

CZECH UNIVERSITY OF LIFE SCIENCES

PRAGUE

Faculty of Economics and Management

Department of Economics



Diploma Thesis

Comparison of Economic Growth in Kazakhstan

on region level

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CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

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DIPLOMA THESIS ASSIGNMENT

Salima Azanbayeva

Economics and Management

Thesis title

Comparison of economic growth in Kazakhstan on region level

Objectives of thesis

To analyze the development of the regions of Kazakhstan. Evaluate the impact of the global economic crisis on the economic position of the regions of Kazakhstan. Predict the future development of regional economy.

Methodology

Literature review will be conducted using methods of synthesis, induction, deduction and extraction. Analytical section will be done using qualitative and quantitative methods such as regression analysis.

The proposed extent of the thesis

40-70

Keywords

Kazakhstan, regional development, gini coefficient, income disparity, macroeconomic analyze

Recommended information sources

J.F. Thisse "Geographical Economics: A Historical Perspective"//Louvain Economic Review 77 (2-3) (2011)

P.P. Combes, T.Mayer, J.F. Thisse "Economic Geography: The Integration of Regions and Nations"//
Princeton University Press (2008)

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DECLARATION

I hereby declare that I have written this diploma thesis “Comparison of economic growth in Kazakhstan on region level” by myself with help of the literatures listed in reference.

Praha, 27 November, 2015
Salima Azanbayeva

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Especially thank my parents for their support, love.

SUMMARY

The main aim of this diploma thesis is to explain differences of economic growth of regions in Kazakhstan. Also, to explain division of regions into several clusters. The theoretical foundations of economic growth were analyzed. Cluster analysis of Kazakhstan's regions was realized according to a set of factors of economic growth. Following results proposed a classification of regions. GRP of regions were evaluated with panel data regression analysis. Main conclusions are: regions with oil reserves have advantage over other regions, and GRP does not depend on the size of region.

Key words: panel data analysis, cluster analysis, economic growth of regions, generalized least square method, Kazakhstan, regional development.

SOUHRN

Hlavním cílem této diplomové práce je vysvětlit rozdíly hospodářského růstu regionů v Kazachstánu. Také vysvětlit rozdělení regionů do několika klastrů. Byly analyzovány teoretické základy hospodářského růstu. Cluster analýza Kazachstánu regionů, byla realizována podle souboru faktorů ekonomického růstu. Následující výsledky navrhl klasifikaci regionů. GRP regionů bylo hodnoceno panel data regresní analýzou. Hlavní závěry jsou: regiony s ropy mají výhodu oproti jiným regiony, a GRP nezávisí na velikosti oblasti.

Klíčová slova: panel data analýza, shluková analýza, hospodářský růst regionů, zobecněná metoda nejmenších čtverců, Kazachstán, regionální rozvoji.

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1. INTRODUCTION

During several years, since 1999, the Kazakhstan's economy has experienced rapid growth, the beginning of which was to initiate a process of import substitution in the domestic market after the 1998 crisis. Subsequently, the rise was supported by a favorable external environment and the unfolding recovery growth after a deep transformational recession. In the past 2 years an increasingly important role in GDP growth fulfills the expansion of domestic demand for the whole range of products. If at the macro level the major factors of economic growth is more or less obvious and, to some extent studied, the analysis of the processes at the level of individual regions of the Republic of Kazakhstan is virtually nonexistent. However, it is clear that both at the stage of the transformational recession, and in times of economic growth dynamics of the main indicators characterizing the regional economy is very heterogeneous. This creates a strong differentiation of subjects of the Republic of Kazakhstan in terms of prosperity and potential of economic development, which is enhanced because of the differences in the natural and climatic conditions, the uneven distribution of minerals, etc.

The topic chosen for the study since economic growth is one of the most important characteristics of the economic life of any country. It is known that the economy is growing cyclically, that is, the economic downturn is always followed by an upturn. Therefore, it is important to understand the nature and causes of economic growth, in order to better understand the economics of the country and the economy as a whole.

The aim of this study is to analyze the factors that determine the differences in the degree and pace of economic development of the regions of Kazakhstan; and explain differences of economic growth of regions.

The work has the following structure. The first part provides an overview of the basic concepts of economic growth and regional growth theories. The second part consists of a brief description of the regional economies, cluster analysis of regions. It was also gathered statistical base information for preparation of model. Analysis of the model was carried out using panel data analysis.

Conclusions and recommendations are given in the conclusion.

1. OBJECTIVES AND METHODOLOGY

2.1. The main aim of this paper is to compare economic growth in Kazakhstan on region level. Analyze similarities and differences of regional growth. Identify main reasons for success of certain regions. Classify regions according cluster approach, and explain such classification.

2.2. Research Questions:

1. Is GRP of regions with oil reserves higher, than GRP of regions without oil reserves?
2. How many clusters are in Kazakhstan?

2.3. Methodology

The paper consists of two main parts: theoretical and practical parts. Literature review performed using methods of synthesis, induction, deduction and extraction. Analyzing basic theories makes the theoretical part. Strengths and weaknesses of each theory were identified.

Analytical part is made using quantitative and qualitative methods. Practical part is divided in three sections. First section contains a brief description of each region on the basis of statistical data. Second section contains the description of the cluster analysis of regions. And third, contains panel data analysis with cross section regression.

All calculations are made with use of data from Statistical Office of Republic of Kazakhstan.

3. LITERATURE REVIEW

3.1. Main definitions

Economic growth is the output of the economy beyond the pre-existing production capacity, its transition to a new, higher level. Economic growth has a cyclical component of economic development. Modern economic growth is a development in which the long-term sustainable growth in production exceeds the rate of population growth.

Economic growth is manifested in the increase in real GDP for a certain period of time (or increase in real GDP per capita). On the basis of any of these symptoms, economic growth measured by annual growth rates (Bedriy and Kovaleva, 2013).

There are two types of growth:

The first - is *the extensive growth*, which is exclusively due to an increase in quantitative factors such as labor and natural resources, the capital. As a result, the efficiency of the economy, as expressed in particular in labor productivity, capital productivity remained at the same level.

The second type is called *intensive growth*. It occurs when GDP growth is outstripping the growth of labor use, natural resources, capital, and takes place on the basis of new knowledge and entrepreneurship. Thus, new knowledge can create a more efficient use of other resources, technology and entrepreneurship allows to actively implement these technologies into practice.

In real life, the extensive and intensive growth types exist separately in pure form, and are combined with each other in a specific combination. Therefore differ mainly or predominantly intensive extensive types of growth depending on the predominance of one over the other (Bedriy and Kovaleva, 2013).

Factors of economic growth. Analysis of the factors of economic growth, their decomposition into components and the impact on economic growth is actively engaged in American economists: Nobel Prize winner Robert Solow, John Kendrick, Edward Denison. Their conclusions about the leading role of science and technology in economic growth were similar.

In particular, E. Denison developed a classification of the factors of economic growth, including 23 factors, of which 4 are to work, 4 - to the capital, 1 - to the land, the remaining 14 characterize the contribution of scientific and technological progress. According to him, economic growth is determined not so much by the amount spent by the factors of production, as an increase in their quality, especially the quality of the workforce. After analyzing the sources of economic growth in the US in 1929-1982 years., E. Denison concluded that education - a determining factor of growth in output per worker.

An important economic resource is an enterprise (entrepreneurial skills). Thanks to him interact with other economic resources: labor, capital, land, knowledge. From the implementation of entrepreneurial capacity depends largely on economic growth and technological progress.

The well-known French economist XIX century. Jean-Baptiste Say the main function of business seen in the coordination of the factors of production: land, capital, human factor. The submission Yozsfa Schumpeter (1883-1950), an American scientist of Austrian origin, entrepreneurship emerges as innovation. Among the functions inherent in the business, he singled out, such as the establishment of the production of new goods, the application of new methods of production, development of new markets, development of new sources of raw materials, changes in industry structure, etc. According to him, the owner - a man economically realizing the invention (Bedriy and Kovaleva, 2013).

There are different classifications of growth factors. The most common and widely of them includes two groups of factors.

1. Factors determining the sources of economic growth, ie, factors that make economic growth is physically possible. These include:

- 1) the availability of natural resources in quantitative and qualitative aspects;
- 2) the number of labor resources and their quality status (education and qualification aspects);
- 3) the amount of fixed assets (capital) and their technical condition (worn, performance, reliability);
- 4) technology (its novelty, embeddable, changing its speed, efficiency, ROI).

2. Factors determining the extent to which the sources of economic growth, e.i. limit factors:

1) the completeness and effectiveness of the use of natural, industrial and human resources. The effective use of economic resources requires the optimal distribution between the spheres and sectors of the economy;

2) Effective and equitable distribution of resources and the growing volume of the growing volume of real products. Since the aggregate demand is determined by total expenditure, they should be increased to ensure full use of the increased resources;

3) institutional constraints and stimulating economic growth. These include the rule of law (labor protection, environmental protection, crime prevention, etc.), morals and traditions, labor disputes, discrimination, etc.

In general, economic growth can be represented as a result of the impact of generalized two factors together and individually. This is, firstly, the involvement of more resources and, secondly, a more efficient use. And while economic growth is presented as a result of the multiplication of labor costs for its performance.

Also, growth factors can be divided into three groups:

1) supply factors (natural resources, human resources, the volume of fixed capital, technology);

2) demand factors (level of total expenditure);

3) the distribution factors (efficient use of resources).

Investing act as the main regulator of economic growth. To expand the production is possible only in two ways: either an increase in the cost of factors of production, or improved technology.

In another version factors of economic growth are:

- quality and quantity of natural resources;
- quality and quantity of labor resources - productivity, education and training;
- the amount of equity capital;
- new technologies.

These factors contribute to the growth of the physical production, but also need to happen to use, or consumption increased GDP. Therefore, the growth also depends on the demand factors (increase in total costs) and distribution factors (the effective use of limited resources in various sectors).

Economic growth at the expense of investment in manufacturing. It should be noted an important feature of investments: at the time of its implementation they

increase aggregate demand, and in subsequent periods - the total supply, as it increases the amount of production capacity.

Economic growth is an important factor in technological progress, as it allows you to use existing resources more efficiently and improves productivity.

In addition to the quantitative assessment of the economic growth as the GDP growth rate needed its qualitative assessment. In recent years, there were serious doubts about the desirability of economic growth for the countries that have already achieved a high level of well-being.

Economic growth is usually measured with respect to the previous period (base year) or as a percentage or in absolute terms.

Economic growth is measured two ways. The choice depends on what the problem is analyzed, or for what purpose:

- 1) the increase in the real gross national product (GDP) and national income;
- 2) the growth of both per capita.

The reasons hindering economic growth (Bedriy and Kovaleva, 2013): resource and economic constraints, the social costs associated with the growth of production.

Economic growth itself, it is the pace, the quality depends not only on the capacity of the national economy, but also from external economic factors.

Arguments against the growth are as follows:

- Pollution. Virtually all that is involved in the production, eventually returns to the environment as waste, since the production process merely converts resources, but does not utilize them completely. Therefore, for countries with a high level of production there is a threat of ecological crisis.

- Economic growth does not solve all the problems. For example, the level of poverty in the country does not depend on the volume of production, and on existing mechanisms for the distribution of national income.

- No guarantees. Rapid economic growth is a threat to employment, because machines can displace people, depriving them of work and income.

- Neglect of human values. Economic growth means industrialization, mass production, which is not of a creative nature, and does not bring satisfaction to the employee.

On the other hand, there are strong arguments in favor of economic growth:

- Enhancement of Living Standards. With the growth of social choice goals becomes less acute. You can solve several problems at once - to modernize the army, help the poor, improve the education system, etc.

- growth problems and environmental pollution can be divided. Pollution is not the result of economic growth, and waste of resources. A large part of the natural resources (rivers, lakes, oceans and air) is regarded as common property and has no value. Therefore, these resources are extremely intense, which worsens their condition. Termination of economic growth will not solve the problem. In this case, the intervention of the state, which legally establishes environmental standards.

- The possibility of achieving social equality. Every society has its own ideas about quality of life, but always recognized that people should be provided with the minimum means of subsistence. In the case of the state of economic growth is easier to find the means to solve the problem of poverty; national income growth increases the welfare of the whole society.

- Non-economic reasons. Slowing or stopping the growth does not automatically provide a "good life." On the contrary, preservation existing economic relations will lead to the decline and degradation of society. Countries progressive type of development can not just go and stay in one place. On the other hand, it should be remembered that economic growth brings better working conditions, and allowing people to spend more time on education, meditation and self-realization.

The above pros and cons of economic growth show that in developed countries, there was a shift from extensive to intensive growth. Due to the worsening of environmental problems the idea of so-called "zero" growth. Its meaning lies precisely in the fact that you need not seek to expand the quantitative and qualitative - not to increase production volumes, but as fully meet the diverse needs of individuals and society in general.

In contrast to the developed countries to developing countries have yet to reach a certain standard of living, so important to them, and quantitative indicators. Advantages of these consists in the fact that they can consider errors and experience of the developed countries.

3.2. Theories of regional economic growth

3.2.1. Theories of new forms of territorial organization of production in regional growth

Globalization of the economy and increased competition between countries demanded study the main factors and mechanisms of development of a competitive and stable economic growth and welfare of countries (regions) in the international division of labor. In this connection, the attention of many economists and economic geographers was drawn to the theory of new forms of spatial organization of production - industrial and regional clusters, value added chain, economics education, national and regional systems of innovation. The latter are the main forms or mechanisms to increase the competitiveness and accelerate the economic development of countries and regions in the world economy.

All theories of new forms of territorial organization of production, geographically divided into three groups, or research schools: *American, British and Scandinavian*. Such grouping theory of competitiveness of countries and regions carried I.V.Pilipenko (Pilipenko 2005).

3.2.1.1. The American School

The American School of theories of new forms of organization of production. This school is represented in theoretical and applied research M.Porter, M.Enrayt, M.Storper, S.Rezenfeld, P.Maskell and M.Loretsen.

Porter's theory of industrial clusters. It is based on the following conclusions from Porter diamond theory (Porter, 1988): the conditions to create a competitive advantage of the region better when firms in a particular industry, geographically concentrated. A cluster of Porter is "a group of geographically adjacent interconnected companies and associated organizations operating in a particular area and characterized by common activities and complementary to each other"(Porter, 1988). Moreover, the cluster size can vary from one city to a number of the countries concerned.

Porter offers, not the artificial creation of clusters from the top, but in real life finding them and support from government agencies and research institutes. Identification of clusters must be implemented in three stages. The first step is to start the evaluation of the cluster of a large firm, and then by analyzing the value added

chain (Pilipenko, 2005), to identify all firms supplying intermediate services, providing service etc. The study identified both the horizontal and vertical chains linking different firms. On the second - it is necessary to identify the organizations providing firms cluster information and educational services, financial and scientific support. On the third - it is necessary to consider the government agencies that may have an impact on the development of the cluster (Pilipenko, 2005).

At the same time Porter argues that there is need to support the development of each and every cluster, because it is impossible to predict what the cluster will develop faster and some slower. Therefore, the policy of the government under which assistance is provided only to those clusters, which now has a high rate of development, in his opinion, is wrong (Porter, 1988).

Thus, Porter gives priority to increase the competitiveness and the economic development of industrial clusters as a new form of spatial organization of production. Indeed geographic proximity of cluster firms causes internal and external savings of firms through the use of common scientific and technological infrastructure, increasing competition among firms, the possibility of forming of temporary alliances for mutual increase the competitiveness of companies, industries, and hence the economy as a whole.

He also stressed that macroeconomic stability, which refers to political, social and legal framework conditions, only creates the potential for high competitiveness. However, it is not a sufficient condition. According to Porter, the ability to create a competitive advantage depends on improving the microeconomic capacity of the country and to strengthen the local competition between firms (Porter, 1988).

Porter also belongs the concept of the four stages of the development of nations (countries). According to the state it occurs four stages of development of competitiveness: 1) competition based on of production factors (the countries with a low per capita income); 2) competition based on investment (country with an average income per capita); 3) competition based on innovation (country with high living standards); 4) competition on the basis of wealth. During the first three stages of the country is experiencing economic growth, increases the competitiveness of the economy and welfare of the population, and its economy is moving from forms of development through the use of natural resources to an economy based on knowledge - the knowledge economy. The fourth stage of development slows down and recession begins in the country.

The key moments in the development of the countries are the stage of transition from one stage to another. It should be noted that the transition of the first to the second stage is performed more easily than in the second stage to the third. The countries that make the transition to the stage of a competition based on innovation, can be attributed, primarily, Finland and Ireland. Another important moment in the history of the country is the identification of the beginning of the country's transition to the fourth stage of development, which ends with the decline.

The high value of M.Porter's concept, is that with it the stage of development of a country or region determine as appropriate internal mechanisms to improve their competitiveness, i.e: it can be used in the development and implementation of its both national and regional policies for economic growth.

The theory of M.Enright's regional clusters. Enright's the objects of research were regional differences in competitiveness within the country and the geographical scope of competitive advantage. He made the assumption that competitive advantages are created not supranational or national level, but on regional level, where the main role played by the historical background of the development of regions, cultural diversity of business, production and education (Enright, 1992).

To confirm his thesis Enright conducted research in several industries, concentrated in different regions of the world - the chemical industry in Germany and Switzerland, the production of synthetic fibers in Japan, the production of ceramic tiles in Italy (Enright, 1992) and came to the conclusion about the existence of regional clusters.

Regional Cluster by Enright, is an industrial cluster, wherein a cluster member firms are in proximity to each other. Also, the regional cluster - a geographical agglomeration of firms operating in one or several related sectors of the economy (Enright, 1992).The regional cluster can involve: 1) industrial area of small and medium-sized enterprises; 2) the concentration of high-tech firms involved through the development and use of common production methods (technology); 3) production system with the former businesses of large TNCs and firms, "spin-off" from the parent companies as a result of the spin-off .

Based on the results of the study Enright concluded the formation of competitive advantage than national or supra-national levels, and at the regional. Regional clusters - are specific objects of the cluster policy. They need attention from the government agencies and the support of research organizations. The main

determinants of improving the development of regional clusters are the four sides of Porter diamond.

Analysis of theoretical and practical research of improvement of the competitiveness of countries and regions Porter and Enright shows that they have identified *three main factors-advantage to stimulate the development of industrial and regional clusters*:

1. *Increases productivity and efficiency*, because firms have easier access to suppliers, skilled labor force, information services and educational center. Given that firms located in the cluster in close proximity to each other, facilitated the coordination of joint actions and transactions between partner companies. Diffusion of innovations also accelerated in comparison with the dispersion-located firms. Moreover, it is possible to compare the effectiveness of functioning of the actual competing firms.

2. *Stimulated invention of innovation* due to the fact that firms have access to the most advanced information on the improvement of the production process, and educational and research centers generate new knowledge and are able to experimentally confirm or deny the accuracy of the new theories.

3. *Provides commercialization of knowledge and production*. It creates favorable conditions (availability of appropriate manpower, support relevant institutions and suppliers) to create new companies and the launch of new range of products.

Thus, Porter diamond is the driving force behind the development of clusters and regional and industrial cluster - a sectoral and spatial expression of the diamond.

Regional clusters of S.Rosenfeld, P.Maskell and M.Loretsen. S.Rozenfeld develops the theory of regional clusters, explores the links between firms and related other organizations perceiving them as an essential element of the cluster. According to it, a regional cluster - is not only geographically defined concentration of interdependent firms, "they must also have channels for the production of transactions, dialogue and communication between small and medium enterprises" (Rosenfeld, 1997). "Without the active channels even a critical mass of related companies is not a local production or social system, and therefore does not function as a cluster" (Rosenfeld, 1997). P.Maskell and M.Loretsen came to the conclusion that the organization of networking between firms on the basis of trust in the partner

is essential for the formation of competitive regional clusters and improving the competitiveness of each of its companies (Maskell and Lorentsen, 2003).

Scheme of the development of an "ideal" regional cluster. Experts of the European Commission have developed a scheme of 'ideal' regional cluster, by monitoring development of small and medium enterprises after analyzing the various types of clusters and through M.Storper's research (Storper, 1997).

It includes six stages(Rosenfeld, 1997): 1) the formation of pioneer firms based on local specific skills of production, the process of "spin-off"; 2) the creation of system of suppliers and specialized labor market; 3) the formation of new companies (often government) to support businesses; 4) attracting domestic and then foreign companies; highly skilled workforce as an incentive for the creation of new clusters of firms; 5) creation of implicit assets (knowledge) among firms that would stimulate the diffusion of innovation, information and knowledge; 6) possible period of decline of the cluster because the exhaustion of its innovative capacity and closed to outside innovation. Naturally, not all of the clusters pass all six stages of development, some steps could be dropped out, other steps may be completed in the future.

The theoretical elaboration of M.Storper - understanding of competition in terms of developed and developing countries. According to him, in order to maintain a high level of competition it is to need to produce not only products, which would cost less than the products of competing firms, but also products, which have differed more innovative characteristics. On this basis, competition is divided into two types (Storper, 1997): 1) strong competition between the qualitative and competitive firms; 2) weak competition among price-competitive firms. Hence Storper concludes in practice: as firms from developing countries have the advantage of weak competition, firms from developed countries should focus on strong competition, where the profits, certainly, are higher. Indeed, the selected types of competition play an important role in developing and implementing countries or regions economic development policies, but the implementation in pure form or that type of competition in one country or region is very difficult.

Thus, the main achievement of the American School of the theory of new forms of territorial organization of production is the recognition of the basic form of the spatial development of the economy of countries and regions of industrial and

regional clusters, realizing Porter diamond. This further development and validation of the theory of territorial concentration of production and spatial effects developed by economic geographers and economists throughout the XX century.

3.2.1.2. The British School

The British School of theories of new forms of territorial organization of production. The most famous of its representatives – G.Dunning, R.Kaplinski, K.Frimen, J.Humphrey and H.Schmitz .

OLI model of J.Dunning. The core of his research is the paradigm of the competitive position of the country in the flow of foreign direct investment (FDI) and an explanation of the changes taking place in this field over time (Dunning, 1981). Dunning analyzed FDI flows of US multinationals and their subsidiaries in eight other countries and came to the conclusion that the determining factors in streams of internationalized production and investment in foreign countries TNCs are three determinants:

1. The ownership advantages (O-advantage). The company of the country should have a net benefit of ownership (the higher the degree of development of advanced technologies and possession of implicit assets), which gives it the right to invest abroad. Otherwise it can be absorbed by the foreign company itself. Therefore, he proposes the creation of an environment that would stimulate the technological competitiveness of companies in the country - access to qualified human resources, technical staff and managers, institutions, conducting research and development and other. Countries, developing these technological advantages, he calls the "entrepreneurial" competitive;

2. The localization advantages (L-advantage) - the existence of comparative advantages in the countries in which the TNC is beneficial to start production, rather than leave all the production capacity in the country of residence. Countries in which the advantages of the location will be greater than the benefits of entrepreneurship, will have a greater FDI inflow than outflow of capital abroad. Consequently, there is a direct link between L-advantages and incoming FDI, and an inverse relationship between L-advantages and outward FDI; and a direct link between the benefits of ownership and outgoing FDI and inverse - between the benefits of ownership and incoming FDI. The difference between incoming and outgoing FDI equal to zero

would mean that the country does not have any advantage in any of the categories, or has the advantages of ownership and internationalization, which are balanced by the benefits of the location.

3. The benefits of internationalization (I-advantages) - factors that motivate companies to use these benefits by not giving out licenses for the production of other businesses. Dunning also develop appropriate indicators to measure each determinant.

OLI paradigm also explains the change in the position of the country in foreign direct investment flows. Predictions eclectic paradigm as follows: at any given moment, the larger the TNC of this country owns O-advantages in comparison with the TNC of other countries, the more internationalizes its advantages, and the more TNCs are using L-benefits from foreign sources, the more TNCs countries and countries generally prone to engaging in international production.

On the basis of empirical data Dunning identified four stages of development of the country in FDI flows and corresponding to each stage of the behavior of three determinants OLI paradigm (Dunning, 1993):

In *the first stage* of the company still can not invest abroad, as they have not yet developed the benefits of ownership. The country also does not attract investment from abroad due to poor infrastructure, poor communication, in other words, the absence of advantages of location.

In *the second stage* - foreign investment is start to flow into the country, due to the fact that the local market is at a favorable stage of development, ie, costs of foreign companies will reduce. It is possible to distinguish two different types of investments: 1) import-substituting FDI aimed at placing the country's companies focused on the domestic market, and 2) FDI aimed at the exploitation of local natural resources. Companies of this country still can not invest abroad as they do not yet have specific advantages of ownership, necessary to overcome the barrier of entering the foreign market.

In *the third stage*, the difference between incoming and outgoing investment begins to decline because of the increased export of capital by local firms. This is made possible by strengthening local ownership advantages compared to foreign multinationals. At the same time, specialization of the country begins at incoming FDI. This means that the country attracts foreign FDI only in certain sectors of the economy in which it's most significant location advantages.

On *the fourth stage* - the country turns into a net exporter of capital. The volume of incoming FDI less than the volume outgoing from the country FDI. This is facilitated by a strong ownership advantages and advantages of internationalization, which stimulate the TNC of this country to invest abroad. At the same time the country's position as a net exporter of investment does not mean the outflow of investments in other countries. On the other hand, the flow of incoming FDI may increase not only quantitatively but also qualitatively.

G. Dunning made important comments and additions to Porter's diamond. According to him, Porter did not consider the many factors affecting the competitiveness of the country - for example, a tendency towards entrepreneurship and the impact of FDI (Dunning, 1993). This Dunning said Porter right decision to leave the "state" out of diamond because it defines all the initial conditions of the game, which interact with each other four determinants of the diamond. However, TNCs also have an enormous impact on the state and their competitive position in the world economy. Thus, Dunning added another independent element Porter's diamond - the "activities of international business", which has the same with the "state" and "case" independence and at the same time affects the "state" and "case".

The concept cooperation of value added chain and cluster by J.Humphrey and H.Schmitz . The main idea of this concept is the concept of compound cluster - communication at the local level and the value added chain - at the global level, in explaining the process of increasing the competitiveness of countries and regions in the world economy. To determine the degree of interaction between clusters with a value added chain J.Humphrey and H.Schmitz replaced the concept of "improving the competitiveness of the economic agents» with more capacious concept of «upgrading» (Humphrey and Schmitz, 2002).

Based on empirical research and J.Humphrey and H.Schmitz identified four basic types of interactions in the value added chain (Humphrey and Schmitz, 2000), which have different effects on the competitiveness of individual producers and determine the different approaches to the optimization of the interaction between economic entities:

1. «*Arm's length*» *market relations* characterized by the fact that the buyer and the producer in the chain do not develop close ties. This occurs when a supplier has the ability to produce the goods that the buyer wants and wishes of the buyer can meet a large number of suppliers.

2. *With the network relations*, the company develop closer ties, based on information flows. Relations between firms are characterized by mutually beneficial, very often firms complement each other in the manufacturing process of the product.

3. *With a quasi hierarchical relationships* one firm acquires a significant control over the entire value added chain. Thereby they define the standards of products and production processes, and the control of the production of this type of product. In this case, the competitiveness of all firms in the chain depends on the competitiveness of a major company that solves all the issues of improving the production process.

4. *Hierarchical relationships* assume the occurrence of direct control of one major buyers company of manufacturing processes in the value added chain by buying companies producing intermediates.

Thus, the analysis of different types of upgrading shows that J. Humphrey and H. Schmitz identified three main possibilities to include clusters in the value added chain for upgrading their competitiveness:

1. The inclusion in a quasi-hierarchical chain that offers very good conditions for the improvement of the production process and the manufactured product;
2. Inclusion in the chain, a certain attitude, basic on the local market, which suggests a slower improvement in the production process and the manufactured product;
3. Inclusion in the network structure of the companies is the best solution to gradually improve the entire production process.

The concept of techno-economic paradigm by C. Freeman. According to this concept in every cycle of world economic development there is a techno-economic paradigm, which determines the position of one of the priority branches of industry in the global economy (Freeman and Perez, 1988). This paradigm includes a system of best practices knowledge, which is owned by the leading countries of the world economy. Each paradigm is going through a phase of development, prosperity and sunset, when it exhausts all the technological knowledge required for the further development of the world economy.

During the change of techno-economic paradigm shift in the world economy of the country, located on the lower level of development, receive window of opportunity to catch up with more developed countries in technological equipment and immediately move to a higher level of development (Freeman, 1992).

Change of techno-economic paradigm assumes:

- The emergence and rapid growth of new industries and services using new technology;
- Access to new production factors with lower production costs;
- The ability of adequate perception of changes by business communities, governments and society as a whole;
- Satisfying the most stringent environmental standards, taking into account their possible tightening in the future;
- Rapid dissemination of innovations in the world economy;
- Potential for adjustment and improvement of production processes in many backward industries.

The advantage of the concept of techno-economic paradigm is that it can tell the proper techniques for the improvement of the economy and the transition to a higher stage of development. Among the positive examples of the less developed countries were able to catch up with a group of highly developed countries, may be called Finland, which is done during the change of techno-economic paradigm in the 1980s.

From the analysis it is clear that the British School sees value added chains, which are constantly improved by TNK, relationship value added chains and local clusters. Its main object – is the position of the developing countries in strengthens the process of competition between countries. However, the basic concept of the British School can be applied in the context of developing countries and countries with economies in transition, as well as in some regions of the country.

3.2.1.3. The Scandinavian School

Scandinavian school of competitiveness. It consists of theory of learning economy and innovation system of the Danish scientists B.A.Lundvall and B. Johnson; and theory of regional innovation system of Norwegian researchers B.T. Asheim and A. Isaksen.

Theory of learning economy by B.A. Lundvall and B. Johnson. It claims that the invention of innovation and the generation of new knowledge is the only option for improving the competitiveness of the country and, particularly small country.

By studying the origin of innovation within the economy of a small country like Denmark, Lundvall concluded that innovation is not a discrete, but cumulative process. In other words, every day something new is created, new ideas accumulate in

greater invention. Here he appears in absentia scientific dispute with the concept of "creative destruction" J.Schumpeter, who claimed that the main driving force for progress is an entrepreneur, which periodically shakes the world with a new invention, destroying the old and creating the new system, more economically progressive. Lundvall argues that innovation is not only cumulative but ubiquitous process that in a small country all men are created innovation, and that innovation can not be separated one from the other, since they are built on each other. He introduced the concept of incremental innovation, and 4 types of technological progress (Lundvall, 1998): 1) stationary technology that can be used only in one place; 2) incremental innovation - is typical for small open economies, for example Denmark; 3) a radical innovation - is more common in large countries such as the United States, where the distance and a large population, despite the development of means of communication, is an obstacle to the rapid adaptation of innovation; 4) the technological revolution, which according to C. Freeman is accompanied by a change of techno-economic paradigm throughout the world economy (Freeman, 1992).

The second postulate Lundvall based on a high degree of consumer-producer relationships in a small country, on which there was a feeling of confidence to the opposite side, which in turn, facilitate the spread of innovation in society, small state. The constant exchange of views between the buyer and the seller helped generate incremental innovation.

In recognition of the possibility of achieving high competitiveness in a small country with incremental innovation Lundvall tribute to "learning" regarding it as the main process, essential to improve the competitiveness of small states. It introduces a special term "Learning economy" (Lundvall, 1998), which in the early 1990s was associated only with a small Scandinavian country, and now has become a recognized also in major European countries. "Learning" implies a continuous process of improving the skills and knowledge required to produce a better product. New knowledge can be acquired in the course of work, and in the course of study or vocational training.

Another Danish scientist B. Johnson says that besides the accumulation of knowledge in the course of learning to improve the economy of the country, process of forgetting is important as well. It should be understood as liberation from habits and loyalties of the population, which can slow down the process of increasing the competitiveness of the state, i.e., sometimes "creative destruction of knowledge - is

useless" (Lundvall and Johnson, 1994). In other words - it is the ability to quickly perceive the new, i.e. to be modernized.

Considers the modern processes in the small Scandinavian countries, Lundvall gives two definitions of "national systems of innovation" (NSI) - narrow and wide. NSI in the narrow sense - is the whole "system of organizations and institutions included in the search process and inventions, ie Research Institute, conducting research and development, technological institutes, universities and private enterprise division". NSI in the broadest sense includes "all aspects of the economic structure and institutional system that affect the process of searching and research - production systems, marketing systems, financial system, as well as all subsystems which functioning in the framework of the above systems".

The national system of innovation, by Lundvall, includes: the internal organization of firms; inter-company relations; government sector; the institutional conditions for the creation of the financial sector; the intensity of R&D and their organizations; national education systems and vocational training.

Considering the institutional system of small countries through the lens of research and learning processes, which are the main factors of technological changes and improvements of the NSI, B. Johnson built the institutional framework of the national innovation system. In this system, on the one hand, in the learning process interact employees of different companies, as well as the companies themselves that exchange information. On the other hand, the process of finding new knowledge is determined by the R & D sector, which is in the research laboratories of private companies, government research institutes and scientific departments of educational institutions. As part of the interaction of processes of learning and research, there is a generation of new innovations - both incremental and radical (Lundvall and Johnson, 1994).

As a result of the activities of the NSI, Danish scientists distinguish two types - the current operation and final operation of NSI. The current operation is a direct result of the activities of the NSI in the sense of the production of a new product, innovation and their diffusion. This includes indicators such as patents, new products in total sales, the share of "high tech" products in the production or trade. The final operation reflects the contribution of innovative processes in the basic variables such as growth and income, unemployment or employment, the balance of payments. It can also refer to such specific indicators operation NSI as standards for the protection of

the environment, working conditions of employees of enterprises, social security and others.

The theory of regional innovation system by B.T. Asheim and A. Isaksen. The authors examine industrial areas as a source of innovation. Analyzing the work of A. Marshall and F. Perroux, they came to the conclusion that there is considerable innovation potential of industrial areas for continuous innovation of the invention. But the main problem for the development of industrial areas of Norway, according to Asheim and Isaksen, is the almost complete absence of radical innovation in them, and the prevalence of incremental innovation. The latter can maintain the competitiveness of the area at a high level, but in the case of sudden change of techno-economic paradigm of internal resources may not be enough to generate radical innovation. As a result, the competitiveness of the region's economy may be questionable. In order to maintain the competitiveness of the economies of industrial areas in the era of the new techno-economic paradigm, they propose to implement *interactive innovation model* (Asheim and Isaksen, 1996).

After opening shortcomings of the linear model of innovation K. Smith that prevailed during the Fordist era of production and the positive aspects of the Lundvall's theory of "learning economy" Asheim and Isaksen came to the conclusion that the current model of innovation can be presented as an interactive innovation model, in which "knowledge is the main resource, and education - the main process" (Asheim and Isaksen, 1996). Thus, Asheim and Isaksen concluded on the need to develop competitive advantages of the region relying on the learning process in settling them in industrial areas (strong competition by M. Storper). Therefore, these areas are called regions of learning. A regional innovation system is considered as a basis for improving the competitiveness of the region.

The regional innovation system of Norwegian economic geographers distinguish the following its main parameters: a regional management structure, including the administrative system, the system of public and private institutions; regional specialization in the production of a specific range of products; the difference between the development of the center and periphery in the industrial and innovative structure of the region; the use of alternative - linear and interactive innovation model of development.

The main feature of regional innovation systems, Asheim and Isaksen believed combination of use of both local and regional, and exogenous knowledge. By

combining internal and external knowledge of industrial areas it is possible to generate not only additional, but radical innovations necessary to maintain high competitiveness. So the combination of local and global knowledge is a main characteristic of the region of study and innovation systems.

To highlight the different types of regions of learning Asheim and Isaksen conducted the study of specialization urban agglomerations of Norway as part of International division of labor. With the localization ratio and the absolute values of employment in the regions they identified 40 export-oriented agglomerations. Using the M.Porter's method they outlined several industrial districts (local clusters) of small and medium-sized enterprises, and investigated the innovation process therein. A result of research there was allocated three types of regional innovation systems by the ratio of internal and external knowledge (Asheim and Isaksen, 1996): geographically "embedded" regional innovation network; Regional network innovation system and model of exogenous development.

The first type - geographically, "embedded" regional innovation network, is characterized by a predominance of local knowledge over the external. This type coordinates the activities of local businesses based on local learning processes and is characterized by a weak interaction with external organizations that generate knowledge. Intraregional exchange of information stimulated by the geographical, social and cultural proximity of staff.

In regional innovation systems, of this type incremental innovations prevail over other types of innovation. Asheim and Isaksen identified four possibility to create incremental innovations: 1) through the interaction between manufacturing companies and firms-buyers; 2) through the exchange of information between employees; 3) by means of intra-diffusion of innovations; 4) through cooperation with local government organizations. This type of generating innovation is caused by a long history of formation of the district.

The second type is a regional network innovative system in which the company is closely linked to the regional characteristics of development, but at the same time they are focused largely on export products abroad. External knowledge are brought here by TNC affiliates in the cluster. Regional network innovation system, according Asheim and Isaksen, it is more or less perfect regional innovation system. It contains local firms, foreign affiliates, as well as supporting institutions that generate knowledge.

The third type of regional innovation system is significantly different from the first two and can be called "exogenous development model". Firstly, because a part of firms and institutions included in the international innovation system. Secondly, collaboration is based on a linear model of innovation, which is aimed at invention of radical innovation. In other words, the companies of industrial area are export-oriented, as suppliers of components or contract suppliers to final consumers, so called original product manufacturers (OEM - original equipment manufacturer).

So, for the competitive development of virtually any industry specialization in the region and sustainable improvement of living standards of the population is necessary to find the optimal ratio required local and ubiquitous knowledge within the developing industrial area of the region or regional-local cluster.

Model of innovative regional growth by A.E. Andersson and J. Mantsinen (Andersson and Mantsinen, 1981). The authors of this model used the theory of the creation and diffusion of knowledge in the study of the factors of regional development. They model the regions with the neoclassical production function, using both factors of production - capital value, savings accumulated value of knowledge, and space - availability of knowledge in the region and the distance between the regions. The model assumes that capital and knowledge grow in proportion to the propensity to save, and the distribution between investment in physical capital and R & D driven by the proportion of R & D in the overall capital accumulation.

In their model, Andersson and Mantsinen shown that in such a system there is a balance, for which the ratio of capital to knowledge is constantly. Analysis of the dynamics of the system shows that with a decrease of any distance in the growth rate for all regions will grow in balance. The assumption of increasing returns to scale, and in the presence of spatial frictions proposed model predicts that the deviation of the share of R & D in total capital above the equilibrium value could lead to the original short-term increase in regional income inequality.

Thus, the Scandinavian school of the theory of new forms of spatial organization of production is characterized by removing the reference to the role of scientific and educational institutions in the development of the learning process in the country and introduction of innovations in production. As well as state support and operation of companies to ensure a continuous learning process to improve their competitiveness. Scandinavian scientists belongs to the recognition of the important role of regional training in industrial areas and regional clusters as the main factors of polarization and

economic development of the country and regions. This scientific school also pays much attention to the local peculiarities of economic development and socio-cultural aspects of competitiveness. If in the middle of the 80s the concept of competitiveness of the Scandinavian school meet the needs of the economy and society of small countries, then at present adapting their development and are successfully used in various levels of development countries and regions of the world.

The main advantages of the theory of new forms of territorial organization of production in regional growth include:

1. Theoretical basis and practical evidence of possibilities for growth or development of the economy is not a single operation of firms, and in groups or clusters in the context of economic globalization and increased competition on world markets between countries and regions;
2. Allocation of industrial and regional clusters, based on the Porter's diamond theory and the four stages of economic development of nations (countries) of the American school, and also competitive forms of territorial organization of production based on a synthesis of economic and economic-geographical knowledge significantly increases the probability of their practical application;
3. Increasing the competitiveness of developing countries through the use of an eclectic OLI paradigm. The interaction of global value added chains with regional and local clusters. The concept of techno-economic paradigm in the cyclical development of the world economy of the British school, allowing the improvement of the competitive advantages of countries with economies in transition;
4. Special attention to the socio-economic characteristics of the competitiveness and the role of the national system of innovation, learning economy and training areas for the improvement of the competitive advantages of small countries of Scandinavian School is easily adaptable and has been successfully used in different levels of development and size of the world.

The main disadvantages of this theory are:

1. Inability to use Porter's diamond to the economy of developing countries or underdeveloped regions;
2. It is not possible to determine the degree of uneven economic development of the countries and regions with a view to convergence of their development, which is characteristic of all schools in the theory of competitiveness.

3.2.2. Other theories of regional growth.

The theory of the economic base (representative - W. Sombart). According to it economic development occurs due the basic sector of the economy, which is based on external demand. Therefore, the increase in regional exports leads to increased scale of production, income and employment in a base sector, and then it a multiplicatively broadcast to the entire economy of the region. The main weakness this theory is its groundlessness as a theory to explain economic development, especially in the long term. Furthermore, there are too much aggregated data. In practice, the effect of various basic industries sector at the regional economy can not be the same, depending on how close its relationship with non-basic sector. There are difficulties in determining the multiplier effect in the short and long term (Pilipenko, 2005).

Theory of export base. This theory denies the possibility of autonomous development due domestic investment and technological progress; ignores the existence of a connection between the degree of openness of the regional economy and the size of its domestic market and does not impart significance on the migration of people and capital (Sveals, 2006).

The staple theory of H. Innis and W.A. Mackintosh. In this theory, the main factors are the development of foreign investments in the production of export commodities and a stable external demand. In total this gives a positive dynamics of production and sales of export goods in the world markets. In turn, the inflow of export revenues allows us to develop the domestic economy of the region. The strength of the theory is its historical significance for the economic development of Canada, which focuses on the explanation of regional economic history. Weakness of staple theory is the flip side of its strong qualities - in its historical approach, it describes the development process, rather than explain it (Pilipenko, 2005).

Sector theory by A.Fisher, Colin Clark, J. Fourastié and others. In this theory, the basic concept include three aggregated categories of sectors - primary, secondary and tertiary. The main driving forces are two factors: the income elasticity of demand for the products of the tertiary sector and labor productivity in the primary and secondary sectors. The theory is described by the model of labor reallocation across sectors under the influence of these factors. Labour productivity growth in the economy leads

to higher income levels. With an increase in revenues, demand for the products of the tertiary sector of the economy begins to grow. At the same time, productivity in the primary and secondary sectors is growing faster than in a tertiary. These two trends led to the release of the labor force in the primary and secondary sectors and its absorption of the tertiary sector.

The main drawback of the theory derives from the division of the economy into primary, secondary and tertiary sectors, giving too generalized assessment and thereby limiting the possibility of its effective use in practice (Pilipenko, 2005)

The theory of flexible specialization (Ch F.Sabel, J. Zeitlin et al.). This theory investigates and evaluates the impact on the regional development of different modes of production (piece-production, batch production and Fordist production model, the practice of using outside experts, relations with suppliers), and processes of vertical integration and disintegration (Pilipenko, 2005).

The development is seen not just as a quantitative growth but also as a qualitative change in the structure of the industry and competitive advantages.

The main factor in this theory is the changing nature of demand, requires firms to be more mobile. Standardized mass production, focused on reducing production costs, is less and less viable. Since consumer tastes in industrialized countries are becoming more sophisticated, then international competition is growing. Companies are adapting to the new conditions through the introduction of flexible manufacturing technologies, building a flexible relationship with suppliers, the use of inter-company networks for information exchange and cooperative problem solving.

Among the strengths of the theory of flexible specialization – is that it focusing on its attention on the complex dynamics of production within the firm, between firms and other firms, between the company and employees.

The weakness of the theory is the reverse side of its strong qualities - focusing on specific microeconomic links often mean to underestimation of aggregated regional indicators.

The value of the above-mentioned theories of regional growth is the ability to solve them with the help of private and specific problems encountered in the process of regional economic growth, without the involvement of the general theories for the growth. A common weak point for them is the lack of consideration of all the major industrial and spatial factors in the study of regional growth. Table 1 provides a brief description of given theories.

Practical Part

4. Description of regions

The Republic of Kazakhstan is administratively divided into 14 regions and 2 cities of republican significance. In addition, there is the city of republican status of Baikonur, which is leased until 2050 and the Russian Federation for the period in a relationship with her endowed with the status corresponding to the city of federal importance of the Russian Federation.

Table 1. List of regions¹

| | Region | Area (sq.km.) | Population (on 1st January 2015) | GRP (mln. tenge) |
|----|------------------|---------------|----------------------------------|------------------|
| 1 | Akmola | 146 219 | 736 605 | 1 061 046,5 |
| 2 | Aktobe | 300 629 | 822 522 | 1 849 112,4 |
| 3 | Almaty | 223 911 | 1 922 107 | 1 824 019,6 |
| 4 | Atyrau | 118 631 | 581 473 | 4 023 388,3 |
| 5 | East Kazakhstan | 283 226 | 1 395 324 | 2 237 674,9 |
| 6 | Karaganda | 427 982 | 1 378 298 | 2 968 537,7 |
| 7 | Kostanay | 196 001 | 881 456 | 1 356 452,6 |
| 8 | Kyzylorda | 226 019 | 753 148 | 1 384 361,9 |
| 9 | Mangystau | 165 642 | 606 892 | 2 220 142,4 |
| 10 | North Kazakhstan | 97 993 | 571 759 | 807 000,8 |
| 11 | Pavlodar | 124 755 | 755 778 | 1 766 411,1 |
| 12 | South Kazakhstan | 117 249 | 2 899 404 | 2 362 404,7 |
| 13 | West Kazakhstan | 151 339 | 629 951 | 1 907 809,5 |
| 14 | Zhambyl | 144 264 | 1 098 740 | 988 288,1 |
| 15 | Almaty city | 682 | 1 642 334 | 8 018 256,8 |
| 16 | Astana city | 722 | 852 882 | 3 936 996,6 |
| | Total | 2 724 902 | 17 160 774 | |

¹ Calculated by the author based on data from the Statistics Agency of the Kazakhstan Republic

Akmola region

1) Geographic location: Akmola region is located in Northern Kazakhstan. In the center of the region is the capital of Kazakhstan, Astana, which is not included in the administrative area.

The region is bordered on the west by the Kostanay region; in the north - with North Kazakhstan region; in the east - with Pavlodar region and in the south - the Karaganda region. The area is located close to the developed regions of Russia, such as Tyumen, Tomsk, Omsk and Novosibirsk regions, with which it has long-established economic ties.

2) Industry: Akmola region - is a major industrial center of the Republic of Kazakhstan. “Tselinny opytny”, “Agroremont”, “Agrokomplect-montazh”, “Komsomolskiy remontno-mechanicheskiy” plants are specializing in the production of agricultural machinery and equipment for cattle and poultry breeding. JSB “Porshekomplect”, AO “Birlik” and “Agroremmash” plant are producing spare parts and accessories for cars. JSC “Zavod gornogo oborudovaniya” specializes in the manufacture of mining equipment. “Kokshetau” factory for the manufacture of non-standard equipment produces equipment for the steel industry. Instrument engineering is represented by “Kokshetauskiy priborostroitelny zavod “. JSC “Tynys” produces: pumps and boiler equipment, fire extinguishers, counters, oxygen-breathing equipment. JSC “Biopreparat”, producing microbial products, feed additives operates in Stepnogorsk.

3) Agriculture: This sector - one of the main industries in the area. From the success of the industry depends on the work of many enterprises engaged in processing of raw materials, transportation, storage and sale of agricultural products. Agricultural production is one of the priority directions of development of the national economy. Agricultural production in the region is engaged in 487 agricultural companies, more than 5 ths. of farm enterprises.

The total area of agricultural land is 13236.6 ths. ha, including arable land - 4988.8 ths. ha. The share of the region in the nationwide arable land is more than 20%. Sowing areas account for more than 4227.9 ths. ha, including grain crops - 3870.3 ths. ha, including wheat - 3484.5 ths. ha.

Milling industry, bakery production and dairy cattle breeding are well developed. Akmola region is one of the major regions of the country for the production of spring wheat strong wheat. Akmola's wheat has a high content of protein. Gross grain harvest in the annual average is of about 4 mln. tons, including an export potential - to 1.5 mln tons of high-quality grain.

The total volume of gross output of the agricultural sector is about 1/3 of livestock products. A network of enterprises processing agricultural products: dairy factories, meatpacking plants, flour mills, which could interest investors in terms of reconstruction and increase the existing production.

Aktobe region

1) Geographic location: Aktobe region is situated between Europe and Asia. It is bordered by six regions of Kazakhstan, Uzbekistan and Russia: in the north - with the Orenburg region of the Russian Federation; in the north-east - with Kostanai region; in the south-east - with Karaganda and Kyzylorda regions; in the south - with the Karakalpakstan of Uzbekistan Republic; in the south-west - with the Mangistau region of Kazakhstan; in the west - Atyrau region of Kazakhstan; in the north-west - with the West Kazakhstan region.

2) Industry: Aktobe region has vast mineral resource base. On its territory is concentrated about 10% of proven and 30% of forecast hydrocarbon resources (oil, gas and gas condensate) in Kazakhstan, all domestic reserves of chromium, nickel – 55%, titanium – 40%, phosphate – 34%, zinc – 4.3%, copper – 3.6%, aluminum – 2%, and 1.4% of the total coal reserves Republic. Exploration work carried out at fields: Janajol, Kenkiyak, Shubarkuduk, Zhaksymay, Alibek-Mola, Kozhasai and others.

AO “Aktyubinskiy zavod chromovyh soediniey” produces chemically pure chromic salts on the basis of local raw materials. AO “Ferrosplav” produces a metallic chrome and low-carbon ferrochrome. In addition to the main products produced calcium carbide, liquid glass and refractory products. About 90% of plant production is exported to Europe, America, Japan, South Korea and the CIS countries. “Aktobe lakokrasochniy” factory continues to expand production of paints. Chemical Plant produces boron, sulfuric acid and boric acid, a wide range of fertilizers.

3) Agriculture: The region has 316 agricultural enterprises, 4657 farms, more than 87 ths. private farms of the population. They account for about 8% of the national gross agricultural output produced in 2014.

Gross grain harvest in 2014 amounted to 64,400 tons. The total amount of the gross harvest of grain crops is dominated by wheat - 92.7%. Farms of Aytekebi, Kargaly, Chromtau areas occupy the largest share in the production of cereals.

In 2014, the gross harvest of vegetables increased by 14.8%, melons - by 36.5%, potatoes - by 7.5%, compared with the level of 2013 year. The increase in the gross harvest of vegetables and potatoes was mainly by increasing in the current year's sown areas. The number of cattle on January 1, 2014 in all categories of farms reached 468.1 ths. animal units, the number of pigs amounted to 78.3 ths. animal units, sheep and goats - 1 149.4 ths. animal units , horses - 73.6 ths. animal units and birds - 1 401.5 ths. animal units.

In 2014. in all categories of farms, the production of meat has increased, in comparison with 2013 year, by 6.2%, milk - by 2.4%, eggs - by 25.8%, wool - by 8.2%.

Almaty region

1) Geographic location: Almaty region borders with the following regions of Kazakhstan: Zhambyl region in the west, Karaganda region in the northwest (water boundary runs along the Lake Balkhash), in the northeast is the East Kazakhstan region. In the east, the region borders with China, in the south - with the Republic of Kyrgyzstan. The area has a complex geopolitical situation and very varied terrain.

2) Industry: Almaty region - one of the largest industrial centers of the Republic of Kazakhstan. Machine building and metalworking are well developed in region. “Stankostroitelnyy” plant and “Almaty heavy machine” plant successfully produces various kinds of machine tools. In the factories: “Almaty heavy machine” and “Montazhengeniring” the production of equipment for oil and gas, mining and energy sector have been mastered. At the factory “Alkor” launched production of spare parts for oil and gas equipment. Major manufactures of engines and spare parts for vehicles and agricultural machinery and equipment for various industries are “Kazakhstantraktor” plant and “Agrotech” plant. “Almaty electromechanicheskiy” factory is the only enterprise producing electro dialysis desalination plants in the CIS. Furniture, printing, pharmaceutical and food industries are developing successfully in the region.

3) Agriculture: The main sectors of Agriculture of Almaty region are: production of grain, sugar beets, potatoes, wine and tobacco leaf production. Rice

production in the area is more than 40 ths. Tons. The main producers of rice are agricultural enterprises, which have about 90% of rice crops in the field and in the regional context rice cultivated in the Balkhash and Karatal areas.

Gross harvest of grain crops in 2014 amounted to 742.3 thousand tons with an average yield of 18.7 c / ha, respectively, potatoes 597.1 thousand tons and 170.8 kg / ha, melons 83.3 thousand tons and 193.8 kg / ha, tobacco, 1.6 thousand tons and 20.4 c / ha.

There are 335 greenhouses with a total area of 30 ha, with 4768.4 tons are harvested vegetables. The construction of another 144 greenhouses is planning. Here are 95 warehouses, of which 41 vegetable stores, fruit and berry 11 and 43 potato storage.

During 2014 in all categories of farms produced 197.2 thousand tons of meat of all kinds, 534.8 thousand tons of milk, 696.6 mln. of eggs and 7.8 thousand tons of wool.

Atyrau region

1) Geographic location: The region is situated on the Caspian lowlands, to the north and east of the Caspian Sea between the lower reaches of the Volga River in the north-west and the Ustyurt plateau in the south-east.

Atyrau region is bordered on the west by the Astrakhan region of Russia, the north and the northeast of West Kazakhstan region, in the east of the Aktobe region, in the south - with the Mangistau region and the Caspian Sea.

2) Industry: Atyrau region is the oldest oil and gas producing regions of Kazakhstan. Currently, more than 250 deposits discovered on the territory of the Republic, 62 of which are located in the Atyrau region. One of the largest oil fields is Tengiz, which oil reserves is vary from 750 mln. To 1 billion. 125 mln. tons of oil. Oil and gas industry in the region is represented by JV “Tengizchevroil”, AO “Kazakoil-Emba”, CJSC “Atyrau neftenaya kompaniya”, JSC “Kazakhstankaspiyshelf”, JSC NC “Kazmunaygaz”, etc. Refining industry represents by “Atyrau” refinery. In the area of mining, there are vast reserves of boron, gypsum, chalk and salt.

Engineering presented by “Atyrau mashinostroitelnyy” plant, which produces equipment for the oil and gas industry, shipyards. Fish canning plant JSC “Atyraubalyk” have significant role in regional economy. Their products are awarded with high prizes at prestigious exhibitions. Ural - Caspian fishing area takes the leading position among the inland waters of the Republic of Kazakhstan. The

development of the fishing industry contributes to the presence of valuable sturgeon in the Ural River and the Caspian Sea, allowing supply to the world market fish and black caviar. JSC “Atyraubalyk” produces coarse caviar, which are exported to many countries. The proximity of the Caspian Sea makes it possible to develop such productive sectors as fishing, boating, fishing and fish production.

3) Agriculture: In general, 98% of agricultural land accounted for pastures. Haymaking occupy only about 2% and they are located mainly along rivers. Large areas of agricultural land occupied by saline soils and salt licks that have no economic significance. All this together with a sharply continental climate, typical cold snowless winters and hot dry summers creates extremely unfavorable conditions for economic activity in the region and causes high production cost of agricultural production in the area.

In recent years, it is widely distributed in the technology of drip irrigation of crops, both in the open and closed ground. At present, the technology of drip irrigation in the open and closed ground cultivated crops on an area of 214 hectares.

Fish of valuable species in the Caspian Sea every year is getting smaller. To solve this problem, two plants for the production of juvenile of sturgeon fish have been built in the suburbs of Atyrau town. Every year mlns of fish, which were produced and grown in artificial conditions, released in the free swimming. In recent years, tens of mlns of pieces of viable juvenile sturgeon - beluga, sturgeon and stellate sturgeon thorn sent to an independent life. RSTC “Atyrau sturgeon hatchery” in 2014 released 7.2 mln young sturgeon pieces.

East Kazakhstan region

1) Geographic location: The East Kazakhstan region is located in the eastern part of Kazakhstan, on the border with the Russian Federation and China. The area is bordered by two regions of the Russian Federation, one region of China and the three regions of Kazakhstan: in the north - with the Altai Territory and the Republic of Altai, in the east - from Xinjiang of China, in the south - with the Almaty region, in the west - the Karaganda region in the north-east - with Pavlodar region.

2) Industry: East Kazakhstan is one of the industrialized regions of the Republic of Kazakhstan. Basic industries are non-ferrous metals, as well as mechanical engineering and metal-working, energy, forestry and woodworking, light and food industries.

Non-ferrous metallurgy produce more than half of total industrial production in the area. East Kazakhstan - one of the main producers in the country of lead, zinc, copper in concentrates, refined gold and silver, and the only one - of titanium, magnesium, tantalum, fuel for nuclear power plants. Main producers are: JSC “Kazzink”, JSC “Ust-Kamenogorsk titano-magneviy kombinat”, “Ulba metalurgicheskiy” plant, association “Vostokkazmed” - a branch of “Kazakhmys” corporation.

Coal mining in the area engaged in LLP “Karazhyra LTD”, LLP “Sayqal”, LLP “Madina”. During 2014 extracted 4.4 mln. tons of coal. Balance reserves of coal creates good prospects in a stable coal provision of the population and large power consumers on the spot.

Machine-building complex of the region is represented by large enterprises, such as: JSC “Asia Avto” JSC, “Vostokmashzavod”, JSC “Ust-Kamenogorsk armaturniy” plant, JSC “Ust-Kamenogorsk kondensatorniy” plant, JSC “Semipalatinsk machinostroitelniy” plant, JSC “Irtyshtsvetmetremont” , LLP “Mashzavod”, LLP “Kazelektromash” , LLP “Georgievski zavod nasosnogo oborudovaniya”. They produce cars “Niva”, “Skoda”, mining equipment, processing equipment, oil and gas fittings, household electric motors and pumps of various modifications, capacitors and other electrical and cable products.

Timber industry of East Kazakhstan region is represented by enterprises of LLP “Irtyshtsans Oil”, JSC “Zhanasemeyshpalzavody”, LLP “UK mebelniy factory”, most of the industry is represented by small businesses that specialize in the production of lumber, billets, round logs for house building, window and door blocks, furniture.

Products of light industry enterprises are fur and leather, cloth, knitwear and garments, footwear, bedding, washed wool, fulling shoes, felts and articles thereof.

In the construction industry, there are large enterprises: JSC “Bukhtarma cement company” LLP “Silicate” and LLC “Semey cement” plant.

Food industry region are meat and meat products, milk and dairy products, vegetable oil and butter, alcoholic beverages, beer and other products.

3) Agricultural: Agricultural producers specialize on rainfed grain farming, dairy and meat, and meat and wool farming. Seeds of grain crops and sunflower are the most common. Basic arrays wheat crops are concentrated in the northwestern plains and steppe regions and in valleys of Bukhtarma River and Naryn River.

Irrigated farming, horticulture and viticulture in part, are well developed in Zaisan hollow. In the northwest are bred milk and meat and dairy cattle, pigs; in the south-east - beef cattle, it is commonly used trans-humance grazing of sheep and horses. In the northwest are bred milk and meat and dairy cattle, pigs; in the south-east - beef cattle, it is commonly used distant-grazing sheep and horses. Two of the farm specializes in breeding red deer. Important industries include beekeeping, fishing and trapping - squirrel, ermine, sable, fox and muskrat.

Karaganda region

1) Geographic location: Karaganda region is located in the central part of Kazakhstan, in the heart of the Eurasian continent. The climate is sharply continental and extremely dry. The region occupies the highest part of the Kazakh Upland - Saryarka. The north borders with Akmola region, in the north-east - with Pavlodar, in the east - the East Kazakhstan, in the south-east - with Almaty, in the south - Zhambyl, South Kazakhstan and Kyzylorda, in the west - with Aktobe on north-west - with Kostanay regions.

2) Industry: Karaganda region - the largest in territory and industrial potential, rich in minerals and raw materials. In the region the largest enterprise in the steel industry in Kazakhstan - Karaganda metallurgical combine “Ispat-karmet” that produces 100% of pig iron and finished rolled ferrous metal and more than 90% of steel of the country. JSC “Zhaireskiy gorno-obagotitelny kombinat” produces high quality low-phosphorous manganese concentrates from oxidized manganese and iron-ore. The products are delivered in the country near and far abroad, and is used for the production of high-quality varieties of electric furnace and blast furnace ferroalloys, high-manganese steels and cast irons.

On the basis of the metallurgical industry in the development of chemical industries. Sulfuric acid, nitrogen fertilizers, etc are produced in factories. “Kargormash-INTEX” and “Karaganda liteyniy-mashinostroitelny” plants produces mining equipment. Light industry and building materials industry are also well developed in the region. The largest of enterprises of food industry – Meat-packing plant, Flour mill, “Konfety Karaganda” plant, etc.

3) Agriculture: The agriculture combines rainfed grain farming to meat and dairy cattle, pigs, poultry and sheep breeding fine-wool. Agriculture is suburban - near the industrial centers.

Sown area is 1992.1 ths. ha, including grain crops by almost 66%. Grown mainly spring wheat and barley and fodder crops, including corn for green feed and perennial grasses.

The livestock is dominated by sheep and goats. In rural areas main activities are breeding: cattle, horses, pigs, camels and poultry, at Lake Balkhash - fishing; in deserts and mountains - hunting.

Kostanay region

1) Geographical location: The area is bordered by four regions of the Republic of Kazakhstan: Aktobe in south-west, Karaganda in south-east, Akmola in east and North Kazakhstan in north-east; and three regions of the Russian Federation: Orenburg, Chelyabinsk, Kurgan – all of them in north.

The territory is characterized by a relatively flat relief. The northern part is occupied south-eastern edge of the West Siberian Plain, to the south of it is Torgai plateau; in the west of the area - undulating plain Transural plateau, south-east - spurs Saryarka. The region from the north to the south crosses Torgai trough. In the central part Torgai plateau from west to east passes Sypsynagashskaya trough.

2) Industry: Kostanay region is a source of raw materials for metallurgical enterprises of Kazakhstan. Here are concentrated large reserves of iron ore. JSC “Sokolovsko-Sarbaiskoye gorno-obogatitelnoe obednenie”- the largest enterprise in Kazakhstan and CIS countries for the preparation of iron ore raw materials. The main products - fluxed iron ore pellets and iron ore concentrate - high-quality raw materials for blast furnace. JSC “Lisakovsk gorno-obogatitelniy kombinat” is a supplier of iron-titanium-zirconium and other concentrates. There are reserves of coal and lignite (Ubagan deposit), bauxite (Torgai deposit). Industry of building materials “Kostanayasbest”, light industry “Kostanayhimvolokno”, food industry: meatpacking plant, confectionery, milk factory “DEP” are also developing.

In the production of agriculture in the area belongs to the zone of developed wheat-grain production, to which is strongly influenced by climatic conditions of the area, characterized by its extreme continentality.

3) Agriculture: Kostanay region is one of the main producers of agricultural products in the country. Its share in the gross agricultural output of the republic more than 14%. The region accounts for over 21% of the gross grain harvest, almost 17% of meat production, about 12% of milk.

Production of grain, meat, milk and eggs provides not only domestic needs, but also provides the ability to export the surplus grain and livestock products outside the country.

Kyzyorda region

1) Geographic location: The Kyzylorda region is located in the southern part of Kazakhstan. It is bordered to the east and south-east with South Kazakhstan, in the north - Karaganda, in the north-west - with Aktobe region, in the south - with the Republic of Uzbekistan.

2) Industry: In Kyzylorda region is Kumkol oil and gas field, which conducted commercial oil production. There are such enterprises as: “Hurricane Kumbol Munai”, “Kazgermunai”, “Ai-Dan-Munai”, “Talap” etc. There are large reserves of iron ore. Mechanical engineering and metal represented by JSC “Kyzylordarismash” and JSC “Kyzylorda Agroremmash” that produce spare parts and equipment for agriculture. JSC “ZHMZ” produces geological survey and drilling equipment. The region has a cellulose-cardboard mill, that used in production: rice straw and reeds.

Leather and footwear industry is represented by the shoe factory “Aman-Er”. JSC “Araltuz” is the mining and processing of salt in the village Zhaksykylysh.

3) Agriculture: The surrounding area of Kyzylorda city there is developed agriculture - mostly melons and gourds field. However, the main focus of agriculture in the region is growing and processing of rice.

The main direction of agriculture in district Chili is growing and processing of rice. Crops are grown in Syrdarya district.

The volume of gross agricultural output in 2014 was 43.4 bln. tenge. In 2014, the sown area in the region amounted to 163.8 ths. ha. Including 86.8 ths. ha of crops; 56 ths. ha of fodder crops; 15,3 ths. ha of potatoes, vegetables and melons; 5,6 ths. ha of oilseeds. The area of main crops - of rice amounted to 83.9 ths. ha.

As of October 1, 2014 in the region was 263.8 ths. cattle, 635.1 ths. sheep and goats, 95.2 ths. heads of horses, 37,5 ths. heads of camels, 2.6 ths. pigs and 98.1 ths. heads of birds.

Mangystau region

1) Geographic location: Mangistau region is located in the south-west of Kazakhstan. The boundary of the coastline of the Caspian Sea is 873, 42 km. In the south on the border with Turkmenistan. Neighbors from the north are Atyrau and Aktobe regions. In the steppes and deserts in the east of the region is a long uninhabited border with Uzbekistan.

2) Industry: Mangistau region is rich in oil, natural gas, iron ore, phosphates, manganese and other minerals. The main thrust of the region - the oil industry, which occupies 70.6% of the total volume of industrial production in the area. The largest oil fields are - Uzen Zhetybai, Kalamkas, Karajanbas. Oil and gas industry represents companies such as “Poiski nefti i gaza”, “Mangystaumunaigaz”, “Mangystaunefteproduct”, “Kazakhstankaspiyshelf”, “Kazakhturkmunai”, “Tengyzneftgaz”, etc. There is the extraction of natural building material - limestone. In the works is the only nuclear power plant in the country with a desalination plant. The region has a cellulose cardboard mill. JSC “Aktau plastmassoviy zavod” produces a shock-resistant and foaming polystyrene plastics.

The region is the largest producer of mineral fertilizers. It produces more than 50% of fertilizers in the whole of Kazakhstan. “Aktau sea trade port” for international transportation of various cargoes: metal, grain, timber, foodstuffs, fertilizers, polystyrene, petroleum, petroleum products etc.

3) Agriculture: Agricultural production Mangistau region is represented exclusively with year-round livestock on pastures. Crop production in the region is poorly developed due to poor climatic conditions, lack of natural water bodies, the lack of vegetation.

In the region we are working to increase production of its own agricultural products, including through the introduction of drip irrigation systems, as well as support for livestock breeding.

North Kazakhstan region

1) Geographic location: North Kazakhstan region is located in northern Kazakhstan, it occupies the southern suburb of the West Siberian Plain and part of of Kazakh Upland (Sary-Arka). It is bordered to the north - with Kurgan, Tyumen and Omsk regions of Russia, in the south-east - with Pavlodar region, in the south - Akmola region, in the west - with Kostanai region.

2) Industry: In the North-Kazakhstan region machinery and metal industries are well developed. This industry represents the next major enterprise - LLP “Plant of small engines”, JSC “ZIKSTO”, JSC “Munaymash”, JSC “Zavod im. Kirov”, JSC “Petropavlovsk Heavy Machine Building Plant”, JSC “Petropavlovsk repair-mechanical Plant “, LLC” Diesel “, LLP” Rotor”. These enterprises produce spare parts for agricultural machinery and equipment, motors, pumps, mobile power plants, food processing machinery, counters of gas and electricity. Petropavlovsk Plant of electrical insulating materials produces high-quality insulating materials used in electrical and paint products and polymeric materials.

Light industry represent by JSC “Zhastar”, JSC “Dynamo-North”, “Sapogovalyalnaya factory”, LLP “Sheepskin and fur factory”, JSC “Kozhmech.”

Industry of building materials represented by “Agropromstroy”, JSC “Silicat”, LLP “Asphalt”.

The food industry is represented by enterprises of LLP “BEST LTD”, JSC “Kolos”, LLP “Molprodukt.”

3) Agriculture: Agriculture deals with grain farming, including durum wheat. Forage and industrial crops: sunflower, cotton, fruit, melon, linen are also grown in region. Livestock represented sheep breeding, meat and dairy cattle breeding, breeding of wild asses, breeding camels and horses.

The area of farmland is 6.5 mln. ha, including arable land - 4.5 mln. ha. The region annually produces more than a quarter of the production of grain in his republican volume, 17% of potatoes, 6.0% of meat, 11% of milk and 9% of eggs. Indicators of livestock industry confirmed its dynamic development. The main course is taken on the intensification, industrialization and diversification of the industry. Livestock products are mainly produced in the households of the population: 89% of meat, 94% of milk and 53% of eggs.

The main item of interregional trade in the region are grain and flour. During 2014 the region exported 1003.7 ths. tons of grain, flour - 300.7 ths. tons, and 33.9 ths. tons. of rapeseed.

Pavlodal region

1) Geographic location: The region is located in northeastern Kazakhstan. Most of the Pavlodar area is located within the South West Siberian Plain in the middle reaches of the Irtysh River. From the north the area is bordered by the Russian

Federation (Omsk region) in the south - with the Karaganda region, in the east - with the East Kazakhstan, from the west - from Akmola and North Kazakhstan regions.

2) Industry: The Pavlodar region is concentrated about 30% of coal reserves of 9.4% - of gold, 3.7% - of copper, 2.3% - of molybdenum, 0.9% - of zinc, 0.3% - of lead . Major coal reserves are located within the producing fields of Ekibastuz (fossil fuels) and Maykyubenskogo (brown coal) pools; reserves of gold, silver, copper, molybdenum and base metals – are in complex fields Maykainskoy group.

The area has about 40% of total of grid capacities of Kazakhstan, there are 6 enterprises producing electricity, three of which are in Pavlodar, two - in Ekibastuz and one in Aksu. Non-ferrous metallurgy - one of the dominant industries in the area.

JSC “Aluminium of Kazakhstan” - is the only one in Kazakhstan plant for the production of alumina. Ferrous metallurgy is represented by Aksai Ferroalloy Plant. Machine-building complex is represented by the following companies: JSC “Pavlodar Tractor”, JSC “Pavlodar Machine-Building Plant”, JSC “Sudostroitelniy”, JSC “October Plant”. Main products: agricultural tractors, construction machinery, welding electrodes, machine parts of different sectors of the economy. JSC “Chimprom” is the only manufacturer in the country of motor oils and additives, flotation reagents for the enrichment of non-ferrous metals, etc. Petrochemical industry is represented by the area of JSC “Pavlodar Oil Refinery”. However, the refinery is not able to carry out the entire volume of all republican oil processing.

3) Agriculture: The area of farmland in the region amounts to 11.2 mln. Ha. The main cultivated crop is in the field of wheat - about half of acreage. About 15-17% of crops fall on other grains. Furthermore, in cultivated potato, vegetable and melons. In the structure of crops of forage crops is low proportion of legumes and perennial legumes.

The volume of livestock production in the Pavlodar region fully meet the needs of the population, with the exception of poultry meat. as a whole, 27 companies operate processing of milk, 57 - for producing sausages and semi-finished products.

South Kazakhstan region

1) Geographic location: South Kazakhstan region is bordered on the east by the Zhambyl region, in the north with Karaganda region, Kyzylorda region in the west and in the south with Uzbekistan.

South Kazakhstan region is located in southern Kazakhstan, in the eastern part of Turan lowland and western spurs of the Tian Shan. Most of the territory is flat, with the hilly-ridge sands Kyzylkum, steppe and Shardara Moyynkum. The northern part is occupied by the desert Betpak-Dala, in the extreme south - Hungry steppe. Central part of the region occupies a ridge of Karatau, in the south-east - western outskirts of Talas Alatau and Ugam, Karzhantau ridges.

2) Industry: South Kazakhstan region - large industrial center in the south of the Republic. Center of mining and beneficiation of polymetallic ores are in Kentau, v. Achisay. On the basis of their Shymkent lead plant operates. The area has one of the largest, modern refineries of Kazakhstan JSC “Shymkentnefteorgsintez.” This plant produces high-quality products - gasoline, diesel, aviation kerosene and liquefied gas, heating, and domestic fuel oil. However, the volume of products manufactured does not cover all the needs of the region, especially the needs of the Republic. Engineering presented the plant “Shymkent Electric”, JSC “Kentau Transformer Plant” PC “Mankentzhivmash”. PC “Phosphorus” represents chemical industry. The pharmaceutical industry in the region is very well developed, represented by the following companies: JSC “ChimPharm”, JSC “Zerde”, JSC “Akniet”, etc.

3) Agriculture: The area has a favorable climate for the development of agriculture. In livestock production a major share occupies the production of meat, milk and eggs.

On the sidelines of the area grow cotton, grains, vegetables, fruits, melons and gourds. The main branch of livestock - sheep, karakul breeding is developing.

As of January 1, 2015 in all categories of farms in the number of cattle it amounted to 803.8 ths. heads, where: sheep - 3244.1 ths. heads; goats - 412.6 ths. heads; horses - 156.4 ths. heads; camels - 16.7 ths. heads; pigs - 37,5 ths. heads; and poultry - 2443.3 ths. heads.

West Kazakhstan region

1) Geographic location: The West Kazakhstan region - the region of the Republic of Kazakhstan, located in the northwest of the country in the eastern part of Europe.

West Kazakhstan region is bordered by two areas of Kazakhstan and five Russian regions: in the north - with the Orenburg region; in the east - with Aktobe

region; in the south - with the Atyrau and Astrakhan regions; in the west - with the Volgograd and Saratov regions; in the north-west - with the Samara region.

2) Industry: In the West Kazakhstan region is one of the world's largest oil field Karachaganak (1,200 mln tons) and gas condensate (1300 billion m³).

Engineering and metalworking are developing. Ural Mechanical Plant, the Ural repair plant, JSC "Uralskagrommash", LLP "Dormash" produce spare parts and accessories for agricultural machinery, tractors, vehicles and various equipment. One of the largest plants of the Ural factory leather and footwear, as well as JSC "Nuraly", JSC "Teri" produces a wide range of footwear and leather goods. In addition, there are enterprises for the production of felting and fur products - fur factory Urals, JSC "Ayaz". The food industry is represented by meat-packing, flour-grinding mills.

3) Agriculture: Agriculture area specializes in the production of grain and livestock products. Corn, olives, cereal crops, potatoes, vegetables, melons and fruits are mainly grown. In animal husbandry, the main industries are cattle and sheep, in addition: pigs, horses, camels and poultry.

In agriculture, a major roles of livestock – are fine-wool and karakul sheep, horse, camel. Durum wheat is grown. It was devoted to the main place in the structure of crops - 73.3% (456.2 ths. ha); barley allocated 21.6% (135.0 ths. ha), millet allocated 13.6 ths. ha; winter rye - 9.8 ths. ha.

Zhambyl region

1) Geographical location: In the west, the area is bordered by the South Kazakhstan region, in the north – Karaganda region, Almaty region on the east and in the south - with Kyrgyzstan. Geographically, the territory of the region is mostly flat. In the western part of Zhambyl region, to the north-east ridge of Karatau are Sands Aikene.

2) Industry: Zhambyl region has a unique base of phosphorite and fluorspar raw material. On its territory it is concentrated 71.9% of balance reserves of phosphorite of the republic, 68% of fluorspar, 8.8% of gold and 0.7% of uranium. The area is rich in non-ferrous metals, barite, coal, facing, building materials, ornamental and technical stones. The highest rate of production achieved in the mining industry. Large enterprises in the industry are – "Akbakaysky gorno-obagotitelnyy" plant, "gorno-chimicheskiy Karatau" plant and "Zhanatas gorno-obagotitelnyy" plant.

“Novodzhambul phosphorniy” plant and “Kazphosphate” plant that produce yellow phosphorus, phosphate rock, silica, mineral fertilizers and synthetic detergents, have resumed their work. Also there are: the plant “Tulpar” of the initial processing of wool, “Avtoremontniy” plant, “Aynek” plant of glass production, operate in the region. The region has developed leather and footwear, light and food industries.

3) Agriculture: Due to climatic factors of the region one of the leading industry is agriculture. Both crop and livestock, and poultry are diverse directions and types of agricultural output.

Zhambyl region is one of the wealthiest regions of fresh groundwater in Kazakhstan. The presence of such a precious resource in the area allows us to develop a drip irrigation system, significantly increasing the productivity of crop and acreage. In crop areas in accordance with the policy of diversification, winter wheat is grown only in amounts sufficient to meet the domestic needs of the region. Fodder crops and legumes are grown in the liberated areas. The amount of greenhouses has increased; in order to reduce the deficit of vegetables in the off-season. In 2014, 200 greenhouses area of 15.7 ha were built.

JSC “Merken plemennoy zavod” produces fine wool. LLP “Zhylybulak” PC “Aspara” and PC “Yunchi” which are engaged the cultivation of breeding sheep, South-Kazakh merino sheep, also operate in the region.

Almaty city

1) Geographic location: Almaty city is located in the south-east of Kazakhstan at the north of the mountain spurs of the Tian Shan foothills of the northern slope of the Trans-Ili Alatau in the valleys of the rivers Bolshaya and Malaya Almatinka. The town is completely surrounded by the territory of Almaty region. Administratively Almaty is not included in Almaty region. In the north of Almaty is on the border of Ili district, in the west and south - Karasai district, in the east - with the Talgar district.

2) Industry: Production and distribution of energy, water, gas and manufacturing industries are the main areas of industry in the region. In addition, chemical, food, metallurgical and other industries are well developed in the region. In general, 85% of the city's industrial output accounted for by the manufacturing industry. In recent years production of wood, articles of wood and coke has decreased

slightly. While the output of clothing, textile, chemical industry and the production of vehicles and equipment to them have increased.

About 1/5 of the country's GDP, or 2 trillion 273 billion tenge in Almaty accounted for, i.e. each of Almaty residents accounts for 15 thousand dollars, which is 2.7 times more than the average on citizens in the country. Up to 30% of all tax revenues in the country are going here, 50% of the domestic and 1/6 of the foreign trade turnover of the state is made in Almaty. The share of the city is up to 70% of all banking transactions, 18% of all investments, and about 50% of all retail and wholesale operations in the country.

The economy of Almaty mainly develops at the expense operating in the city of banking institutions, as well as small and medium-sized businesses. more than 60% of all tax revenue the city bring the business enterprise, which in Almaty there are about 78 thousand. In addition, it operated 33 banks of the second level of the country, accounting for 95% of the total.

The economy of Almaty city, in many respects, develops due to the presence in the city of a significant number of banking facilities, as well as the development of small and medium-sized businesses. In addition, 33 banks of the second level are operating here, representing 95% of the total number.

3) Agriculture: In plant production key crops include barley, potatoes, vegetables, fruits and grapes. In animal bred cattle are mainly used for meat, milk, eggs and wool. The existing potential of the surrounding 9 areas and Kapshagay town of Almaty region allows you to fully meet the needs of the southern capital of potatoes, cabbage, carrots, onions, tomatoes, cucumbers, beetroot, apples, poultry meat and eggs. The demand for vegetable oil, milk and dairy products is fully covered by the processing enterprises of the city, and for items such as meat and meat products processed security is 29.2%, flour - 97%.

Astana city

1) Geographic location: The city is located in northern Kazakhstan by the River Ishim. The city is located in the southeastern part of the Kostanay region, in close proximity to the administrative center of Karaganda region.

2) Industry: the bases of the city's economy are: trade, transport and communications, construction. For more than five years, the city is in the lead in terms of the commissioning of residential buildings.

Industrial production of the city is based on the production of building materials, food/beverages and mechanical engineering. The leading position in Kazakhstan, Astana takes on production of structural metal products, concrete and concrete products. Also it is relatively high proportion of the city in the production of metal structures, radiators and central heating boilers and materials handling equipment.

Up to 22% of gross regional product of the city provides small and medium-sized businesses. In order to attract investors and to develop new competitive industries, the city has a special economic zone “Astana - new city”. The advantage of the SEZ is the presence of a special legal regime providing tax and customs privileges. On SEZ different projects in various fields are implementing. In particular, the city's development is focused on the creation of a competitive economy with a high share of innovative products in the total production, well-developed manufacturing sector, small business, providing a significant share of the gross regional product of the city, and well-developed tourism.

3) Agriculture: The main activity of the city is based on agriculture and related industries. The cultivation of grain, poultry, dairy cattle breeding, horse breeding, pig breeding occupies a special place in the agriculture.

In Astana there is the largest agricultural machinery factory in the country. There is also a plant that manufactures agricultural machinery for areas characterized by wind erosion.²

5. Cluster Division

Development of the regions of Kazakhstan has a high priority of national importance. Regional Development Strategy is heterogeneous with respect to different regions. This is caused by significant differences between regions in the availability of resources, the structure of their economy, the achieved level of development of various sectors of the economy, conditions of entry into the market economy, the pace of transformation of ownership. The overall competitive advantage determined by climatic, demographic, industrial, geographical factors.

² Descriptions of all regions conducted using Statistical Yearbook “Regions of Kazakhstan”.

To date Kazakhstan has a vertically integrated (central) model of economic organization of the territories. Which is characterized by the dominance of one or a few large mass production, combined in corporate structures, which are the main employers, the main source of replenishment of local budgets and a key factor in the formation of infra-structural facilities in the regions. This model is formed mainly in countries with a single-industry economy. For Kazakhstan in modern conditions network model of territorial and economic organization becomes more perspective, characterized by flexible specialization and the ability to innovate, based on the mobilization of resources across the network by cluster development (Bayzakov and Kalabayeva, 2012).

Territorial Development Strategy of Kazakhstan until 2030 was approved by Presidential Decree No 113 of 28 August 1997 (President of the Republic of Kazakhstan, 1997), as an effective method of territorial and economic organization and a tool to enhance the competitiveness of regions it extends the cluster approach. The Strategy focuses on the creation of regional clusters, representing the union of regions with similar socio-economic status, in order to involve regions in the world and regional markets of goods, finance, human resources, technology and information, which determines their competitiveness.

The experience of developed European and Asian countries also confirms the multi-functional role of the cluster approach in ensuring the conditions of formation and realization of competitive advantages of regions. Since the modern development of Kazakhstan has a distinctly regional context, there is a need for a grouping of regions of the republic on the degree of similarity in economic development in order to develop effective policies.

5.1. Analytical data

The level of regional economic growth, according to the theory of sustainable economic growth can be assessed using a number of indicators, which include innovation activity, human capital, private capital, social capital, regional accessibility, regional concentration, the gross regional product (GRP) per capita.

As the analyzed data of economic growth Kazakhstan's regions the following indicators were highlighted:

1) innovative activity:

- *Patent activity as a percentage of the total in Kazakhstan (P1);*
- *Gross expenditure on R & D per capita (P2).*

The number of issued patents and R & D costs can be considered as a measure of technological progress generated by commodity and process innovations.

2) human capital:

- *Number of employees with a university degree for 1000 of workers (P3).*

This indicator shows the region's ability to generate knowledge, and the ability to adapt knowledge from other regions, improvement of produced tools.

- *Number of employees, including the self-employed residents, in ths. (P4);*
- *Economically active population in ths. (P5);*

These two indicators suggest a number of people involved and accumulating knowledge in the production process. They are also a measure of accumulated knowledge at the regional level

3) private capital:

- *Industrial investments per capita (P6).* Allow to determine the attractiveness of the region for private investors.

4) social capital:

- *Public funding per capita (P7).* They can be interpreted as a regional factor characterizing capital investments. The higher it is, the higher the investment attractiveness of the region, including for private investors;
- *Public expenditure per capita (P8).* The higher the index, the more the state is interested in a stable and effective development of the region.

5) regional accessibility (P9). It characterizes the the measure of the region's accessibility to markets and the national transport infrastructure. This indicator was calculated as follows (see Eq. 1):

$$\frac{\text{(The distance from the regional center to Almaty + The distance from the regional center to Astana) / (Distance from Almaty to Astana)}}{1} = P9 \quad (1)$$

6) The regional concentration of business:

- *The number of active businesses per 1,000 sq. km (P10).* This indicator shows the business density, and can be interpreted as the level of the potential urbanization of the economy;

- *The number of registered entrepreneurs per 100,000 inhabitants (P11)*. It provides information about the spatial concentration of business and the degree of concentration of entrepreneurial initiatives in the region.

- *Number of employees in industry in 1000 employees (P12)*;

- *Number of employees in the service sector per 1000 employees (P13)*.

These are the two most important indicators characterizing the degree of the potential localization of the economy.

7) GDP per capita (P14). It characterizes the average income and expenditure per inhabitant of the region, and is an indicator of the well-being of its population. This indicator is more accurately determine the level of social development of the region than the gross domestic product per capita.

Despite that selected indicators are qualitatively different in substance and quantity in different directions, but at the same time allow to take into account the dynamics of the population and regions of the filter by the type of location.

5.2. Cluster analysis

To join the regions in a large group as they are similar it is necessary to carry out the cluster analysis, purpose of which is the division the set of objects in a specified or an unknown number of classes on the basis of a mathematical criterion for quality classification (Teach yourself). The criterion of the quality of clustering in one way or another reflects the following informal requirements:

- a) within groups of objects must be closely linked;
- b) objects of different groups should be far from each other;
- c) other conditions being equal distribution of objects in groups shall be uniform.

A great advantage of the cluster analysis is that it allows to group objects not only by one parameter, but with a set of attributes. In addition, cluster analysis unlike most mathematical and statistical methods does not impose any restrictions on the form of these objects, and allows to treat a variety of input data of any kind. Also, cluster analysis can be considered quite a large amount of information and dramatically reduce, compress large amounts of socio-economic information, to make them compact and clear.

Clustering regions of Kazakhstan will be calculated by the Ward's method (Teach yourself). Selection of this method stems from the fact that in result the

partition of the aggregate of the objects to the most homogeneous statistically significant group. The target function performs intragroup sum of squared deviations, which is the sum of the squares of the distances between each point (object) and the average for the clusters containing the object. At each step of these two clusters are combined that lead to the minimum increase of the objective function, i.e. intra-group sum of squares. Calculations are made using the application of statistical analysis package SPSS (Teach yourself). As the initial information used data for all regions of the Republic of Kazakhstan (Table 2).

As highlighted figures are dissimilar is necessary to standardize them. The SPSS offers several possibilities for standardization (select the appropriate option in the "Conversion value"). The z-transform of values was chosen. Standardization change the values of all variables to a single range, namely, from -3 to +3. Other suggested the possibility of standardization rather play a supporting role.

5.3. Results of cluster analysis

The results of the cluster analysis are presented:

- 1) matrix of proximity (similarity);
- 2) the table of agglomeration order;
- 3) the table of belonging to a the cluster;

The matrix of proximity obtained after processing the initial data in SPSS, is presented in Table 3. The matrix provides information about the similarities and differences in socio-economic development of regions. The smaller the value, the higher the degree of similarity of the two regions, and combinations in the cluster. Conversely, the greater appropriate value matrix of proximity, the greater the differences between the two areas.

A very important issue during the cluster analysis is the problem of choosing the optimal number of clusters. Quite often, the criterion of unification (number of clusters) becomes a change of the corresponding function.

For example, in this case, the square of the Euclidean distance, determined using of standardized values (see Eq. 2):

$$\text{dist} = \sum_{i=1}^n (x_i - y_i)^2 \quad (2)$$

The process of grouping must comply with the consistent minimum increase in value of the criterion.

The sharp discontinuity could be interpreted as a characteristic of number of clusters, objectively existing into the exponential population, i.e. at the step where the value of the coefficient is increased abruptly, the process of combining into new clusters must be stopped since otherwise the clusters which are at a relatively large distance from each other would be combined.

Table 4. Agglomeration order (Ward method)³.

| Steps | Clusterization | | Coefficients | Step on which cluster appears the first time | | Next step |
|-------|----------------|-----------|--------------|--|-----------|-----------|
| | Cluster 1 | Cluster 2 | | Cluster 1 | Cluster 2 | |
| 1 | 8 | 12 | 0,534 | 0 | 0 | 7 |
| 2 | 2 | 7 | 1,585 | 0 | 0 | 8 |
| 3 | 10 | 14 | 2,637 | 0 | 0 | 2 |
| 4 | 3 | 6 | 3,784 | 0 | 0 | 10 |
| 5 | 1 | 3 | 5,086 | 0 | 4 | 3 |
| 6 | 9 | 13 | 6,884 | 0 | 0 | 1 |
| 7 | 5 | 8 | 9,788 | 0 | 1 | 9 |
| 8 | 1 | 5 | 14,833 | 5 | 7 | 5 |
| 9 | 1 | 2 | 20,705 | 8 | 2 | 1 |
| 10 | 1 | 9 | 28,766 | 9 | 6 | 1 |
| 11 | 1 | 10 | 41,703 | 10 | 3 | 1 |
| 12 | 4 | 11 | 58,438 | 0 | 0 | 1 |
| 13 | 4 | 15 | 86,413 | 12 | 0 | 4 |
| 14 | 4 | 16 | 131,586 | 13 | 0 | 4 |
| 15 | 1 | 4 | 210,000 | 11 | 14 | 7 |

In this case, it is a jump from 9.788 to 14.833. This means that after the formation of the eight clusters no longer necessary to perform subsequent association, and the result of eight clusters is optimal. The optimal number of clusters is equal to

³ Calculated by the author using SPSS, based on data from the Statistics Agency of the Kazakhstan Republic. The agglomeration order is shown in Table 4. Each line represents the actual step of forming clusters.

the difference between the number of observations (here: 15) and the number of steps, after which the rate increases abruptly (here: 7).

After determining the optimal number of clusters is necessary to clarify the ownership of each region to a particular cluster (see. Table 6).

6. Panel data analysis

The set of data consisting of observations statistical identical objects such as countries, households, firms, etc., for several time periods, called panel or spatial data. In cases where periods of observation more than the number of observed objects, panel data is also known as the pooled time series. Generally, however, the set of panel data consists of observations of a large number of objects within a few periods. In this situation, much more important is the modeling of the differences between the observed objects, i.e. their heterogeneity than the analysis of the effects of certain time, which is the subject of time-series analysis. Thus, although the panel data and can be considered as a set of time-series models applied to them, usually pay more attention to the differences between the objects of observation than temporary aspects.

The essence panel data is the presence of multiple variables observing the same object. Any set of panel data has a number of common characteristics. Nevertheless, depending on the actual process of generating the data set for each panel data appear their special properties.

Typically, the linear dependence of panel data to be analyzed for the i -th object of observation of universe population is written as:

$$y_{it} = \mu_{it} + x_{it}'\beta + u_{it} \quad (3)$$

6.1. Data collection

Collection of panel data – is a complex and expensive process than the collection of data on independent samples, because all objects of observation in the sample to be traced or identified for several period of time. This extra effort justified by growth of the information contained in the panel data. Panel data allow us to easily identify and describe some aspects hidden in the analysis of time series only.

This method considers the relationship of each region to another.

The collected data for analysis, which include:

- the nominal wages (W),
- the availability of petroleum reserves (O),
- the availability of the common border between the regions (B),
- the area of the regions (A),
- the distance to the capital (D)
- the air pollution (P).

All collected data is in Tables:

6.2. Analyzing data with Eviews

The main advantages of panel data:

- 1) it provide a large number of observations, increasing the number of degrees of freedom and reducing the dependency between the explanatory variables and, consequently, the standard error estimates;
- 2) it allow you to analyze a variety of economic processes that can not be addressed in time series and spatial data separately;
- 3) it can prevent aggregation bias that inevitably occurs both in time series analysis and the analysis of cross-sectional data;
- 4) it allow to trace individual the evolution of the characteristics of objects in the sample time;
- 5) it solve the problem of finding "good" tool in estimating models with endogenous regressors;
- 6) make it possible to avoid the specification errors arising from exclusion the essential variables in the model.

Tables that contain the relationship of each region with other regions, was compiled in Excel. Then all data was uploaded in Eviews.

Panel data analysis of comparable regions was held using Eviews software, Table 5 was obtained.

Table 5 – Panel Data Analysis

Dependent Variable: Y
Method: GLS (Cross Section Weights)
Date: 11/25/15 Time: 11:32
Sample: 2002 2014
Included observations: 13
Number of cross-sections used: 240
Total panel (balanced) observations: 3120
One-step weighting matrix
White Heteroskedasticity-Consistent Standard Errors & Covariance

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|--------|
| C | 228.23 | 140.6492 | 16.25266 | 0.0002 |
| W | 0.814556 | 0.025675 | 31.72604 | 0.0033 |
| O | 0.819334 | 0.048641 | 16.84462 | 0.0005 |
| B | 0.869468 | 0.026944 | 32.26994 | 0.0160 |
| A | -0.368354 | 0.025765 | -14.29686 | 0.0050 |
| D | -0.319299 | 0.005969 | -53.49364 | 0.0230 |
| P | -151.9138 | 18.56737 | -16.26045 | 0.0009 |

| Weighted Statistics | | | |
|---------------------|----------|--------------------|-----------|
| R-squared | 0.933678 | Mean dependent var | -5.474870 |
| Adjusted R-squared | 0.933528 | S.D. dependent var | 3.456567 |
| S.E. of regression | 0.891176 | Sum squared resid | 2471.531 |
| F-statistic | 6258.607 | Durbin-Watson stat | 0.437155 |
| Prob(F-statistic) | 0.000000 | | |

| Unweighted Statistics | | | |
|-----------------------|----------|--------------------|-----------|
| R-squared | 0.588196 | Mean dependent var | -3.620656 |
| Adjusted R-squared | 0.587270 | S.D. dependent var | 1.400145 |
| S.E. of regression | 0.899510 | Sum squared resid | 2517.978 |
| Durbin-Watson stat | 0.226240 | | |

All parameters are significant.

C equal to 228,23 means GNP will grow, if other parameters are unchanged.

W have positive influence, when nominal wages increases by 1 unit, GRP will increase by 0,814 unit.

O have positive influence, when there is oil reserve in region, GRP of region will increase by 0,819 unit.

B have positive influence, when regions have common border, GRP of each region will increase by 0,869 unit.

A have negative influence, when area of region increases by 1 unit, GRP of region will decrease by 0,368 unit.

D have negative influence, when distance to capital increases by 1 unit, GRP of a region will decrease by 0.319.

P have negative influence, when pollution by 1 unit, GRP of a region will decrease by 151,913 units.

7. Conclusion

Table 6 – Clusters ⁴.

| | Region | Cluster number |
|----|-------------------------|----------------|
| 1 | Akmola region | 2 |
| 2 | Aktobe region | 3 |
| 3 | Almaty region | 2 |
| 4 | Atyrau region | 6 |
| 5 | East Kazakhstan region | 1 |
| 6 | Karaganda region | 1 |
| 7 | Kostanay region | 4 |
| 8 | Kyzylorda region | 5 |
| 9 | Mangystau region | 6 |
| 10 | North Kazakhstan region | 4 |
| 11 | Pavlodar region | 1 |
| 12 | South Kazakhstan region | 5 |
| 13 | West Kazakhstan region | 3 |
| 14 | Zhambyl region | 2 |
| 15 | Astana city | 7 |
| 16 | Almaty city | 8 |

According to Cluster Analysis, there are 8 clusters in regions of Kazakhstan.

Conducting cluster analysis allowed to conclude that even neighbor regions are so different in resource and human potentials that can not be attributed to the same economic clusters.

So from the Table 6, is clear that first cluster consists of 3 areas (Karaganda, Pavlodar and East Kazakhstan). The areas are similar in their economic development, as the values of the main indicators characterizing the level of human capital investments, regional availability is very close. These areas are industrialized with strong production potential with the dominance of large enterprises.

The second cluster includes 3 areas: Akmola, Almaty, Zhambyl. These areas are similar in the development of indicators such as human capital, the level of investments per capita, regional concentration, GDP per capita. Indicators of these regions are mostly somewhat lower than the average values.

⁴ Calculated by the author based on data from the Statistics Agency of the Kazakhstan Republic

The third cluster accounted for Aktobe and West Kazakhstan region. These areas are geographically close to each other, have similar climatic conditions. They are characterized by: remoteness from cities of republican values, indicators of regional concentration are below average for the country, GDP per capita is above the average, the average level of human capital.

The fourth cluster includes Kostanay and North Kazakhstan regions. They are united by the fact that in the past they were virgin lands. They are characterized by: low entrepreneurial activity, the level of GDP per capita and the level of private and public capital are below the average for the country.

The fifth cluster includes 2 region - Kyzylorda and South Kazakhstan. It is mainly agricultural regions. They are characterized by high population density, low levels of innovation and investment activity, the low level of GDP per capita.

Six cluster accounted for 2 oil regions Atyrau and Mangystau. These areas are characterized by significant levels of gross expenses on R & D, high investment attractiveness, and significant contribution to GDP.

Significant positive impact on the region's GRP provides: the presence of oil reserves and common borders with other regions.

Negative impact on the growth of GRP exerts the pollution to the atmosphere. The size of the region and the distance to the capital do not have a positive effect

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Appendixes

Table 2. Baseline data for clustering regions of Kazakhstan⁵

| | Innovation activity | | Human capital | | | Private capital | Social capital | | Region. availability | The regional concentration of business | | | | GDP per capita, ths. tenge |
|--------|---------------------|---------|---------------|--------|--------|-----------------|----------------|-------|----------------------|--|------|-----|-----|----------------------------|
| | P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8 | P9 | P10 | P11 | P12 | P13 | P14 |
| Total | 100 | 962,08 | 228 | 476,51 | 512,62 | 53,057 | 11,020 | 32,07 | | 17 | 844 | 170 | 478 | 2255,8 |
| Akm | 0,63 | 703,83 | 155 | 497,80 | 548,23 | 14,249 | 5,805 | 21,30 | 1,197 | 16 | 556 | 108 | 391 | 1442,4 |
| Akt | 4,72 | 384,34 | 188 | 467,85 | 518,10 | 112,083 | 12,760 | 20,98 | 2,502 | 5 | 705 | 153 | 480 | 2285,8 |
| Alm | 7,41 | 206,66 | 175 | 459,33 | 502,55 | 14,976 | 6,708 | 16,16 | 1,424 | 12 | 358 | 114 | 374 | 919,1 |
| Atr | 0,75 | 2654,20 | 203 | 422,57 | 466,93 | 468,687 | 23,694 | 96,32 | 3,429 | 9 | 691 | 270 | 579 | 7085,1 |
| East | 6,23 | 2315,86 | 190 | 473,68 | 510,99 | 23,323 | 4,591 | 46,38 | 1,723 | 11 | 599 | 197 | 444 | 1605,1 |
| Kar | 5,43 | 555,49 | 206 | 504,55 | 545,45 | 36,079 | 4,188 | 28,37 | 1,189 | 7 | 625 | 305 | 444 | 2167,3 |
| Kos | 4,48 | 638,17 | 184 | 540,95 | 592,49 | 20,996 | 10,161 | 23,83 | 2,010 | 11 | 575 | 149 | 509 | 1540,0 |
| Kyz | 0,32 | 32,59 | 208 | 419,26 | 473,20 | 74,636 | 9,177 | 41,87 | 1,759 | 5 | 412 | 107 | 462 | 1871,3 |
| Man | 0,44 | 5781,24 | 250 | 404,35 | 447,78 | 152,406 | 10,778 | 10,33 | 3,764 | 7 | 982 | 438 | 540 | 3779,4 |
| North | 1,98 | 124,24 | 132 | 552,26 | 600,28 | 11,996 | 3,571 | 18,47 | 1,813 | 13 | 499 | 74 | 320 | 1401,6 |
| Pav | 2,49 | 24,96 | 164 | 505,57 | 550,73 | 36,693 | 4,042 | 25,5 | 1,429 | 22 | 860 | 243 | 390 | 2346,4 |
| South | 4,20 | 55,16 | 239 | 404,97 | 443,07 | 7,260 | 3,151 | 21,68 | 1,601 | 28 | 529 | 95 | 445 | 864,3 |
| West | 1,23 | 127,36 | 180 | 472,18 | 520,59 | 19,889 | 13,259 | 15,92 | 3,419 | 8 | 460 | 162 | 421 | 3057,4 |
| Zham | 3,81 | 98,42 | 194 | 468,85 | 527,39 | 15,350 | 17,206 | 17,03 | 1,365 | 8 | 396 | 113 | 539 | 911,2 |
| Astana | 3,93 | 203,72 | 394 | 468,17 | 511,10 | 257,729 | 94,519 | 62,70 | 1,000 | 6170 | 1810 | 175 | 812 | 4834,0 |
| Almaty | 52,67 | 4549,86 | 585 | 447,33 | 491,03 | 50,561 | 11,973 | 41,36 | 1,000 | 45537 | 3696 | 223 | 748 | 5318,8 |

Table 3. Matrix of proximity (similarity)⁶

| Regions | The square of Euclidean distance | | | | | | | | | | | | | | | |
|-----------|----------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 1 Akm | 0 | 4,944 | 2,385 | 57,496 | 4,811 | 2,667 | 7,999 | 5,166 | 4,098 | 8,128 | 44,127 | 2,749 | 3,933 | 10,979 | 44,797 | 82,926 |
| 2 Akt | 4,944 | 0 | 3,815 | 37,203 | 4,425 | 3,451 | 2,102 | 6,529 | 6,572 | 4,601 | 26,979 | 4,780 | 11,234 | 7,854 | 34,326 | 72,568 |
| 3 Alm | 2,385 | 3,815 | 0 | 55,242 | 4,818 | 2,293 | 6,545 | 7,239 | 9,627 | 3,941 | 38,546 | 5,242 | 9,967 | 4,133 | 45,642 | 79,533 |
| 4 Atr | 57,496 | 37,203 | 55,242 | 0 | 38,650 | 54,667 | 43,193 | 48,071 | 54,973 | 38,377 | 33,469 | 49,483 | 71,438 | 52,047 | 41,216 | 90,175 |
| 5 East | 4,811 | 4,425 | 4,818 | 38,650 | 0 | 5,553 | 7,843 | 4,487 | 7,758 | 5,359 | 26,957 | 4,758 | 13,197 | 9,070 | 38,139 | 67,140 |
| 6 Zham | 2,667 | 3,451 | 2,293 | 54,667 | 5,553 | 0 | 7,258 | 6,730 | 6,204 | 5,096 | 39,899 | 5,622 | 10,124 | 6,789 | 34,351 | 75,852 |
| 7 West | 7,999 | 2,102 | 6,545 | 43,193 | 7,843 | 7,258 | 0 | 10,150 | 8,571 | 8,356 | 27,435 | 7,407 | 11,875 | 11,164 | 45,349 | 84,715 |
| 8 Kar | 5,166 | 6,529 | 7,239 | 48,071 | 4,487 | 6,730 | 10,150 | 0 | 5,700 | 11,949 | 32,711 | 1,067 | 10,965 | 15,938 | 39,613 | 71,950 |
| 9 Kos | 4,098 | 6,572 | 9,627 | 54,973 | 7,758 | 6,204 | 8,571 | 5,700 | 0 | 15,739 | 45,584 | 4,192 | 3,596 | 21,763 | 40,724 | 80,031 |
| 10 Kyz | 8,128 | 4,601 | 3,941 | 38,377 | 5,359 | 5,096 | 8,356 | 11,949 | 15,739 | 0 | 33,613 | 10,529 | 20,144 | 2,105 | 35,917 | 77,194 |
| 11 Man | 44,127 | 26,979 | 38,546 | 33,469 | 26,957 | 39,899 | 27,435 | 32,711 | 45,584 | 33,613 | 0 | 36,533 | 60,531 | 35,064 | 59,444 | 75,139 |
| 12 Pav | 2,749 | 4,780 | 5,242 | 49,483 | 4,758 | 5,622 | 7,407 | 1,067 | 4,192 | 10,529 | 36,533 | 0 | 6,686 | 14,595 | 42,156 | 77,823 |
| 13 North | 3,933 | 11,234 | 9,967 | 71,438 | 13,197 | 10,124 | 11,875 | 10,965 | 3,596 | 20,144 | 60,531 | 6,686 | 0 | 25,074 | 59,042 | 100,21 |
| 14 South | 10,979 | 7,854 | 4,133 | 52,047 | 9,070 | 6,789 | 11,164 | 15,938 | 21,763 | 2,105 | 35,064 | 14,595 | 25,074 | 0 | 45,065 | 75,976 |
| 15 Astana | 44,797 | 34,326 | 45,642 | 41,216 | 38,139 | 34,531 | 45,349 | 39,613 | 40,724 | 35,917 | 59,444 | 42,156 | 59,042 | 45,065 | 0 | 60,086 |
| 16 Almaty | 82,926 | 72,568 | 79,533 | 90,175 | 67,140 | 75,852 | 84,715 | 71,950 | 80,031 | 77,194 | 75,139 | 77,823 | 100,21 | 75,976 | 60,086 | 0 |

Table 7 - Nominal Wages (tenge)⁷

| | Akm | Akt | Alm | Atr | WK | Zham | Kar | Kost | Kyz | Man | SK | Pav | NK | EK | Astana | Almaty |
|------|-------|-------|-------|--------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|--------|--------|
| 2002 | 6394 | 10624 | 6212 | 14314 | 8334 | 6925 | 10212 | 8436 | 9755 | 17256 | 6160 | 10822 | 7395 | 10865 | 12886 | 12923 |
| 2003 | 7607 | 13305 | 7625 | 22118 | 11119 | 7999 | 12179 | 9748 | 10106 | 20628 | 7596 | 13044 | 8492 | 13078 | 16537 | 15730 |
| 2004 | 8578 | 15176 | 9288 | 29837 | 14002 | 8560 | 14838 | 11271 | 11786 | 29091 | 9214 | 15237 | 9920 | 15312 | 19514 | 18549 |
| 2005 | 10170 | 18125 | 11683 | 35484 | 20124 | 10750 | 16222 | 12727 | 14160 | 36325 | 11542 | 17631 | 11823 | 16832 | 22717 | 23386 |
| 2006 | 12332 | 21078 | 14278 | 41570 | 27122 | 13437 | 18032 | 14176 | 17046 | 38847 | 13635 | 19695 | 13708 | 18816 | 27658 | 28396 |
| 2007 | 14954 | 23848 | 15933 | 48338 | 29876 | 14779 | 19962 | 16803 | 19928 | 44369 | 15309 | 21801 | 15245 | 20099 | 33002 | 32622 |
| 2008 | 18706 | 29482 | 20180 | 53472 | 31868 | 19131 | 24772 | 20693 | 26400 | 53832 | 19386 | 26872 | 19166 | 23846 | 41921 | 39614 |
| 2009 | 22740 | 34851 | 24436 | 65195 | 36145 | 22542 | 28440 | 24431 | 30948 | 63959 | 22854 | 31062 | 23011 | 27688 | 51001 | 49201 |
| 2010 | 27687 | 40905 | 29779 | 74682 | 40198 | 26750 | 34612 | 29249 | 36116 | 72086 | 27586 | 36882 | 27182 | 33101 | 63001 | 59240 |
| 2011 | 36540 | 50271 | 39483 | 94373 | 50242 | 33996 | 44236 | 37584 | 46589 | 82055 | 36707 | 46297 | 34522 | 42137 | 79210 | 78021 |
| 2012 | 41944 | 56090 | 44327 | 111023 | 59362 | 37546 | 53472 | 43903 | 53333 | 98743 | 41679 | 52227 | 39790 | 48293 | 89631 | 90239 |
| 2013 | 47794 | 60375 | 49715 | 129009 | 69455 | 43951 | 57611 | 49130 | 60277 | 112907 | 48610 | 56113 | 45755 | 53496 | 98864 | 95139 |
| 2014 | 54557 | 69726 | 58430 | 148310 | 80101 | 51340 | 66539 | 57268 | 69753 | 133148 | 57545 | 64955 | 51689 | 61388 | 110838 | 106597 |

⁵ Calculated by the author based on data from the Statistics Agency of the Republic;

⁶ Calculated by the author based on data from the Statistics Agency of the Republic, with use of SPSS;

⁷ Composed by author based on data from the Statistics Agency of the Republic;

Table 8 - Oil reserves⁸

| | Akm | Akt | Alm | Atyr | WK | Zham | Kar | Kost | Kyz | Man | SK | Pav | NK | EK | Astana | Almaty |
|------|-----|-----|-----|------|----|------|-----|------|-----|-----|----|-----|----|----|--------|--------|
| 2002 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2005 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2006 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 2008 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 2009 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 2010 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 2011 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 2012 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 2013 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 2014 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |

Table 9 – Common border⁹

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---------------|----------|----------|----------|-----------|----------|----------|----------|-----------|----------|----------|-----------|----------|-----------|
| | Akm_Akt | Akm_Alm | Akm_Atyr | Akm_West | Akm_Zham | Akm_Kar | Akm_Kost | Akm_Kyz | Akm_Man | Akm_SK | Akm_Pav | Akm_NK | Akm_East |
| Common border | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 |
| | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| | Akm_Ast | Akm_Alm | Akt_Akm | Akt_Alm | Akt_Atyr | Akt_West | Akt_Zham | Akt_Kar | Akt_Kost | Akt_Kyz | Akt_Man | Akt_SK | Akt_Pav |
| Common border | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 0 |
| | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
| | Akt_NK | Akt_East | Akt_Ast | Akt_AlmC | Alm_Akm | Alm_Akt | Alm_Atyr | Alm_West | Alm_Zham | Alm_Kar | Alm_Kost | Alm_KO | Alm_Man |
| Common border | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 |
| | Alm_YKO | Alm_Pav | Alm_SKO | Alm_VKO | Alm_Ast | Alm_AlmC | Atyr_Akm | Atyr_Akt | Atyr_Alm | Atyr_ZKO | Atyr_Zham | Atyr_Kar | Atyr_Kost |
| Common border | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 |
| | Atyr_KO | Atyr_Man | Atyr_YKO | Atyr_Pav | Atyr_SKO | Atyr_VKO | Atyr_Ast | Atyr_AlmC | ZKO_Akm | ZKO_Akt | ZKO_Alm | ZKO_Atyr | ZKO_Zham |
| Common border | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 |
| | ZKO_Kar | ZKO_Kost | ZKO_KO | ZKO_Man | ZKO_YKO | ZKO_Pav | ZKO_SKO | ZKO_VKO | ZKO_Ast | ZKO_AlmC | Zham_Akm | Zham_Akt | Zham_Alm |
| Common border | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 |
| | Zham_Aty | Zham_ZKC | Zham_Kar | Zham_Kost | Zham_KO | Zham_Ma | Zham_YKC | Zham_Pav | Zham_SKO | Zham_VKO | Zham_Ast | Zham_Alm | Kar_Akm |
| Common border | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 |
| | Kar_Akt | Kar_Alm | Kar_Atyr | Kar_ZKO | Kar_Zham | Kar_Kost | Kar_KO | Kar_Man | Kar_YKO | Kar_Pav | Kar_SKO | Kar_VKO | Kar_Ast |
| Common border | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 |

⁸ Composed by the author based on data from the Statistics Agency of the Republic;⁹ Composed by the author based on data from the Statistics Agency of the Republic;

Table 9 – Common border (continuation)

| | | | | | | | | | | | | | |
|---------------|----------|----------|-----------|----------|-----------|----------|-----------|-----------|----------|-----------|----------|-----------|----------|
| | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 |
| | Kar_AlmC | Kost_Akm | Kost_Akt | Kost_Alm | Kost_Atyr | Kost_ZKO | Kost_Zham | Kost_Kar | Kost_KO | Kost_Man | Kost_YKO | Kost_Pav | Kost_SKO |
| Common border | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| | 118 | 119 | 120 | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 |
| | Kost_VKO | Kost_Ast | Kost_AlmC | KO_Akm | KO_Akt | KO_Alm | KO_Atyr | KO_ZKO | KO_Zham | KO_Kar | KO_Kost | KO_Man | KO_YKO |
| Common border | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 |
| | KO_Pav | KO_SKO | KO_VKO | KO_Ast | KO_AlmC | Man_Akm | Man_Akt | Man_Alm | Man_Atyr | Man_ZKO | Man_Zham | Man_Kar | Man_Kost |
| Common border | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| | 144 | 145 | 146 | 147 | 148 | 149 | 150 | 151 | 152 | 153 | 154 | 155 | 156 |
| | Man_KO | Man_YKO | Man_Pav | Man_SKO | Man_VKO | Man_Ast | Man_AlmC | YKO_Akm | YKO_Akt | YKO_Alm | YKO_Atyr | YKO_ZKO | YKO_Zham |
| Common border | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | 157 | 158 | 159 | 160 | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 |
| | YKO_Kar | YKO_Kost | YKO_KO | YKO_Man | YKO_Pav | YKO_SKO | YKO_VKO | YKO_Ast | YKO_AlmC | Pav_Akm | Pav_Akt | Pav_Alm | Pav_Atyr |
| Common border | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| | 170 | 171 | 172 | 173 | 174 | 175 | 176 | 177 | 178 | 179 | 180 | 181 | 182 |
| | Pav_ZKO | Pav_Zham | Pav_Kar | Pav_Kost | Pav_KO | Pav_Man | Pav_YKO | Pav_SKO | Pav_VKO | Pav_Ast | Pav_AlmC | SKO_Akm | SKO_Akt |
| Common border | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 |
| | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 | 192 | 193 | 194 | 195 |
| | SKO_Alm | SKO_Atyr | SKO_ZKO | SKO_Zham | SKO_Kar | SKO_Kost | SKO_KO | SKO_Man | SKO_YKO | SKO_Pav | SKO_VKO | SKO_Ast | SKO_AlmC |
| Common border | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| | 196 | 197 | 198 | 199 | 200 | 201 | 202 | 203 | 204 | 205 | 206 | 207 | 208 |
| | VKO_Akm | VKO_Akt | VKO_Alm | VKO_Atyr | VKO_ZKO | VKO_Zham | VKO_Kar | VKO_Kost | VKO_KO | VKO_Man | VKO_YKO | VKO_Pav | VKO_SKO |
| Common border | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| | 209 | 210 | 211 | 212 | 213 | 214 | 215 | 216 | 217 | 218 | 219 | 220 | 221 |
| | VKO_Ast | VKO_AlmC | Ast_Akm | Ast_Akt | Ast_Alm | Ast_Atyr | Ast_ZKO | Ast_Zham | Ast_Kar | Ast_Kost | Ast_KO | Ast_Man | Ast_YKO |
| Common border | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 222 | 223 | 224 | 225 | 226 | 227 | 228 | 229 | 230 | 231 | 232 | 233 | 234 |
| | Ast_Pav | Ast_SKO | Ast_VKO | Ast_AlmC | AlmC_Akm | AlmC_Akt | AlmC_Alm | AlmC_Atyr | AlmC_ZKO | AlmC_Zham | AlmC_Kar | AlmC_Kost | AlmC_KO |
| Common border | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 235 | 236 | 237 | 238 | 239 | 240 | | | | | | | |
| | AlmC_Ma | AlmC_YKC | AlmC_Pav | AlmC_SKO | AlmC_VKO | AlmC_Ast | | | | | | | |
| Common border | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | |

Table 10 – Area of regions ¹⁰

| | | | | | | | | | | | | | | |
|------|----------|----------|-----------|----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|----------|----------|----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| | Akm_Akt | Akm_Alm | Akm_Atyr | Akm_ZKO | Akm_Zham | Akm_Kar | Akm_Kost | Akm_KO | Akm_Man | Akm_YKO | Akm_Pav | Akm_SKO | Akm_VKO | Akm_Ast |
| Area | 300,6 | 224 | 118,6 | 151,3 | 144,3 | 428 | 196 | 226 | 165,6 | 117,3 | 124,8 | 98 | 283,2 | 0,7 |
| | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| | Akm_Alm | Akt_Akm | Akt_Alm | Akt_Atyr | Akt_ZKO | Akt_Zham | Akt_Kar | Akt_Kost | Akt_KO | Akt_Man | Akt_YKO | Akt_Pav | Akt_SKO | Akt_VKO |
| Area | 0,3 | 146,2 | 224 | 118,6 | 151,3 | 144,3 | 428 | 196 | 226 | 165,6 | 117,3 | 124,8 | 98 | 283,2 |
| | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 |
| | Akt_Ast | Akt_AlmC | Alm_Akm | Alm_Akt | Alm_Atyr | Alm_ZKO | Alm_Zham | Alm_Kar | Alm_Kost | Alm_KO | Alm_Man | Alm_YKO | Alm_Pav | Alm_SKO |
| Area | 0,7 | 0,3 | 146,2 | 300,6 | 118,6 | 151,3 | 144,3 | 428 | 196 | 226 | 165,6 | 117,3 | 124,8 | 98 |
| | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 |
| | Alm_VKO | Alm_Ast | Alm_AlmC | Atyr_Akm | Atyr_Akt | Atyr_Alm | Atyr_Zham | Atyr_Kar | Atyr_Kost | Atyr_KO | Atyr_Man | Atyr_YKO | Atyr_Pav | Atyr_SKO |
| Area | 283,2 | 0,7 | 0,3 | 146,2 | 300,6 | 224 | 144,3 | 428 | 196 | 226 | 165,6 | 117,3 | 124,8 | 98 |
| | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| | Atyr_VKO | Atyr_Ast | Atyr_AlmC | ZKO_Akm | ZKO_Akt | ZKO_Alm | ZKO_Atyr | ZKO_Zham | ZKO_Kar | ZKO_Kost | ZKO_KO | ZKO_Man | ZKO_YKO | ZKO_Pav |
| Area | 283,2 | 0,7 | 0,3 | 146,2 | 300,6 | 224 | 118,6 | 144,3 | 428 | 196 | 226 | 165,6 | 117,3 | 124,8 |
| | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 |
| | ZKO_SKO | ZKO_VKO | ZKO_AlmC | Zham_Akm | Zham_Akt | Zham_Alm | Zham_Atyr | Zham_ZKO | Zham_Kar | Zham_Kost | Zham_KO | Zham_Man | Zham_YKO | Zham_Pav |
| Area | 98 | 283,2 | 0,3 | 146,2 | 300,6 | 224 | 118,6 | 151,3 | 428 | 196 | 226 | 165,6 | 117,3 | 124,8 |
| | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 |
| | Zham_SKO | Zham_VKO | Zham_Ast | Zham_Alm | Kar_Akm | Kar_Akt | Kar_Alm | Kar_Atyr | Kar_ZKO | Kar_Zham | Kar_Kost | Kar_KO | Kar_Man | Kar_YKO |
| Area | 98 | 283,2 | 0,7 | 0,3 | 146,2 | 300,6 | 224 | 118,6 | 151,3 | 144,3 | 196 | 226 | 165,6 | 117,3 |
| | 99 | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 |
| | Kar_Pav | Kar_SKO | Kar_VKO | Kar_Ast | Kar_AlmC | Kost_Akm | Kost_Akt | Kost_Alm | Kost_Atyr | Kost_ZKO | Kost_Zham | Kost_Kar | Kost_KO | Kost_Man |
| Area | 124,8 | 98 | 283,2 | 0,7 | 0,3 | 146,2 | 300,6 | 224 | 118,6 | 151,3 | 144,3 | 428 | 226 | 165,6 |
| | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 | 121 | 122 | 123 | 124 | 125 | 126 |
| | Kost_YKO | Kost_Pav | Kost_SKO | Kost_VKO | Kost_Ast | Kost_AlmC | KO_Akm | KO_Akt | KO_Alm | KO_Atyr | KO_ZKO | KO_Zham | KO_Kar | KO_Kost |
| Area | 117,3 | 124,8 | 98 | 283,2 | 0,7 | 0,3 | 146,2 | 300,6 | 224 | 118,6 | 151,3 | 144,3 | 428 | 196 |
| | 127 | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 |
| | KO_Man | KO_YKO | KO_Pav | KO_SKO | KO_VKO | KO_Ast | KO_AlmC | Man_Akm | Man_Akt | Man_Alm | Man_Atyr | Man_ZKO | Man_Zham | Man_Kar |
| Area | 165,6 | 117,3 | 124,8 | 98 | 283,2 | 0,7 | 0,3 | 146,2 | 300,6 | 224 | 118,6 | 151,3 | 144,3 | 428 |
| | 141 | 142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 | 151 | 152 | 153 | 154 |
| | Man_Kost | Man_KO | Man_YKO | Man_Pav | Man_SKO | Man_VKO | Man_Ast | Man_AlmC | YKO_Akm | YKO_Akt | YKO_Alm | YKO_Atyr | YKO_ZKO | YKO_Zham |
| Area | 196 | 226 | 117,3 | 124,8 | 98 | 283,2 | 0,7 | 0,3 | 146,2 | 300,6 | 224 | 118,6 | 151,3 | 144,3 |
| | 155 | 156 | 157 | 158 | 159 | 160 | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 |
| | YKO_Kar | YKO_Kost | YKO_KO | YKO_Man | YKO_Pav | YKO_SKO | YKO_VKO | YKO_Ast | YKO_AlmC | Pav_Akm | Pav_Akt | Pav_Alm | Pav_Atyr | Pav_ZKO |
| Area | 428 | 196 | 226 | 165,6 | 124,8 | 98 | 283,2 | 0,7 | 0,3 | 146,2 | 300,6 | 224 | 118,6 | 151,3 |
| | 169 | 170 | 171 | 172 | 173 | 174 | 175 | 176 | 177 | 178 | 179 | 180 | 181 | 182 |
| | Pav_Zham | Pav_Kar | Pav_Kost | Pav_KO | Pav_Man | Pav_YKO | Pav_SKO | Pav_VKO | Pav_Ast | Pav_AlmC | SKO_Akm | SKO_Akt | SKO_Alm | SKO_Atyr |
| Area | 144,3 | 428 | 196 | 226 | 165,6 | 117,3 | 98 | 283,2 | 0,7 | 0,3 | 146,2 | 300,6 | 224 | 118,6 |
| | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 | 192 | 193 | 194 | 195 | 196 |
| | SKO_ZKO | SKO_Zham | SKO_Kar | SKO_Kost | SKO_KO | SKO_Man | SKO_YKO | SKO_Pav | SKO_VKO | SKO_Ast | SKO_AlmC | VKO_Akm | VKO_Akt | VKO_Alm |
| Area | 151,3 | 144,3 | 428 | 196 | 226 | 165,6 | 117,3 | 124,8 | 283,2 | 0,7 | 0,3 | 146,2 | 300,6 | 224 |
| | 197 | 198 | 199 | 200 | 201 | 202 | 203 | 204 | 205 | 206 | 207 | 208 | 209 | 210 |
| | VKO_Atyr | VKO_ZKO | VKO_Zham | VKO_Kar | VKO_Kost | VKO_KO | VKO_Man | VKO_YKO | VKO_Pav | VKO_SKO | VKO_Ast | VKO_AlmC | Ast_Akm | Ast_Akt |
| Area | 118,6 | 151,3 | 144,3 | 428 | 196 | 226 | 165,6 | 117,3 | 124,8 | 98 | 0,7 | 0,3 | 146,2 | 300,6 |
| | 211 | 212 | 213 | 214 | 215 | 216 | 217 | 218 | 219 | 220 | 221 | 222 | 223 | 224 |
| | Ast_Alm | Ast_Atyr | Ast_ZKO | Ast_Zham | Ast_Kar | Ast_Kost | Ast_KO | Ast_Man | Ast_YKO | Ast_Pav | Ast_SKO | Ast_VKO | Ast_AlmC | AlmC_Akm |
| Area | 224 | 118,6 | 151,3 | 144,3 | 428 | 196 | 226 | 165,6 | 117,3 | 124,8 | 98 | 283,2 | 0,3 | 146,2 |
| | 225 | 226 | 227 | 228 | 229 | 230 | 231 | 232 | 233 | 234 | 235 | 236 | 237 | 238 |
| | AlmC_Akt | AlmC_Alm | AlmC_Atyr | AlmC_ZKO | AlmC_Zham | AlmC_Kar | AlmC_Kost | AlmC_KO | AlmC_Man | AlmC_YKO | AlmC_Pav | AlmC_SKO | AlmC_VKO | AlmC_Ast |
| Area | 300,6 | 224 | 118,6 | 151,3 | 144,3 | 428 | 196 | 226 | 165,6 | 117,3 | 124,8 | 98 | 283,2 | 0,7 |

¹⁰ Composed by the author based on data from the Statistics Agency of the Republic;

Table 11 – Distance to the capital ¹¹

| | | | | | | | | | | | | | | | |
|----------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|----------|----------|----------|----------|----------|----------|-----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| | Akm_Akt | Akm_Alm | Akm_Atyr | Akm_ZKO | Akm_Zham | Akm_Kar | Akm_Kost | Akm_KO | Akm_Man | Akm_YKO | Akm_Pav | Akm_SKO | Akm_VKO | Akm_Ast | Akm_AlmC |
| distance | 1201 | 1658 | 1796 | 1698 | 1625 | 495 | 430 | 1304 | 2500 | 1804 | 715 | 188 | 1327 | 276 | 1523 |
| | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| | Akt_Akm | Akt_Alm | Akt_Atyr | Akt_ZKO | Akt_Zham | Akt_Kar | Akt_Kost | Akt_KO | Akt_Man | Akt_YKO | Akt_Pav | Akt_SKO | Akt_VKO | Akt_Ast | Akt_AlmC |
| distance | 1201 | 2430 | 595 | 461 | 1684 | 1659 | 760 | 1063 | 1301 | 1508 | 1895 | 1210 | 2507 | 1448 | 2191 |
| | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 |
| | Alm_Akm | Alm_Akt | Alm_Atyr | Alm_ZKO | Alm_Zham | Alm_Kar | Alm_Kost | Alm_KO | Alm_Man | Alm_YKO | Alm_Pav | Alm_SKO | Alm_VKO | Alm_Ast | Alm_AlmC |
| distance | 1658 | 2430 | 3026 | 1919 | 758 | 1148 | 2072 | 1383 | 3732 | 937 | 1184 | 1858 | 809 | 1359 | 249 |
| | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| | Atyr_Akm | Atyr_Akt | Atyr_Alm | Atyr_ZKO | Atyr_Zham | Atyr_Kar | Atyr_Kost | Atyr_KO | Atyr_Man | Atyr_YKO | Atyr_Pav | Atyr_SKO | Atyr_VKO | Atyr_Ast | Atyr_AlmC |
| distance | 1796 | 595 | 3026 | 488 | 2280 | 2242 | 1355 | 1659 | 893 | 2104 | 2478 | 1805 | 3090 | 2031 | 2787 |
| | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 |
| | ZKO_Akm | ZKO_Akt | ZKO_Alm | ZKO_Atyr | ZKO_Zham | ZKO_Kar | ZKO_Kost | ZKO_KO | ZKO_Man | ZKO_YKO | ZKO_Pav | ZKO_SKO | ZKO_VKO | ZKO_Ast | ZKO_AlmC |
| distance | 1698 | 461 | 1919 | 488 | 2174 | 2137 | 1250 | 1553 | 1388 | 1998 | 2373 | 1700 | 2985 | 1926 | 2680 |
| | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| | Zham_Akm | Zham_Akt | Zham_Alm | Zham_Atyr | Zham_ZKO | Zham_Kar | Zham_Kost | Zham_KO | Zham_Man | Zham_YKO | Zham_Pav | Zham_SKO | Zham_VKO | Zham_Ast | Zham_AlmC |
| distance | 1625 | 1684 | 758 | 2280 | 2174 | 1104 | 1834 | 617 | 2986 | 167 | 1539 | 1825 | 1577 | 1326 | 498 |
| | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 | 105 |
| | Kar_Akm | Kar_Akt | Kar_Alm | Kar_Atyr | Kar_ZKO | Kar_Zham | Kar_Kost | Kar_KO | Kar_Man | Kar_YKO | Kar_Pav | Kar_SKO | Kar_VKO | Kar_Ast | Kar_AlmC |
| distance | 495 | 1659 | 1148 | 2242 | 2137 | 1104 | 909 | 929 | 2948 | 1283 | 412 | 695 | 923 | 196 | 1013 |
| | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 |
| | Kost_Akm | Kost_Akt | Kost_Alm | Kost_Atyr | Kost_ZKO | Kost_Zham | Kost_Kar | Kost_KO | Kost_Man | Kost_YKO | Kost_Pav | Kost_SKO | Kost_VKO | Kost_Ast | Kost_AlmC |
| distance | 430 | 760 | 2072 | 1355 | 1250 | 1834 | 909 | 1210 | 2059 | 1658 | 1141 | 439 | 1753 | 694 | 1937 |
| | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 |
| | KO_Akm | KO_Akt | KO_Alm | KO_Atyr | KO_ZKO | KO_Zham | KO_Kar | KO_Kost | KO_Man | KO_YKO | KO_Pav | KO_SKO | KO_VKO | KO_Ast | KO_AlmC |
| distance | 1304 | 1063 | 1383 | 1659 | 1553 | 617 | 929 | 1210 | 2365 | 441 | 1368 | 1365 | 1887 | 1155 | 1123 |
| | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 |
| | Man_Akm | Man_Akt | Man_Alm | Man_Atyr | Man_ZKO | Man_Zham | Man_Kar | Man_Kost | Man_KO | Man_YKO | Man_Pav | Man_SKO | Man_VKO | Man_Ast | Man_AlmC |
| distance | 2500 | 1301 | 3732 | 893 | 1388 | 2986 | 2948 | 2059 | 2365 | 2810 | 3184 | 2509 | 3796 | 2737 | 3493 |
| | 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 | 160 | 161 | 162 | 163 | 164 | 165 |
| | YKO_Akm | YKO_Akt | YKO_Alm | YKO_Atyr | YKO_ZKO | YKO_Zham | YKO_Kar | YKO_Kost | YKO_KO | YKO_Man | YKO_Pav | YKO_SKO | YKO_VKO | YKO_Ast | YKO_AlmC |
| distance | 1804 | 1508 | 937 | 2104 | 1998 | 167 | 1283 | 1658 | 441 | 2810 | 1710 | 1813 | 1756 | 1505 | 677 |
| | 166 | 167 | 168 | 169 | 170 | 171 | 172 | 173 | 174 | 175 | 176 | 177 | 178 | 179 | 180 |
| | Pav_Akm | Pav_Akt | Pav_Alm | Pav_Atyr | Pav_ZKO | Pav_Zham | Pav_Kar | Pav_Kost | Pav_KO | Pav_Man | Pav_YKO | Pav_SKO | Pav_VKO | Pav_Ast | Pav_AlmC |
| distance | 715 | 1895 | 1184 | 2478 | 2373 | 1539 | 412 | 1141 | 1368 | 3184 | 1710 | 915 | 592 | 426 | 1444 |
| | 181 | 182 | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 | 192 | 193 | 194 | 195 |
| | SKO_Akm | SKO_Akt | SKO_Alm | SKO_Atyr | SKO_ZKO | SKO_Zham | SKO_Kar | SKO_Kost | SKO_KO | SKO_Man | SKO_YKO | SKO_Pav | SKO_VKO | SKO_Ast | SKO_AlmC |
| distance | 188 | 1210 | 1858 | 1805 | 1700 | 1825 | 695 | 439 | 1365 | 2509 | 1813 | 915 | 1527 | 476 | 1723 |
| | 196 | 197 | 198 | 199 | 200 | 201 | 202 | 203 | 204 | 205 | 206 | 207 | 208 | 209 | 210 |
| | VKO_Akm | VKO_Akt | VKO_Alm | VKO_Atyr | VKO_ZKO | VKO_Zham | VKO_Kar | VKO_Kost | VKO_KO | VKO_Man | VKO_YKO | VKO_Pav | VKO_SKO | VKO_Ast | VKO_AlmC |
| distance | 1327 | 2507 | 809 | 3090 | 2985 | 1577 | 923 | 1753 | 1887 | 3796 | 1756 | 592 | 1527 | 1038 | 1068 |
| | 211 | 212 | 213 | 214 | 215 | 216 | 217 | 218 | 219 | 220 | 221 | 222 | 223 | 224 | 225 |
| | Ast_Akm | Ast_Akt | Ast_Alm | Ast_Atyr | Ast_ZKO | Ast_Zham | Ast_Kar | Ast_Kost | Ast_KO | Ast_Man | Ast_YKO | Ast_Pav | Ast_SKO | Ast_VKO | Ast_AlmC |
| distance | 276 | 1448 | 1359 | 2031 | 1926 | 1326 | 196 | 694 | 1155 | 2737 | 1505 | 426 | 476 | 1038 | 1224 |
| | 226 | 227 | 228 | 229 | 230 | 231 | 232 | 233 | 234 | 235 | 236 | 237 | 238 | 239 | 240 |
| | AlmC_Akm | AlmC_Akt | AlmC_Alm | AlmC_Atyr | AlmC_ZKO | AlmC_Zham | AlmC_Kar | AlmC_Kost | AlmC_KO | AlmC_Man | AlmC_YKO | AlmC_Pav | AlmC_SKO | AlmC_VKO | AlmC_Ast |
| distance | 1523 | 2191 | 249 | 2787 | 2680 | 498 | 1013 | 1937 | 1123 | 2191 | 677 | 1444 | 1723 | 1068 | 1224 |

¹¹ Composed by the author based on data from the Statistics Agency of the Republic;

Table 12 – Air pollution (tons)¹²

| | Akm | Akt | Alm | Atyr | WK | Zham | Kar | Kost | Kyz | Man | SK | Pav | NK | EK | Astana | Almaty |
|------|--------|--------|---------|---------|--------|--------|--------|--------|---------|--------|--------|--------|--------|--------|---------|---------|
| 2002 | 1016,5 | 567,2 | 1232,2 | 989,3 | 783,2 | 883,4 | 782,3 | 873,5 | 1293,2 | 1092,8 | 947,2 | 993,4 | 785,3 | 1274,2 | 11293,9 | 11309,4 |
| 2003 | 1182,5 | 654,5 | 1872,3 | 1092,4 | 862,9 | 1092,3 | 799,4 | 893,9 | 1793,5 | 849,9 | 1831,6 | 1284,3 | 849,6 | 1099,4 | 13527,8 | 13280,9 |
| 2004 | 1317,5 | 797,2 | 2563,9 | 1203,9 | 899,4 | 1293,5 | 928,3 | 1028,4 | 2640,5 | 984,4 | 1975,1 | 1739,4 | 1293,5 | 1192,5 | 16304,6 | 15853,2 |
| 2005 | 1608,5 | 1491,4 | 3047,8 | 1792,1 | 901,2 | 1495,7 | 1172,4 | 1293,4 | 3589,4 | 1025,5 | 1596,2 | 2093,4 | 1694,4 | 2108,6 | 15293,4 | 17062,3 |
| 2006 | 1898,4 | 1994,2 | 3782,1 | 2409,2 | 904,6 | 1626,3 | 1384,2 | 1483,9 | 3084,9 | 1385,6 | 1736,9 | 3274,9 | 1479,5 | 2947,5 | 12384,1 | 18776,3 |
| 2007 | 2153,4 | 2562,7 | 4392,3 | 3202,9 | 1192,5 | 1829,8 | 1293,1 | 1739,1 | 3745,6 | 1399,9 | 2093,1 | 3094,1 | 1739,6 | 3495,2 | 16338,4 | 19773,4 |
| 2008 | 2670,2 | 2605,6 | 4809,5 | 4382,9 | 1165,5 | 2293,5 | 1809,5 | 2375,9 | 4095,1 | 1502,6 | 2142,8 | 3864,7 | 1893,4 | 3894,6 | 17937,5 | 26844,5 |
| 2009 | 3164,8 | 2652,1 | 5930,1 | 7937,9 | 1203,2 | 2649,6 | 2284,9 | 2849,9 | 4024,5 | 1793,4 | 2840,5 | 4095,6 | 2009,4 | 4028,5 | 18936,4 | 26561,1 |
| 2010 | 3748,5 | 2766,1 | 6899,2 | 8927,1 | 1257,3 | 3204,5 | 2694,2 | 3794,2 | 6038,6 | 2048,5 | 3309,5 | 4850,1 | 2198,3 | 5584,2 | 19037,4 | 20938,5 |
| 2011 | 4650,6 | 3637,9 | 8793,4 | 9002,5 | 1682,9 | 3845,1 | 3484,2 | 4799,4 | 8730,1 | 2395,6 | 4085,1 | 5083,6 | 2294,5 | 6084,1 | 20844,1 | 19833,7 |
| 2012 | 5250,4 | 4140,8 | 10293,9 | 10927,3 | 1729,6 | 4982,4 | 6083,8 | 4926,5 | 9302,5 | 6395,9 | 4475,8 | 5840,2 | 3084,5 | 7946,5 | 22910,7 | 21834,5 |
| 2013 | 5678,5 | 4643,5 | 12001,5 | 11028,9 | 1703,4 | 4752,4 | 8994,5 | 5093,4 | 10384,6 | 7939,1 | 5009,3 | 6039,7 | 3485,5 | 8974,5 | 21028,3 | 24762,4 |
| 2014 | 6600,2 | 5517,2 | 10921,4 | 18234,5 | 1839,5 | 5003,8 | 8630,2 | 5923,4 | 12840,5 | 8375,6 | 5873,9 | 6904,7 | 4059,9 | 8093,2 | 20834,5 | 21736,7 |

Table 13 – Gross Regional Product (million tenge)¹³

| | Akm | Akt | Alm | Atyr | WK | Zham | Kar | Kost | Kyz | Man | SK | Pav | NK | EK | Astana | Almaty |
|------|---------|---------|---------|---------|---------|--------|---------|---------|---------|---------|---------|---------|--------|---------|---------|---------|
| 2002 | 99681 | 158329 | 159456 | 372999 | 166425 | 68637 | 324978 | 163207 | 90406 | 188812 | 209559 | 193307 | 90673 | 258401 | 209235 | 601100 |
| 2003 | 116416 | 201370 | 188213 | 510850 | 200732 | 94917 | 379227 | 201191 | 118577 | 208418 | 247686 | 247686 | 104110 | 291556 | 287947 | 747938 |
| 2004 | 148228 | 270368 | 232305 | 596666 | 329471 | 122308 | 462472 | 247336 | 163341 | 275685 | 280399 | 306193 | 135379 | 351675 | 419313 | 984828 |
| 2005 | 174478 | 377722 | 290486 | 752094 | 368485 | 150512 | 618080 | 292503 | 219933 | 402238 | 322079 | 349654 | 164006 | 418792 | 643909 | 1339847 |
| 2006 | 254186 | 517032 | 408617 | 1094151 | 512320 | 192205 | 922635 | 387344 | 363797 | 593994 | 423488 | 462208 | 236877 | 615123 | 957071 | 2272683 |
| 2007 | 406298 | 678939 | 550708 | 1234008 | 617693 | 266468 | 1144309 | 560378 | 499620 | 756592 | 611764 | 591978 | 320391 | 800528 | 1134214 | 2675907 |
| 2008 | 477641 | 871514 | 677309 | 1798475 | 826546 | 324807 | 1463027 | 704281 | 685211 | 1095816 | 731383 | 862422 | 403003 | 890041 | 1291813 | 2949629 |
| 2009 | 524837 | 853646 | 773228 | 1969924 | 822978 | 348916 | 1515792 | 723860 | 641576 | 1108521 | 925499 | 862841 | 403921 | 983664 | 1373187 | 3175259 |
| 2010 | 577157 | 1151447 | 977887 | 2791961 | 1042029 | 453897 | 1844650 | 860486 | 840780 | 1422875 | 1135903 | 1077966 | 456905 | 1269613 | 1796679 | 3947434 |
| 2011 | 811534 | 1433096 | 1286360 | 3334280 | 1257354 | 616916 | 2380909 | 1162270 | 1067185 | 1782891 | 1431368 | 1379770 | 672623 | 1553741 | 2298345 | 4865449 |
| 2012 | 803896 | 1674698 | 1454294 | 3292532 | 1711408 | 763862 | 2458967 | 1156231 | 1176555 | 1640137 | 1870590 | 1528367 | 683014 | 1819548 | 2582856 | 5730006 |
| 2013 | 959809 | 1760591 | 1749374 | 3590141 | 1734369 | 880659 | 2634260 | 1354477 | 1332733 | 1907135 | 2142446 | 1766029 | 753510 | 2072411 | 3484793 | 7152416 |
| 2014 | 1061047 | 1849112 | 1824020 | 4023388 | 1907810 | 988288 | 2968538 | 1356453 | 1384362 | 2220142 | 2362405 | 1766411 | 807001 | 2237675 | 3936997 | 8018257 |

¹² Composed by the author based on data from the Statistics Agency of the Republic;¹³ Composed by the author based on data from the Statistics Agency of the Republic;