highest inflation rate was reported in 1992 – 2960.8 % followed by 2165 % in 1993. Since 1999 inflation in Kazakhstan has been fluctuating mildly between 7-8% on average with a spike in 2007 of 18.8% (Figure 10).

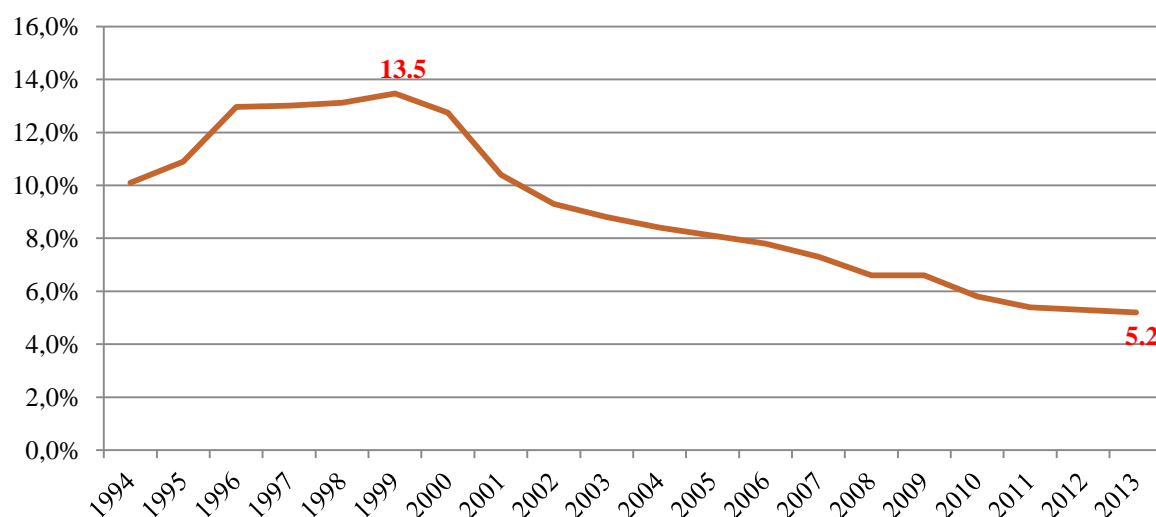
Figure 10. Inflation in Kazakhstan in 1995-2013, %



Source: Statistic Agency of Kazakhstan, 2014; own calculations.

The number of unemployed people increased dramatically in the beginning of 1990's and continued till 2000. The highest rate of unemployment was reported in 1999 and amounted to 13.5%. The following years, the unemployment rate has been declining slightly and it ended up with 5.2% in 2013 (Figure 11). This made Kazakhstan number 79 in the world rankings according to "Unemployment Rate" in year 2013.

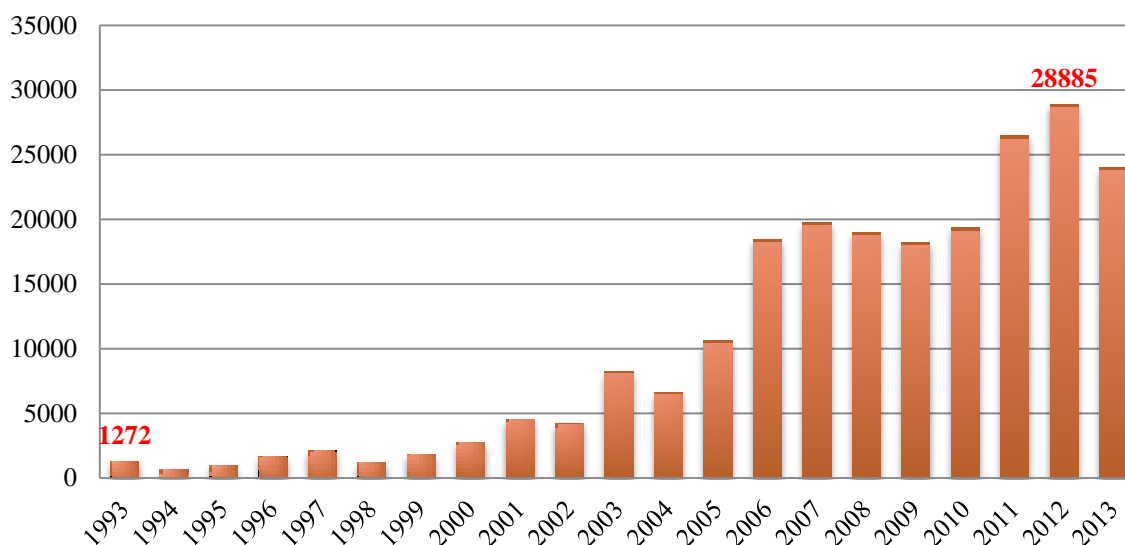
Figure 11. Unemployment rate in Kazakhstan in 1994-2013, %



Source: Statistic Agency of Kazakhstan, 2014; own calculations.

For the last two decades Kazakhstan has managed to develop and implement effective investment policy. As a result, over the years of independence the volume of foreign investments has increased around 23 times since 1993 (Figure 12).

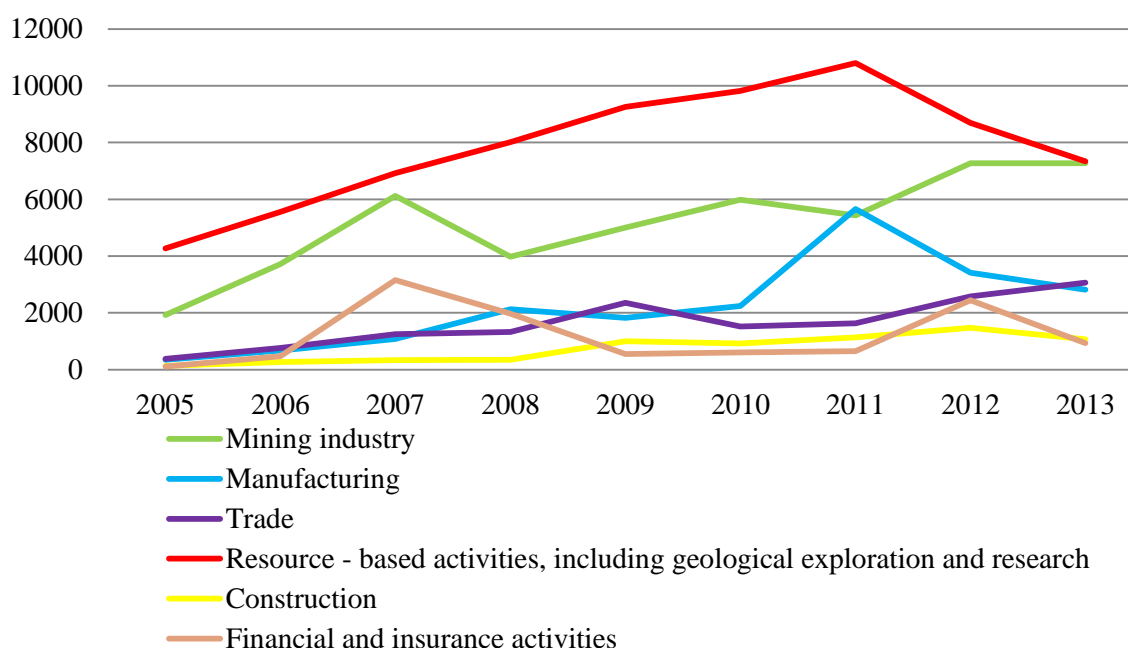
Figure 12. Foreign direct investment in Kazakhstan since 1993, million USD



Source: National Bank of Kazakhstan, 2015.

Figure 13 shows the distribution of FDI by the sectors of the economy from 2005 till 2013. As we can see from Figure 13 the main inflow of FDI has been invested into “Resource-based activities, including geological exploration and research” with a spike in 2011 of 10796 million USD. Since 2012 the investment in this sector had been decreasing and amounted to 7339 million USD in 2013. The next favourable sector for FDI was “Mining industry”. The investment into the sector had been fluctuating in the analyzed period. Despite the fluctuation, we can observe that investors are still interested in the mining industry of Kazakhstan. FDI into “Mining industry” fluctuated with a minimum of 193 million USD in 2005 and a maximum of 7274 million USD in 2013. Generally the investment in mining industry has increased more than 3 times in Kazakhstan. The “Manufacturing” sector was not as much attractive as the previous considered sectors. The investment in manufacturing sector had been growing gradually from 2005 till 2011 and dramatically dropped in 2012 and 2013. The volume of investment into the sector had a trend with a spike in 2011 of 5659 million USD and ended up with 2821 million USD in 2013. As the graph demonstrates investments into the “Trade” had been increasing slightly during 2005 – 2013 with a slight dip in 2010 and 2011 of 1522 million USD and 1628 USD respectively. The total amount of investment into “Trade” sector was 3067 million USD in 2013. The less attractive for FDI among the sectors was “Financial and insurance activities” and “Construction”. In spite of this fact, investment into “Construction” sector has demonstrated a slight increase during the analyzed period.

Figure 13. FDI by sectors, million USD



Source: Invest in Kazakhstan, 2015.

During this transition and stabilization period of the 1990's, the national economy underwent a major structural change. The agriculture and manufacturing sectors collapsed, while the extractive (mainly oil and gas) and service sectors took a dominant place in the industrial sector. As it can be seen, the share of agriculture in GDP dropped from 16.3% to only 4% in 2013. In the same time the share of industry and service sectors went up and reached at 33.1% and 51.3% respectively in 2013. As for construction sector, it can be observed that the share of the sector has been increasing gradually since 2000 and came up with 8.1% of GDP share in 2013 (Table 11).

Table 11. The economy structure of Kazakhstan for period of 1993 - 2013, %

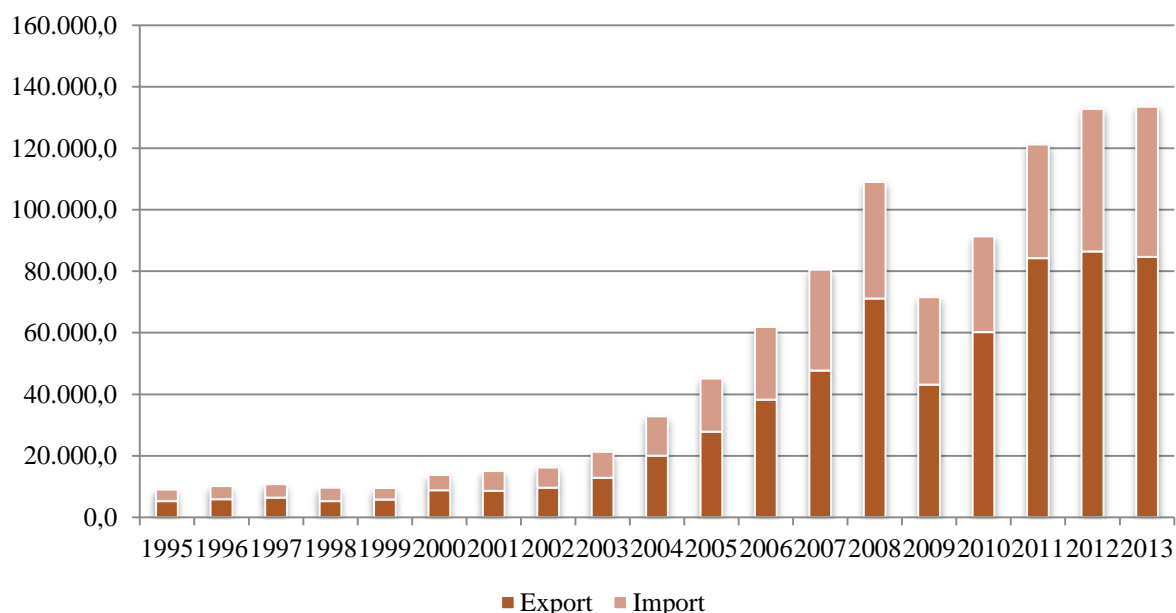
	1993	1995	2000	2005	2010	2013
Agriculture	16.3	12.3	8.1	6.4	4.4	4
Industry	28.6	23.5	32.6	29.8	32.8	33.1
Construction	8.2	6.5	5.2	7.8	7.7	8.1
Services	40.8	53.3	47.5	49.8	49.7	51.3
Gross value added	93.9	95.6	93.4	93.8	94.6	96.5
Net taxes on products	6.1	4.4	6.6	6.2	5.4	3.5

Source: Statistic Agency of Kazakhstan, 2014; own calculations.

Over the past two decades, foreign trade and the national economy of Kazakhstan have been radically transformed. In 2000 the EU and in 2002 the United States recognized Kazakhstan as a country with a market economy. Nowadays, Kazakhstan is recognized as

an emerging market. The republic has formed all directions and forms of international relationships with other countries in the world. Relationships in the field of trade were not exception. Currently, the country trades with more than 200 countries worldwide. Dynamics of foreign trade for the period of 1995-2013 is shown in Figure 14.

*Figure 14. Foreign trade turnover in Kazakhstan, million USD*



Source: Statistic Agency of Kazakhstan, 2014; own calculations.

In the commodity structure of exports the most favourable goods were energy, ferrous, non-ferrous, rare and precious metals, uranium and grain products, and over the past decade, their share has increased substantially. The growth of production and world prices for mineral resources has become a major factor in the growth of GDP and foreign trade of the country. Thus, the total share of “mineral products” in export has increased from 73.7% in 2005 to 82.3% in 2014. The share of exports of “metals and products from metals” was 8.2%, “chemical and related industries products” - 3.4%, “animal products and vegetables, finished food products” accounted to 3.2% in 2014. At the same time, “machinery equipment, vehicles, tools and equipments” accounted for only 1.6% of the total exports (Statistic Agency of Kazakhstan, 2014) (Table 12).

Table 12. Commodity structure of exports of Kazakhstan for 2005-2014, %

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Mineral products	73.7	71.9	69.6	72.2	73.9	74.7	79	77.9	80.1	82.3
Metals and products from metals	15.8	16.1	17.1	15.2	12.6	13.5	11.5	9.7	9.2	8.2

table continues



continued

Commodity structure of exports of Kazakhstan for 2005-2014, %

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Animal products and vegetables, finished food products	2.4	2.8	4.2	5.2	3.8	3.3	2.2	3.5	3.2	3.2
Chemical and related industries products	3.3	4.1	3.9	2.9	5.2	5	4.1	4.4	4.1	3.4
Machinery equipment vehicles, tools and equipment	1.2	1.7	1.9	2	0.9	0.8	0.9	1.5	1.5	1.6
Others	3.6	3.4	3.3	2.5	3.6	2.7	2.3	3	1.9	1.3

Source: Statistic Agency of Kazakhstan, 2014; own calculations.

In the structure of imports, on the contrary, a high proportion of “machinery equipment vehicles, tools and equipment”, “chemical and related industries products”, “animal products and vegetable, finished food products”, “metals and products from metals”. The less imported goods were “mineral products” in 2014, compared to indicators of 2005 it is almost 2 times less. Thus, the share of “machinery equipment, vehicles, tools and equipment” amounted to 43.6%, “chemical and related industries products” - 14.3%, “metals and products from metals” - 10.3%, mineral products - 6.7% in 2014 (Statistic Agency of Kazakhstan, 2014) (Table 13).

Table 13. Commodity structure of imports of Kazakhstan for 2005-2014, %

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Mineral products	13.7	13.2	13.4	12.8	13.1	13.8	14.6	12.2	12.5	6.7
Metals and products from metals	15.4	15.2	15.2	13.7	12.9	11.4	10.1	11.9	13.1	10.3
Animal products and vegetables, finished food products	6.7	6.9	7.4	6.8	8.9	9.7	10.8	9.2	9.5	10.3
Chemical and related industries products	11.3	11.3	11.5	10.9	12.1	12.7	13.5	12.5	13.2	14.3
Machinery equipment vehicles, tools and equipment	42.1	42	42.4	42.2	41.9	40.8	39.3	39.4	40	43.6
Others	10.8	11.4	10.1	13.6	11.1	11.6	11.7	14.8	11.7	14.8

Source: Statistic Agency of Kazakhstan, 2014; own calculations.

To sum up, during the independency of Kazakhstan, the state’s economic policy has undergone significant changes due to the need to develop a market economy and at the same time addressing emerging social and economic problems. Nowadays, the economy of

Kazakhstan is considered one of the strongest and biggest economies among Commonwealth of Independent States countries. GDP per capita has exceeded 13 thousand dollars, which is almost equal to Turkey, Malaysia, Brazil and most of the countries of Eastern Europe. The amount of foreign-exchange reserves and National Fund exceeded 105 billion dollars. According to the report of “The Global Competitiveness Report 2013-2014” Kazakhstan improved its position in the rating of macroeconomic stability. Being placed on the 23<sup>rd</sup> position out of 142 countries in the world, Kazakhstan became a leader in the Central Asian region.

### **3.2 Education system, labor market development and corruption issue in Kazakhstan**

In this chapter we analyze and discuss briefly development of education system, including research and development activities, labor market in the country and the main issues regarding corruption in Kazakhstan for the last decades.

#### **3.2.1 Education system in Kazakhstan**

Today Kazakhstan is recognized by the international community as a country with a market economy. During the short period of independence, Kazakhstan has made a powerful breakthrough in the economy and integration into the world civilization, the use of new advanced technologies. The prospects of socio-economic development of the country have been identified by the state. In this context, the importance of modern education system and its development are crucial for the Republic to become one of the most competitive nations in the world.

According to the UNESCO statistic data from 2009, Kazakhstan has a high rate of literacy among its population, namely 99.83% among youth and 99.8% among adults. The educational system in Kazakhstan consists of several levels: (1) pre-school education and training; (2) secondary education; (3) primary and secondary vocational education; (4) higher/tertiary education; (5) post-graduate education.

From the beginning of independency till the beginning of 2000, Kazakhstan was faced with issues in the education systems that led to catastrophic consequences. Literally, there were negative effects in each level of education system in Kazakhstan, such as (Ministry of Education and Science of Kazakhstan, 2015a):

- Optimization policy led to the destruction of almost pre-school education to the mass liquidation of kindergartens;
- Most of schools, especially those in the rural areas, were closed because of ungraded and high outflow of teachers to the field of entrepreneurship;
- Lack of investments and the term of residual financing led to deformation of vocational education;
- The higher education system of the country has also been faced with the negative trend of the 1990's. Unfair competition through artificial dumping prices for educational

services didn't allow developing of higher education and led to slow down the process of modernization at the universities.

Since the beginning of the 2000's, when the national economy has started to stabilize and grow, education system was faced with the deep reforms and developments. In order to correspond to the international standards and provide qualitative and competitive education, Ministry of Education and Science of Kazakhstan set the goal to enter the world educational community. Thus, the government issued a number of laws and other normative documents concerning educational reforms in the country: "Conception of Education Development of the Republic of Kazakhstan till 2015" (2004), "State Program of Educational Development of the Republic of Kazakhstan for 2005-2010" (2004), Law on Education (2007) and others. In 1997, Kazakhstan ratified the Lisbon Convention aimed at developing a normative foundation of international cooperation in the field of higher education, and gradual entering of the national educational system into the global education system. In 1999, when 29 countries signed the Declaration in Bologna on their participation in the process of creating a unified educational community, Kazakhstan has joined also the Bologna process (Ministry of Education and Science of Kazakhstan, 2015).

During the transition period of Kazakhstan from a centralized economy to a market one, there was a huge need of well-educated and skilled workforce for further development of the national economy of the state. Therefore, "Bolashak" scholarship program was created by the decree of the President in 1993 that allows Kazakh students to study in the best universities in the world. All expenditures are covered by the government. The Scholarship is merit-based and the selection process based on not only academic credentials, but also competence in Kazakh and English languages, a psychological testing and an interview process (Bolashak, 2015). Table 14 presents the changes in different level of education system in Kazakhstan during the transition period of the economy between 1993 and 2013. In addition, data for the public expenditures on education and numbers of students who received national scholarship "Bolashak" are also given for the analyzed period.

Table 14. Education system of Kazakhstan in numbers for the period of 1993-2013

	1993	1995	1997	1999	2002	2005	2008	2011	2013
<b>Pre-school education</b>									
Number of schools	8053	5058	1533	1338	1095	1179	1692	6133	7651
Number of children, (in thousands)	747.4	407.1	174.2	124.4	147.5	185.3	257	489.3	634.4
Number of teachers, (in thousands)	96.7	50.5	20.6	14.3	17.4	19.2	27.3	52.7	69.7
<b>Secondary education</b>									
Number of schools	8751	8732	8238	8290	8408	8221	7859	7706	7561
Number of pupils, (in thousands)	3114	3059	3107	3117	3085	2824	2627	2531	2581
Number of teachers, (in thousands)	266.3	274.3	241.6	262.3	273.7	286.3	276.5	286.7	307.9
<b>Vocational education</b>									
Number of schools	248	258	264	219	318	385	460	494	610
Number of students, (in thousands)	230.8	215	177.7	141.3	196.3	336.7	499.5	490.9	520.3
Number of teachers, (in thousands)	17.9	19	17.1	15.7	19.3	24.9	31.5	32.3	34.4
<b>Higher education</b>									
Number of universities	63	101	111	144	177	181	167	146	128
Number of students, (in thousands)	280.7	275.3	293.4	318.7	514.7	747.2	717.1	620.4	571.7
Number of academic staff, (in thousands)	24	31.1	29.7	27.1	34.5	42.3	41.2	39.6	41.3
<b>Post-graduate education</b>									
Number of PhD students	57	123	201	275	262	303	439	868	1892

table continues

continued Education system of Kazakhstan in numbers for the period of 1993-2013

	1993	1995	1997	1999	2002	2005	2008	2011	2013
<b>“Bolashak” national scholarship program</b>									
Number of students who received scholarship	187	17	51	86	57	1796	1311	520	299
<b>Education expenditures</b>									
Public spending on education, (% of GDP)	4	4.03	4.37	3.89	3.03	2.3	2.6	3.8	4.1

Source: Statistic Agency of Kazakhstan, 2014; own calculations.

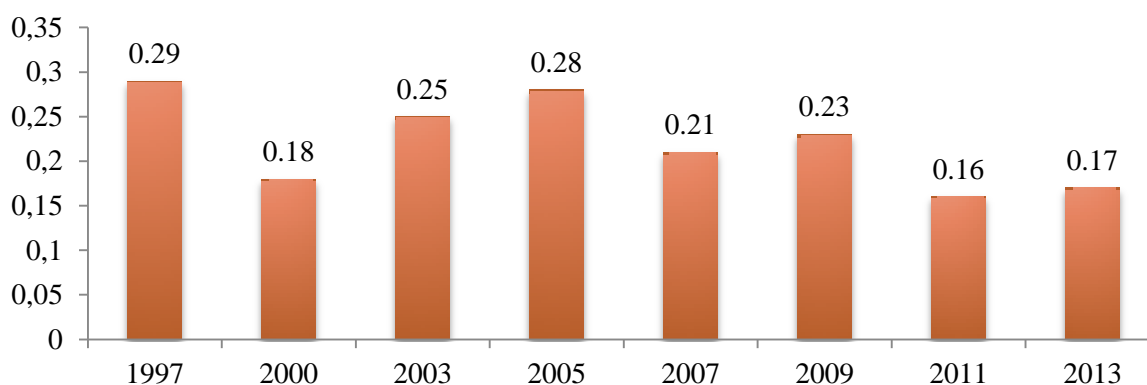
As Table 14 demonstrates the Kazakh government has been taking care of the future well-educated generation who will lead the country since 1993, when the “Bolashak” program was found by the President. The number of students studying by the scholarship program increased slightly till 2005 and started to decline in subsequent years. The reason for that was changes in the requirements and rules of the program. There was not any need to educate students of bachelor and master degree abroad, as Kazakhstan presented its own new world-class research university “Nazarbayev University” in 2009. Since that period only PhD and internship programs have been covering by the “Bolashak” program. As for government expenditures on education system, it can be observed that in general it remains steady with a mild fluctuation in 2005-2008 during the crisis.

The nation's focus on science was sharpened few years ago when the Kazakhstan Ministry of Science and Education passed the Law on Science (2011). This law recognizes the importance of research and gives it priority along with science education. New types of higher education institutions called “research universities” are being introduced.

In the same time, in order to foster industries to invest in “research and development” (hereinafter: R&D) activity the government took the significant step of changing the Law regarding “Subsoil and Subsoil use”. Based on that, the extractive companies are obliged to finance the research, science and technology in the amount of not less than one percent of gross annual income. In 2012, the amount of the financing R&D by the extractive sectors came up with 250 million USD. In the same year, the government spent 627 million USD for supporting science and innovative technologies in Kazakhstan (Bezhikeyeva, 2012).

Figure 15 presents the total amount of R&D expenditures from 1997 till 2013 in Kazakhstan. As it can be seen from the diagram the amount of spending for R&D in the country varies at the average of 0.22% of GDP for the last two decades. In comparison with the world average (1.11%), Kazakhstan is still far behind from the developed countries and needs to increase the expenditures on R&D activities in the country.

Figure 15. Research and development expenditures, % of GDP



Source: Statistic Agency of Kazakhstan, 2014; own calculations.

As for source of funds of R&D expenditures in Kazakhstan, the role of “Business sector” has been rising since 2003 and came up with 51.6% in the total share of R&D expenditures. In the same time the share of “government” on the contrary went down and reached only quarter (24.9%) of total spending in 2011. During the analyzed period, it can be also observed that “higher education” and “private non-profit” sectors have started to spent more on R&D and came up with 16% and 6.9% respectively in 2011 (Table 15).

Table 15. The share of R&D expenditures by source of funds in Kazakhstan, %

	2003	2004	2005	2006	2007	2008	2011
Business	25.5	41.8	39.2	35.2	44.5	50.7	51.6
Government	59.5	40.7	44.5	50.7	37.4	31.4	24.9
Higher education	8.8	14	13.5	12	15.3	14.7	16.3
Private non-profit	0.6	1.2	1.3	1.1	1.1	2.2	6.9
Foreign	5.6	2.3	1.5	1	1.7	1	0.3

Source: Statistic Agency of Kazakhstan, 2014; own calculations.

Mainly, the most part of investment in R&D the state directs to the “natural” and “engineering and technology” sciences. More than 40% of total expenditure Kazakhstan has spent for the former and 36% for the latter in 2013. The rest of the share was divided among “medical” (5%), “agricultural” (9%) and other sciences (Table 16).

Table 16. The share of R&D expenditures by field of science in Kazakhstan, %

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Natural sciences	24	25	27	23	29	27	32	32	29	40
Engineering and Technology sciences	52	54	50	53	52	51	50	48	48	36
Medical sciences	6	7	6	6	5	6	4	5	3	5
Agricultural sciences	10	8	11	9	7	9	9	8	9	9

table continues

continued

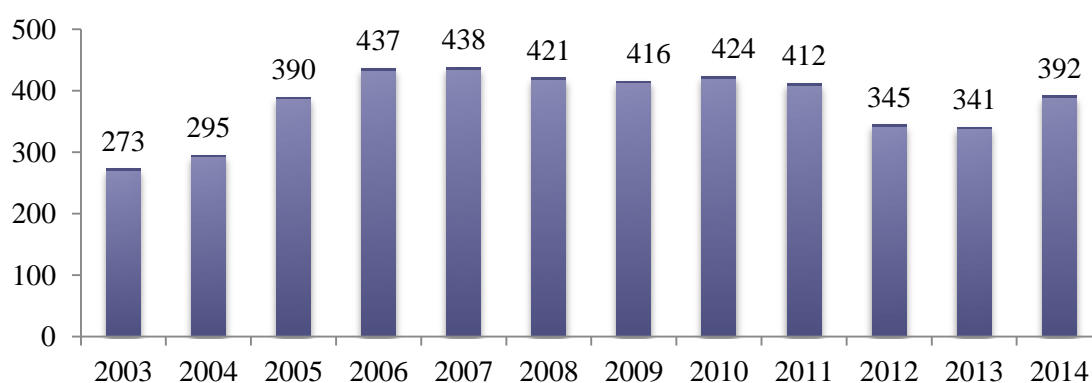
The share of R&D expenditures by field of science in Kazakhstan, %

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Public	5	4	3	5	4	3	2	3	6	4
Humanities	3	2	3	4	3	4	3	4	5	6

Source: Statistic Agency of Kazakhstan, 2014; own calculations.

There was also a gradual increase in the number of organizations conducting R&D since 2003 in Kazakhstan. The number of organizations went up from 273 till 392 organizations in 2014. It can be also observed that the peak of growth occurred during 2006 – 2011 with a spike of 438 organizations in 2007 (Figure 16).

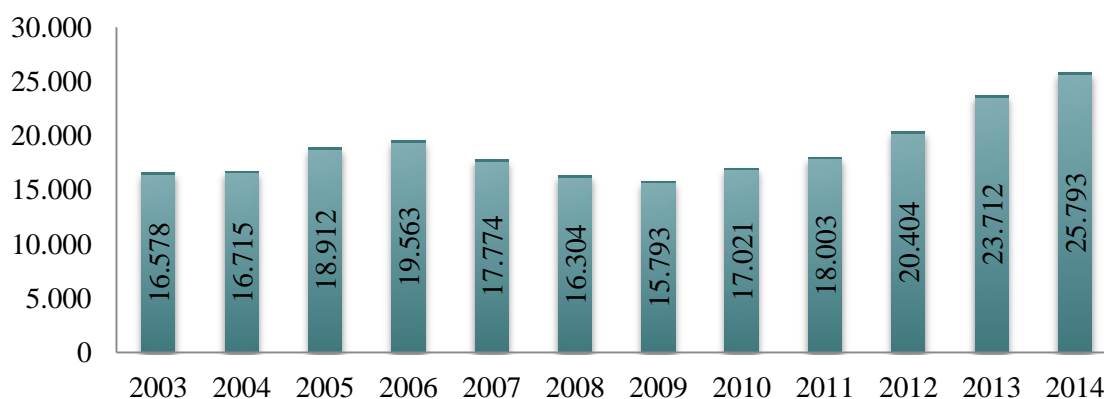
Figure 16. Number of organizations conducting R&D in Kazakhstan, units



Source: Statistic Agency of Kazakhstan, 2014; own calculations.

Figure 17 demonstrates the changes in the number of staff involved in R&D activities in Kazakhstan during 2003 and 2014. As it can be seen from the diagram the amount of people involved in R&D has been growing gradually with a slight dip in 2009 for the last decade of the independency. The number of personnel increased more than 1.5 times and came up with 25793 researchers in 2014.

Figure 17. Number of personnel involved in R&D in Kazakhstan, people



Source: Statistic Agency of Kazakhstan, 2014; own calculations.

Kazakhstan has experienced rapid growth and economic expansion in recent years. Being rich with natural resources and having a vibrant financial sector and investment climate, the country is in a position to leverage its economic prosperity by first of all fostering economic growth in key industries and fields. Kazakhstan continues its strategy on diversification of national economy and sees to develop “green” and knowledge-based economy in the next 10 -15 years. Thus, the Kazakh government realizes that it can be done only by developing advanced sciences and education system in the country. Based on the results of our analysis, we can conclude that Kazakhstan has done a great job to stabilize and to start growth in the sphere of education and science after the collapse of the Soviet Union. Now it is time for the state to catch up and overtake developed countries by investing more in education, research and development activities, attracting well-known Kazakh scientists from abroad and improving the conditions for young scientists.

### 3.2.2 Labor market in Kazakhstan

The rapid growth of the national economy and its structural change has brought both increases in employment and some adjustments in the composition of the labor force. Kazakhstan’s labor force went up about 27% during 2000-2012 compared with only a 12% increase in population. Considering that labor force is defined as the active population (including unemployed) above a certain age (15 years), its faster increase than population points to the possibility that people who had stayed out of the labor market because of disenchantment with lack of job opportunities and low wages in the 1990’s were now returning to the market encouraged by new opportunities and rising wages (Table 17).

Table 17. Changes in labor force in Kazakhstan during 2000 – 2012, million people

	2000	2002	2004	2006	2008	2010	2012
Population, million people	14.9	14.8	14.9	15.2	15.6	16.3	16.7
Labor force, million people	7.1	7.6	7.8	8.09	8.4	8.6	9.03

Source: Statistic Agency of Kazakhstan, 2014; own calculations.

In spite of the fast increase in the labor force of Kazakhstan, the unemployment rate has slightly declined from 12.8% in 2000 to below 6% in 2012 (see Figure 11). The main engines to decrease unemployment were high economic growth and the government policies encouraging small and medium-sized enterprises and similar labor-intensive activities. The agriculture and industry sectors have not made any significant contribution to reducing the unemployment rate. In the same time services sectors, particularly construction, real estate, financial services, and education sub sectors were the main sources of growth in employment (Table 18).



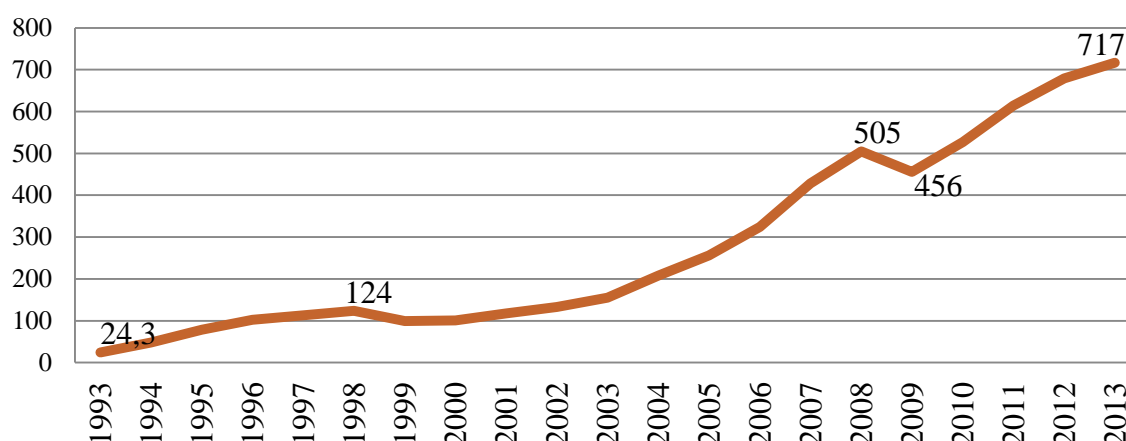
Table 18. Employment by economic activities during 1999-2013, %

	1999	2001	2003	2005	2007	2009	2011	2013
Employment in agriculture	26.8	35.5	35.3	32.4	31.2	29.4	26.5	26.1
Employment in industry	20	16.4	17	18.1	18.9	18.9	19	19
Employment in services	53.2	48.1	47	49.5	49.9	51.7	54.5	54.9

Source: Statistic Agency of Kazakhstan, 2014; own calculations.

The rapid economic growth of the national economy had also its impact on the growth of the average wage in Kazakhstan. In the beginning of independency the average wage was only 24.3 USD per month in Kazakhstan. It has been going up gradually since 1998 (124 USD) and with a slight dip in 2009 (456 USD) reached the highest point in 2013 with the average wage of 717 USD (Figure 18).

Figure 18. Average wages in Kazakhstan for 1993-2013, USD



Source: Statistic Agency of Kazakhstan, 2014; own calculations.

Summing up, nowadays when the government is actively implementing new “forced industrial-innovative development” program in the country, Kazakhstan needs more high professional and skilled labor force to succeed in innovation development of the state. Therefore, Kazakhstan has already started to implement successfully the state program “Road map of employment -2020” adopted by the government in 2013. The program considers creation of permanent jobs, stimulation entrepreneurial activity, creation of social workplaces and organization of youth practice, vocational training, career guidance and improving territorial labor mobility. The mentioned program will be discussed more in detail in the following chapters.

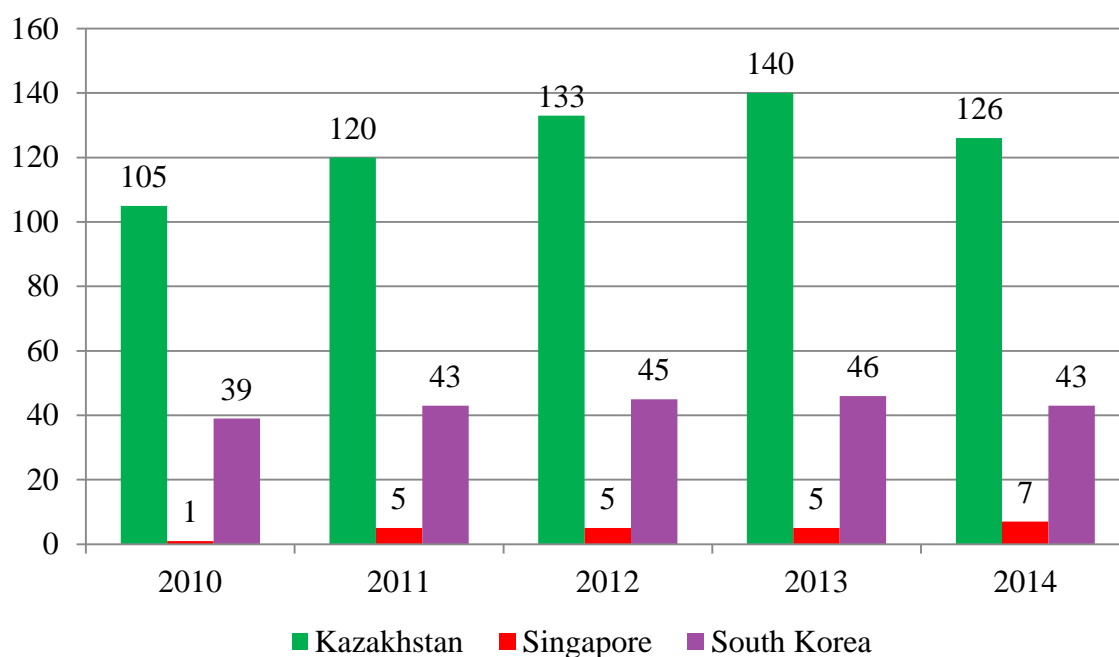
### 3.2.3 Corruption

At the present time corruption as a social phenomenon continues to exist in almost all countries of the world. However in Kazakhstan corruption is the main threat for government policy to ensure stable development and national security of the country.

In this regard, fighting against corruption is of particular importance in Kazakhstan. Nowadays Kazakhstan has a consistent anti-corruption policy. For example, Kazakhstan is among the few countries in Central Asia who have adopted the Law on the “Fighting against corruption”. In addition, Kazakhstan has developed a state program to fight against corruption and organized a state commission under the President on anti-corruption and ethics of civil servants, which are constantly improving measures to reform the administrative system.

However, issues with corruption still remain in the country’s system of governance. According to Transparency International (2014), even though Kazakhstan has made some progress in its efforts to eradicate corruption in the past three years, compared to the indicators of developed countries the state can’t still improve the situation in this field (Figure 19).

Figure 19. Corruption perception index for Kazakhstan 2010 – 2014, rank



Source: Transparency International the global coalition against corruption, *Corruption Perception Index 2014, 2015*.

Summing up, corruption is a systemic and comprehensive phenomenon not only in Kazakhstan, but also in the entire world. The anti-corruption policy of the Republic of Kazakhstan is a consistent and focused. In order to improve the efficiency of the anti-corruption campaign in Kazakhstan, “Anti-corruption program in the Republic of Kazakhstan for 2011-2015” sectoral program was adopted in 2011. The program identifies several major challenges: expanding international cooperation and improvement of national legislation on fighting against corruption; improving the efficiency of public authorities to reduce corruption risks; increase anticorruption outlook and reduce the shadow economy.

### **3.3 Industrial policy of Kazakhstan in different stages**

In this chapter we present the analysis and main results of industrial policy in the Republic of Kazakhstan for the last two decades. We also evaluate the industrial policy used. As we will show later on, Kazakhstan has been following mainly East Asian experiences in the development and diversification of the economy during its economic growth.

The impact of the global financial and economic crisis on the national economy of Kazakhstan led to a decline in export earnings from extractive industries in the 1990's. Therefore the government was forced to start industrialization and diversification of traditional sectors of the economy. In the same time Kazakhstan needed long-term planning for future achievements that would lead the nation while implementing policies in the country. Thus, the Kazakh government studied and analyzed different strategy programs of South Korea, Japan, Singapore, Malaysia and other countries across the world. They came up with the conclusion that consistently implemented long-term strategies based on calculations, understanding of local economic specifics and the mentality of local people could bring outstanding results in the economy.

In 1997, Kazakhstan decided to make its first attempt to have its own national strategy. “Kazakhstan-2030” was presented by the government the same year and considered the following goals (Akorda, 2015):

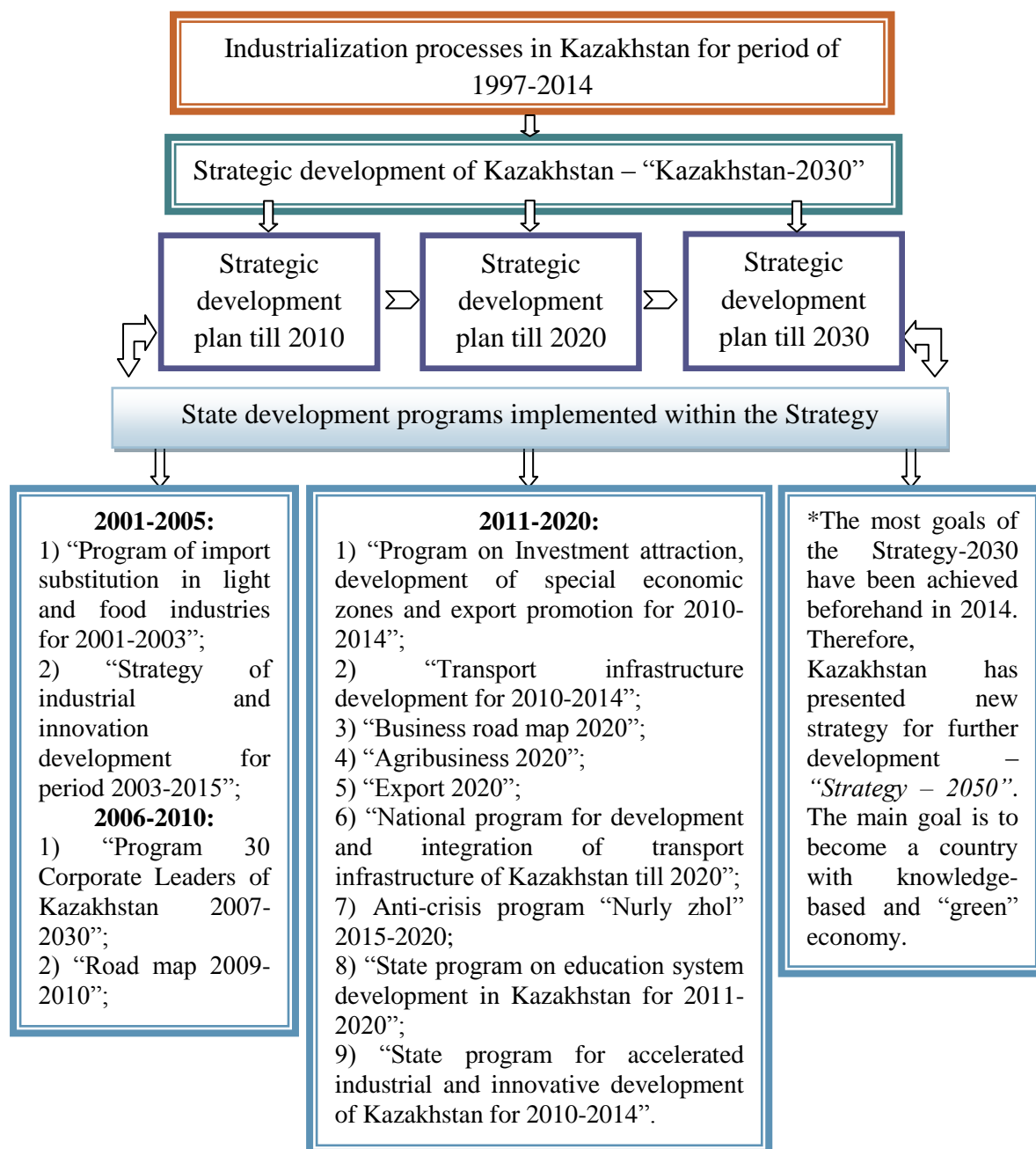
- National security;
- Political stability and consolidation of society;
- Economic growth based on an open market economy with high levels of foreign investment and domestic savings;
- Health, education and welfare of the citizens of Kazakhstan;
- Energy resources;
- Infrastructure, particularly transport and communications;
- Professional state.

The Strategy was considered as the main document and base for any state programs in the field of industrialization and diversification of the economy. Therefore “Strategy 2030” was conditionally divided into ten-year strategic development plans with specific goals. The figure 20 demonstrates the scheme of industrialization processes in Kazakhstan in accordance with the strategy and state programs which are being implemented for the period of 1997 – 2014.

Many countries across the world have implemented different industrial policies in order to get rapid and sustainable growth in their national economy. The Republic of Kazakhstan was not an exception. In order to respond to external economic threats and declining dependency on natural resources, Kazakhstan has implemented various industrial policies over three periods: (1) 1991-1999 period of stabilization of socio-economic situation in the country, privatization, market openness, stimulation of trade and attracting foreign direct

investment in order to save the centrally planned economy from the Soviet period; (2) from 2000 until 2010 when strong economic growth began and the government started to think about diversification of the economy because of its high level of dependency on natural resources. Meanwhile the government decided to implement cluster policy in Kazakhstan following the experiences of “Asian tigers”; (3) the period from 2010 onwards when the country decided to focus on export-oriented strategy, supporting small and medium business, innovative and knowledge based economy development of Kazakhstan.

Figure 20. The structure of supportive state programs for industrialization in Kazakhstan



### **3.3.1 Transition and stabilization periods during 1997 – 1999**

During the first period the state had to deal with the issues of transition of Kazakh society from administrative-command system to market relations based on private property and competition. The stage of socio-economic transformation of the economy was faced with the deep production and financial crisis, which had a negative impact on all areas of development. Therefore the government had to respond to challenges in the economy with quick decisions and reforms.

In 1993, Kazakhstan adopted a program of urgent anti-crisis measures and deepening social and economic reforms that primarily allowed maintaining a stable socio-political situation in the country. In the same year Kazakhstan presented its own national currency, completely solving the problem with the market of consumer goods and move from administrative - command economy to a market one.

In 1995, the state continued reformation of the economy. The Kazakh government adopted a program of action of the Government to deepen reforms in 1996-1998 in order to consolidate the results achieved in 1994-1995 in the area of macroeconomic stabilization and structural - institutional changes. By doing that Kazakhstan tried to slowdown the decline in production sectors, to ensure economic recovery and to improve living standards of locals.

Among the first actions that the country had to take was privatization of state-owned-enterprises. Later in 1996 privatization was extended to “sectoral privatization” - electric power, oil-gas and petrochemical, metallurgical and resource extraction enterprises, as well as transport and communication facilities. During the period of 1991-1998 more than 25,887 state-owned-enterprises were privatized and around 1.3 billion USD was collected for the national budget (Statistic Agency of Kazakhstan, 2000). The new owners of the former state-owned-enterprises were mostly foreign companies.

In order to attract foreign investment the government took significant steps towards improving the trade<sup>1</sup> and tax systems in 1995 (European Bank for Reconstruction and Development, 1995). This allowed the foreign trade turnover to increase from 12,803.8 million USD in 1995 up to 15,004.6 million USD in 1997, i.e. a 17% increase. In the same year, Kazakhstan introduced a simplified and modernized tax system<sup>2</sup> (European Bank for Reconstruction and Development, 1997a). These changes had a substantial positive effect on tax revenue to the country's budget. The revenue rose from 1.8 million USD in 1995 to 2.5 million USD in 1998, i.e. a 35% increase (Statistic Agency of Kazakhstan, 2000).

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<sup>1</sup> Substantial trade liberalization was achieved by the first half of 1995, following the abolition of all export quotas and elimination of most export and import licenses. Exemptions from payment of import and export duties were abolished. In early 1995 Kazakhstan signed agreement with Russia providing with a zero customs tariff on respective imports.

<sup>2</sup> There was a 30% corporate income tax for companies (45% for banks and insurance companies) and the maximum income tax rate was 40%. A uniform VAT was introduced at 20%.

Due to the reforms implemented by the government in the field of trade liberalization, tax system and also partly because of the “sectoral” privatization, foreign direct investment increased substantially in 1996 (by about 40% to 1.22 billion USD). FDI was concentrated mostly in non-renewable resources and was of a long-term nature (80% of total FDI for 1993-1996 went into the oil, gas and ferrous and non-ferrous metals sectors) (European Bank for Reconstruction and Development, 1997b).

At the end of the first period Kazakhstan was able to increase economic growth from 16,645 million USD in 1995 to 22,139 million USD in 1999, i.e. by approximately 33%. In spite of this, the industrial sector remained undeveloped during the period 1996-1999, compared to the service sector of the country. The reasons for this were not only poorly implemented policies, but also the Russian crisis that had a significant impact on the economic growth of the country. Therefore the government had to rethink its industrial policy in order to diversify the economy and reduce the influence of external threats.

Adaptation of the state programs in the framework of measures to reduce inflation, reforms in the field of financial sector and enterprises, modernization of production infrastructure, privatization processes, creating incentives for the FDI in highly competitive production helped Kazakhstan to stabilize the economic situation in the country during 1991-1999. The significant occasion of this period was the declaration of the strategy “Kazakhstan-2030” that identified the main development directions of the country.

### **3.3.2 Diversification of economy during 2000-2010**

The second period of industrialization the state had to face the consequences of the crisis in 1998 – 1999. After the crisis Kazakhstan realized that its economy was highly dependent on natural resources. In the same time the unemployment rate went up and reached 13.5% in 1999. The political and economic instability in the country was the main obstacle to attracting FDI to the economy. In order to respond to such challenges the government adopted several state programs and strategies during this period.

The first action taken by the government was to establish a National Fund of the Republic of Kazakhstan (hereafter: the Fund) in 2000. The purpose of establishing the Fund was to ensure sustainable socio-economic development of the country, the accumulation of funds for future generations, reducing the economy’s dependence on negative external factors and to reduce dependence republican and local budgets on the world prices. The main sources of the Fund are direct taxes on the oil sector organizations, earnings from the privatization of the state property and sale of agricultural lands.

During the period of 2001-2003 in order to further strengthen sustainable development the government adopted fundamental state programs and strategy determining the development of the economy of Kazakhstan until 2015. Programs and strategies are: “Program of import substitution in light and food industries for 2001-2003”, “Program 30 Corporate Leaders of Kazakhstan 2007-2030” and “Strategy of industrial and innovation development 2003-2015.

Within the “Program of import substitution in light and food industries for 2001-2003” Kazakhstan intended to restore and accelerate comprehensive growth in light and food industries, overcome dependence on imports of textile, garments, leather products and footwear and saturation of internal market with domestic food products. The government planned to allocate 150 million USD each year in loans to the most effective projects in the priority areas identified in the program (Government, 2001). As a result, the growth of “food production” increased by 37% and amounted to 2.05 billion USD in 2003. As for the “textile, garments, leather products and footwear” production, the growth was slight at only 280 million USD, an increase of 0.08% in 2003 (Statistic Agency of Kazakhstan, 2004).

The “Strategy of industrial and innovation development 2003-2015” program proposed spending 260 million USD each year. The goal of the strategy was to achieve sustainable development of the country that is conducive to further breakaway from resource-oriented economy by means of modernization, diversification and increase in competitiveness of the national economy. As a result of the program the following must have been achieved by the end of 2015: increase the share of industrial production as a proportion of GDP; increase R&D expenditure as a proportion of GDP; slowdown the declining share of manufacturing in GDP (Government, 2003).

The share that industrial production contributes to GDP had been increasing slightly until 2010. In that year it was reported as representing a 32.8% of share of GDP, compared to 29.8% in 2005. Despite this, it can be observed that the growth slowed down and the sector amounted to only 33.1% in 2013 (see Table 11). As for the share of “research and development” in the structure of GDP, there was a gradual decrease in the amount of R&D expenditure in the country. The share of R&D expenditure was 0.25% of GDP in 2003, and in 2011 the indicator dropped and amounted to only 0.16% (see Figure 15). The share of the “manufacturing sector” in GDP had been decreasing slightly from 2003 until 2011 from 14.2 to 11.4% respectively (Statistic Agency of Kazakhstan, 2013).

By 2008 the state presented “Program 30 Corporate Leaders of Kazakhstan 2007-2030”. “Corporate leader” is recognized as a company who has an export share of not less than 2% of the total non-commodity exports of Kazakhstan, has a recognized “brand” and high level of investment in research and development. The purpose of the program is to consolidate efforts of the business community and government in establishing new, and modernizing existing, industrial assets with the aim of ensuring diversification and developing export capacity of the non-resource industries of the country. As part of the program the “basic list” of 45 breakthrough projects (in the fields of energy, logistics, infrastructure, gasification, agriculture and petrochemical complexes) was formed, with a total value of more than 53 billion USD and will last until 2015 (Government, 2007).

Since 2004, being inspired by the successful implementation of the cluster policy by East Asian countries, Kazakhstan initiated the cluster policy program for further diversification of the national economy. The main goal of the policy is to increase competitiveness of non-

extractive sectors in Kazakhstan. In order to support the cluster policy the government decided to create main three holdings, such as “Samuryk-Kazyna” (holding for management of state assets and sustainable development), “Samgau” (national scientific and technological holding) and KazAgro (holding for support and development of agricultural sector). One of the main functions of the holdings is to target investment into priority sectors and infrastructure.

In order to conduct research for cluster development in Kazakhstan, the government attracted the American consulting company J.E. Austin Associates Inc. The main consultant for the project was Michael Porter. According to the results of research the seven pilot clusters were identified by the experts: “metallurgy”, “tourism”, “textile”, “oil and gas machinery”, “construction and building materials”, “transport and logistics” and “food processing industry”.

According to Porter’s view, cluster initiative succeeded only partially in Kazakhstan - facilitated visa regime, implemented some tax incentives. He believes that for successful implementation of the cluster initiative, the country does not have enough competency on information and analytical support for such a long-term project. Additionally, the lack of knowledge and leaders-facilitators who are ready not only to generate the idea of creating a cluster, but also to implement it in practice led to slow down of the policy implementation in Kazakhstan. Quick results while creating a cluster is impossible. Everyone has to learn: authorities, business and science (Turgenbayeva, 2008).

In 2009, Kazakhstan’s economy began its development in conditions of increasing negative impact of the global economic crisis, the low level of world prices for resources, which led to the reduction in business activity and decline in production sectors of the country. Through the implementation of anti-crisis measures approved by the government, Kazakhstan could avoid recession in the national economy, and have a positive GDP growth of 1.2% in 2009 (see Figure 8).

One of those measures was “Road map 2009-2010” program in 2008. The main goal of the “roadmap” was to provide employment and to prevent significant growth of unemployment and to create conditions for sustainable post-crisis development. The state allocated 1.3 billion USD in 2009 and 1.01 billion USD in 2010 to the program’s implementation. The main results of the Roadmap were: creation of 392,000 new jobs, training and retraining of about 150,000 people (half were employed). Within the program there were also 192,000 people employed on social jobs and jobs in the field of youth practice. The unemployment rate decreased from 6.6% in 2009 to 5.8% in 2010 (Ministry of Healthcare and social development of Kazakhstan, 2011a). Based on the success of the program, Kazakhstan decided to adopt a new program so-called “Employment 2020”. The goal is to increase incomes by promoting sustainable and productive employment. Under the program the following directions are defined: training and employment assistance, promotion of entrepreneurship in rural areas and increase of labor mobility. It had been planned to spend 667 million USD each year from 2012 up to 2015 on program



implementation 2015 (Ministry of Healthcare and social development of Kazakhstan, 2011b).

Since 2007 Kazakhstan has been able to attract large FDI inflows. As a result, in the year 2010 the share of FDI was 12% of GDP. The most FDI inflows have been directed mainly to resource-based activities, including geological exploration and research (46.5%), mining industry (28.3%). However, only 10.6% of FDI inflows were directed to the manufacturing and 7.2% to trade sectors and others for construction and financial-insurance services (see Figure 13).

In general, the second stage can be summarized as a “learning by doing” period for the country. Many programs and strategies were adopted and implemented by the government to diversify the national economy. However, it is crucial to say that most of the state program’s goals were not achieved. The failure of the cluster policy in Kazakhstan can be a good example of it.

### **3.3.3 Industrial-innovative development until 2030**

The third period has had its own challenges for the government to start new industrialization processes until 2030. The main issues were the following:

- First of all, financial crisis has begun in 2008. No one wanted to think about new plans. Many large businesses declared “investment holidays”. Therefore, the government had to develop methods to support businesses in the country;
- Secondly, the country had problems with infrastructure, mainly energy supply of the Southern regions, transport and logistics problems. In the same time, most of special economic zones (hereinafter: SEZ) existed only on paper until 2009. Those were obstacles for the government to attract FDI;
- Thirdly, Kazakhstan still has a lack of skilled and well-educated engineers and project managers;
- Finally, during 2006-2008 business was not interested in investing in real production. Investments in construction or trade paid off faster. In order to create a new plant, it was necessary to get a lot of permits, to build infrastructure, to find experts and the bank who would be willing to lend. As a matter of fact, the economic model of that period didn’t encourage investment in real production.

The third phase of industrial policy was a landmark, primarily, with the adaptation of the new state program till 2030. The program “Forced industrial-innovative development” was adopted by the government in 2010 and considers the main four stage of development by the five-year implementation of the subprograms. In this chapter we will analyze the first five-year implementation of the program from 2010 till 2014. The goal of the program 2010-2014 is to guarantee stable and well-balanced economic growth by means of diversification and improvement of its competitiveness. By 2014 Kazakhstan should achieve the following key indicators (Akorda, 2015):

- GDP growth in real terms in 2014 - not less than 38.4% compared to 2008;
- Increase of non-primary export share in the total export volume to the level of no less than 39.5 %;
- Increase of manufacturing industry share in the structure of GDP to the level of no less than 12.5 %;
- Growth of labour productivity in manufacturing industry by no less than 1.5 times.

In order to achieve the main goal of the strategy, the government has developed several supportive state programs that will lead the country towards being “green”. The state programs are: “Program on Investment Attraction, Development of Special Economic Zones and Export Promotion for 2010-2014”, “Business Road Map 2020”, “Agribusiness 2020”, “Transport infrastructure development for 2010-2014” and “Export 2020”.

At this stage, it is important to say that Kazakhstan decided to further develop its industrial sector (oil and gas, metallurgy, mining and etc.) and infrastructure around the sectors in accordance with environmental and international standards. Based on earnings from natural resources the state is planning to support intensive diversification of the national economy and the development of science and innovative technologies in Kazakhstan.

In 2010 the government adopted the new state program so-called “Program on Investment Attraction, Development of Special Economic Zones and Export Promotion for 2010-2014”. The main purpose of the program is to create a favorable environment for FDI in non-resource export-oriented and high-tech industries and integrate into the global trade system by means of promoting exports of processed goods. As part of the program ten special economic zones were created in 2011 across the country. Each zone has benefits such as a “free tax” zone, a simplified procedure for the recruitment of foreign labour and rent free land for up to ten years. By the end of 2012, nine foreign companies, including those listed in Global-2000, were attracted to the SEZ (Ministry of industry and new technologies, 2012) (Table 19). Global – 2000 is a ranking of the leading companies over the world by Forbes, based on sales, profit, assets and market value (Forbes, 2015).

Table 19. Preliminary results of SEZ in Kazakhstan

	2010	2011	2012	2013
Number of attracting the target investors from the list of Global-2000	2	6	9	4
Export of goods from the territory of SEZ, million USD	99.06	15.3	52.8	46.2

Source: Statistic Agency of Kazakhstan, 2014; own calculations.

At the same time, the government decided to implement a new tax regulation and adopted a system of the maximum reduction in the overall tax burden (corporate income tax) for the non-oil sectors of the economy during 2009-2011. The reduction was done in the

following way: from 30 down to 20 percent in 2009, from 20 percent down to 17.5 percent in 2010 and from 17.5 down to 15 percent in 2011. VAT has been 12 percent since 2009 (Parliament of Kazakhstan, 2009).

By implementing programs and measures to simplify business registration and ownership, investor protection and taxation, it became much easier to do business in the country. As a result Kazakhstan was able to improve its position in the “Ease of Doing Business” rank in 2012 and placed on 47th position out of 189 economies in the world (63rd position in 2010) (Ministry of economy and budget planning, 2012a).

In order to support and develop small and medium enterprises, Kazakhstan decided to implement the special program called “Business Road Map 2020”. The goal is to ensure sustainable and balanced growth of regional business in non-resource sectors of the economy, as well as the preservation of existing and creation of new permanent jobs. The program considers the following as an aid for business: subsidizing interests rate and guarantees on the loans for small and medium enterprises (hereinafter: SMEs); business learning; service support for the SMEs; consulting services for start-ups; developing special web-platforms for the business communities, namely “Business.gov” and “Istartup” business platforms. Table 20 demonstrates the amount of loans granted and changes of the SME’s share in GDP before and after implementation of the program.

Table 20. Supporting SMEs in Kazakhstan

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Number of loans	366	1414	2156	2770	2767	2045	2044	2218	2268
Amount of loans granted, million USD	-	-	-	886	768	939	986	1289	1069
Share of SMEs in GDP, %	10.5	9.8	10.7	16.7	17.7	20.6	17.5	17.3	16.9

Source: Statistic Agency of Kazakhstan, 2014; own calculations.

Additionally, from October 1st, 2014, the government intends to conduct tax amnesty on fines and penalties for SMEs. The value of the upcoming tax amnesty in Kazakhstan is estimated at about 1.08 billion USD, penalties and interest will be written off to small and medium-sized businesses, as well as individual entrepreneurs (News Kazakhstan, 2014).

One of the main tools being utilised in the process of diversifying the economy of Kazakhstan is to develop its agriculture sector. Therefore Kazakh government declared a program of “Agribusiness 2020” in 2012. The goal is to create conditions for improving the competitiveness of the subjects of agriculture in the Republic of Kazakhstan. Total expenditure, provided from the national and local budgets for the implementation of the

program in 2013–2020, is 17.5 billion USD. The program is being implemented in two periods: (1) 2013-2015 and (2) 2016-2020 (Ministry of Agriculture, 2013).

By 2010 the government also decided to adopt a state program named “Transport infrastructure development for 2010-2014”. The purpose of the program is to develop transport and communication complex, that will have the ability to fully meet the needs of the economy and build new trade new corridors through Iran to the Persian Gulf and from China to Asia-Pacific regions and further. Within the program by 2013, the total sum spent was around 2.8 billion USD, including road infrastructure - 3.1 million USD, railways - 2.7 billion USD, civil aviation - 121 million USD and water transport - 51 million USD (Ministry of transportation and communication, 2013). During the period several crucial transport infrastructure projects were completed in Kazakhstan. By the end of 2012 a new railway crossroad “Altynkol-Khorgos” in direction to China and in 2014 new railways “Zhezkasgan-Beineu” in direction to Iran were opened and commissioned. Following the program’s implementation the volume of the goods transportation by vehicles increased from 1.9 billion tons in 2010 to 2.7 billion tons in 2012. The volume of goods transportation by train also went up from 267.9 million tons to 297.8 million tons in 2010 and 2012 respectively (Statistic Agency of Kazakhstan, 2013). By 2020 the government plans to spend an additional 29 billion USD on transport infrastructure development (Ministry of transportation and communication, 2014).

In order to support domestic producers in exporting products to foreign markets through cost recovery and contribute to learning, Kazakhstan decided to adopt the state program “Export 2020” in 2010. More than 56.5 million USD has been allocated up to 2012. As the first result, in 2010 the reimbursed costs for 43 domestic exporters amounted to 960,000 USD. Stimulated exports amounted to 292.6 million USD in 24 countries (Ministry of Industry and new technologies, 2011).

To ensure diversification of economic development, it was decided to focus on the implementation of clusters, plants with high technological redistribution, as well as the creation of new industries. Kazakhstan decided to adopt the program of technological development of the country until 2015, and development of science for the period of 2007-2012. By late 2008, there were already six regional industrial parks in operation, 12 technological business incubators and service-technology centres (Akorda, 2015).

Additionally this period can be characterized by Kazakhstan joining a Customs Union. In 2010, Kazakhstan entered the customs union with Belarus and Russia. In the same year a common external tariff was adopted, however each Member States was allowed to have exceptions. The customs union plans to gradually eliminate the exceptions by 2015. Tariff rates of Kazakhstan grew from an unweighted average 6.7 percent to 11.1 percent (and from 5.3 percent to 9.5 percent weighted by trade volume) (World Bank, 2012).

By the end of 2014, Kazakhstan was able to achieve the main goals of the strategy “Kazakhstan-2030”. Therefore, the President of Kazakhstan declared a new strategy for the

nation until 2050. “Strategy-2050” follows mainly all previous state programs adopted in Kazakhstan. However, in the same time it brings a new challenge for the nation to become a country with a “green economy”. It considers a shift in industrial policy toward new energy, energy efficiency, clean-energy vehicles, high-tech materials, bio-technology, and information technology. This transformation demands the development of R&D and innovative technologies (Ministry of economy and budget planning, 2012b).

The third period of industrial policy is being implemented and will last till 2030. Based on the interim results, it can be observed that there has been a slight increase in economic growth. Table 21 presents only the main results of achievements targeted by the government till 2013.

Table 21. The results of the first five-year programs implementation 2010-2013

Goals	Target	2008	2009	2010	2011	2012	<b>2013</b>
GDP growth in real term, %	Not less than 38.4% compared to the level of 2008	100	101.2	108.6	116.7	122.5	<b>129.9</b>
Increase of non-primary export share, %	Not less than 39.5% compared to the level of 2008	100	98.1	105.4	113.9	123.4	<b>130.4</b>
Increase the share of manufacturing in the share of GDP, %	Not less than 12.5% in 2014	11.8	10.9	11.3	11.4	11.3	<b>10.9</b>
Growth of labor productivity in manufacturing industry, thousand USD	Not less than 1.5 times compared to the level of 2008	37.3	29.4	41.0	52.7	61.8	<b>57.0</b>

Source: Statistic Agency of Kazakhstan, 2014; own calculations.

As it can be seen from Table 21, most of the goals targeted by the government were not achieved by the end of 2013. However, we presented here only indicators till 2013. The targets should be achieved until 2014. Nevertheless, it can be summarized that Kazakhstan was able to have positive GDP growth despite the crisis of 2008-2009. Moreover the government had already achieved growth of labor productivity in manufacturing sector already by the end of 2013. In spite of this, the share of manufacturing industry in GDP remains less than it was planned by the state. Additionally, due to the implementation of

the programs, Kazakhstan was also able to decrease the unemployment rate in the country from 5.8 percent in 2010 up to 5.2 percent in 2013 (see Figure 11).

To sum up, as a minister of “Ministry of investments and development of the Republic of Kazakhstan” Issekeshov A.O. said in his interview for Forbes: “The main lesson that we have learnt from the first five-year programs implementation is the importance of knowledge and human capital. It turned out that it is not enough just to grant business and give them preferences. They also need knowledge. It should also be done by the state as it was in Korea and Singapore. How did we use to work with the experts? We decided to develop cluster policy and attracted 15 foreign experts for it. They came to Kazakhstan and conducted some research and left us. No one knew what to do then with those research results. There must be an institution that would deal with all of these methodologically on an ongoing basis in the country. Therefore we have established Kazakhstan Industry Development Institute (hereinafter: KIDI) and brought together all experts in the field of engineering, technology, economic planning and modeling, statistics. Now we do not just hire international consulting company for programs development, but it is a must that our specialists sit next to each foreign expert to learn how to do that. Nowadays KIDI consults businesses on modernization and productivity, provides information about markets and niches. But most importantly, as it was in Singapore and Korea, now we have “coordination and methodological center” which is independent of the change of government. As for human capital, we still have a lack of high-qualified specialists for our industrialization periods. In order to solve this problem, we along with Ministry of education and science” has decided to choose 10 universities and 11 colleges. We will finance them to prepare high-qualified specialists in cooperation with foreign universities-partners” (Bukeeva, 2015).

### **3.4 Evaluation of industrial policy in Kazakhstan**

Over the past decade, the country was able to stabilize the main macro indicators, strengthen public management and business climate, and allocate resources for diversification of the economy to sustain growth. Kazakhstan has grown rapidly since 2000. GDP growth averaged ten percent and average real income more than doubled. GDP per capita rose from 5982 USD in 2000 to 13,171 USD in 2013 and poverty incidence fell from 46.7 percent to 6.5 percent over the same period. The unemployment rate decreased from 11 percent in 2000 till 5.3 percent in 2012.

In order to achieve this, Kazakhstan had to pass through several stages of industrialization of the economy. As it was mentioned before, the country has been following mainly East Asian experiences in economic industrialization, especially Singapore and South Korea. It is worth mentioning that Kazakhstan didn’t just “copy-paste” the policies and strategies of the mentioned countries. Taking into consideration the differences in economy, culture, mentality, past history, geographical location, size of the country and other factors, Kazakh government has been trying to implement the policies in accordance with the realities and

conditions in Kazakhstan. Further on we will try to evaluate and show what was done different by the country in comparison with Singapore and South Korean experiences.

First of all, we have to see in which conditions different countries started industrialization. The most favourable conditions after declared independency belonged to Singapore compared to Kazakhstan and South Korea. Singapore was a former military base and transition point in the region. The industrialization processes started with favourable conditions such as developed infrastructure, well-educated and skilled labour force, communication infrastructure and convenient geographical location in Asia-Pacific region in general. If we look at Kazakhstan the situation was on the contrary. During the Soviet Union the government was not interested in developing any infrastructure in the republic. Kazakhstan was considered only as raw materials appendage of the USSR. That is why across the country there were only factories that dealt with extraction natural resources and sent to Russia for processing. In a nutshell, Kazakhstan was not able and specialized in processing, producing and manufacturing. Most well-educated specialists were representatives of different Slavic nationalities, except Kazakhs. Therefore in the early years of independency Kazakhstan had to face an economic downturn, due to the collapse of Soviet trade linkages, emigration of its high-skilled labour force, disruptions and adjustments in production networks. Based on these facts, the country needed quite a long time (till the beginning of 2000) to recover the losses and built a strong base for industrialization of the economy.

Secondly, the manufacturing sector was the core of industrialization processes in Singapore and South Korea from the beginning. It can be easily explained by the lack of natural resources in those countries. Developing the manufacturing sector gave East Asian countries a huge push to rapid growth and diversification of the economy. In the case of Kazakhstan industrial policy was facing an uphill battle with Dutch disease. Having huge reserves of natural resources, the country was less interested in developing other sectors that could generate spillovers to the rest of the economy.

Thirdly, the industrialization of the economy in Singapore and South Korea can be characterized by a high reliance on FDI and high savings in their countries. Since the early 1970's they had already started to attract foreign direct investments with the creation of favourable conditions for investors, tax holidays and other concessions to improve the business climate in the country. Most FDI was directed to manufacturing, high-tech and chemistry industries. As for Kazakhstan in the field of foreign direct investment, most FDI was concentrated in the extractive industry which led to a decline in activity in the field of innovation and R&D in the country. There was also limited evidence of significant spillover effects, including knowledge transfer, training in new technologies or formation of start-ups linked to this foreign activity. It is worth mentioning that since 2010 Kazakhstan has changed its policy regarding FDI and started to attract FDI to the field of non-extractive sectors of the economy (creating free economic zones).

Fourthly, till 2010 the Kazakh government had been acquiring and importing new technologies from abroad to the country without any contribution to learning. Foreign companies had the opportunity just to enter the market with own technologies, raw materials and specialists, which did not consider the development of learning among local employees. In the case of East Asian countries, since the beginning the main engine of growth was the accumulation human capital, especially in the form of learning-by-doing on the job.

Fifthly, since 2000 Kazakhstan has been passing the phases of implementation of “import-substitution” and later on “export-oriented” approaches as was done by Singapore and South Korea during their industrialization of the economy. In this stage we can clearly see the role of government or to be more precise “government intervention” in all three countries. As also happened in East Asian countries, Kazakhstan also protected some sectors of the economy, especially food and light industries.

Finally, we would like to emphasize the main disadvantages of the Kazakh industrial policies that were implemented during its economic development. The most important is corruption and rent-seeking in Kazakhstan which can be considered a major obstacle of industrialization processes in the republic. The next crucial issue is the lack of good public-private-partnership and collaboration of different sectors between each other in Kazakhstan. If we take a look at East Asian countries experiences, we can see that the partnership at different levels was a good engine for development of the national economy. Last but not least, Kazakhstan has been paying less its attention to R&D and cooperation between business and educational institutes. It is time to rethink such approaches and follow the way of the developed economies in the world, who are indeed switching to the knowledge-based economy.

## **CONCLUSION**

Developing countries operate today in a global policy environment that is much different than the one two or three decades ago. At present, industrial policy-developers have to understand that the old economic concepts based on the idea of efficient resource accumulation will not work anymore and moreover it can end up with the failure. As one of the main resources of the growth that they have to consider is knowledge and human capitals that have already exceeded the traditional assets as the dominant engines of industrialization. From one side, innovation that has its impact on industrial growth is interested in effective and efficient usage of technical, scientific, managerial and organizational assets. From another hand, industrial policy implemented by the state has to not only focus on productivity and efficiency of firms but also stimulate them to invest in innovation. Both of the mentioned aspects are significant for economic growth and innovation-driven economy development. Thus, it becomes clearer why during implementation the policies developed countries try to emphasize the strategic role of



innovation as a great tool to generate new ideas so that result with successful stories during their industrialization processes (Goh, 2005).

Despite the positive trend in the country, it can be concluded that the main goal to reduce dependency on natural resources and diversify the national economy have still not been achieved. This raises questions about the effectiveness of the industrial policies that were implemented in Kazakhstan. Due to the failure of most policies, the Kazakh government has decided to rethink the IP and declared a new strategy until 2050. The strategy aims at becoming a top 30 developed country in the world. In order to achieve that, the government is planning to shift existing industrial policy towards a new one in the field of energy efficiency, clean-energy vehicles, high-tech materials, bio-technology, and information technology.

Based on the evaluation that was done for Kazakhstan, we can recommend considering the following points during the implementation of the new IP in the country.

First of all, Kazakhstan has to start considering dependency on natural resources as an advantage. Further developing extractive industry will force large companies to bring innovation, knowledge and skills with the cooperation with foreign companies in this field. In this step the government's role is not to repeat the same mistakes – just “copy-paste”. It should contribute to learning by giving opportunities to local scientific institutions, supportive sectors to take participation in developing new technologies for mining industries (for instance, in the field of deep exploratory drilling for oil and gas).

Secondly, the government should continue its policy of “domestic-content” for the local and foreign companies who work on the territory of the Republic. We believe that this approach will motivate local producers and scientific institutes (R&D, innovation parks and etc.) to generate new knowledge, technologies which should have spillovers to the rest of the economy.

Thirdly, the learning benefits of FDI associated with resource extraction are likely to be much less than those attracted to the manufacturing sector. That is why Kazakhstan has to start to actively develop and attract FDI to the manufacturing sector of the economy.

Fourthly, the country has already had excellent experiences in training and retraining employees during the crisis of 2008. The Kazakh government should continue its work in this field and also develop a policy on compulsory employment and training the local labour force for not only domestic, but also foreign companies on the territory of Kazakhstan.

Fifthly, Kazakhstan must eradicate corruption and rent-seeking on all levels of governance which are the main obstacles to economic development. Also, the government has to take into consideration the successful experiences of East Asian countries in establishing good relationships between public and private sectors as well as among different industries. This will help to remove the issues such as the lack of information for businesses.

Last but not least, industrial policy implemented by the government for the last decade was in some extent waste of time and financial sources. Most of the policies were not professionally designed and the process of implementation was poor. The government could not provide the well-structured monitoring and evaluation systems while implementing various strategies and programs within industrialization. These and many other factors have turned the industrialization processes in Kazakhstan into nothing more than good intentions. That is why our recommendation is that, while implementing the new IP, the government should be aware of the importance of human resources and intellectual capitals in Kazakhstan. As it was shown with Singapore and South Korean experiences, the main engines of their industrialization processes were well-educated and high-skilled specialists, good management and proper evaluation of each implemented state policies.

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