

**Czech University of Life Sciences Prague  
Faculty of Economics and Management**

**Department of Economics**



**Bachelor Thesis**

**Foreign trade of the Republic of Kazakhstan**

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# BACHELOR THESIS ASSIGNMENT

Olga Gorbunova

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Thesis title

**Foreign Trade of the Republic of Kazakhstan**

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## Objectives of thesis

Evaluation position of Kazakhstan in foreign trade, imports and exports of the country, markets, assess contribution of the foreign trade in Kazakh economy, to characterize the structure of the country's commodity turnover and stability of foreign trade, impact of various variables such as crude oil export of Kazakhstan, unemployment rate and foreign direct investment to GDP of the country.

## Methodology

Theoretical part consists of synthesis, abstraction, observation, deduction, descriptive and comparative analysis.

Practical part contains analytical methods, estimation parameters, statistical methods, methods of qualitative and quantitative data analysis, regression model.

**The proposed extent of the thesis**

40 pages

**Keywords**

Trade, Exports, Imports, Production, Kazakhstan, Economy

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- Ashimbaev, M. (2005). Kazakhstan's accession to the World Trade Organization: problems and prospects. Almaty: Klassika. ISBN: 9965966567, 9789965966569
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## **Declaration**

I declare that I have worked on my bachelor thesis titled “Foreign trade of the Republic of Kazakhstan” by myself and I have used only the sources mentioned at the end of the thesis. As the author of the bachelor thesis, I declare that the thesis does not break copyrights of any third person.

In Prague on 15th March 2018

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Olga Gorbunova

# Foreign trade of the Republic of Kazakhstan

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## Zahraniční obchod Republiky Kazachstánu

### Souhrn

Tato práce popisuje stav zahraničního obchodu a ovlivňující faktory v Kazachstánu. Vysvětluje, jaký je trh, jak funguje, a celkový rozvoj obchodu v zemi v různých obdobích. Byly analyzovány obecné informace o současné situaci na trhu zahraničního obchodu a jeho změně dynamiky za poslední 15leté období. A také vysvětlení týkající se nástrojů regulace obchodu, obchodní bilance, vývozu a dovozu země. Pokud jde o praktickou část, data byla nalezena již několik let a analyzovali, aby vytvořily matematické modely pro další analýzu. Regresní analýza ukázala vliv vývozu ropy, přímých zahraničních investic, nezaměstnanosti na HDP na obyvatele v zemi. Obecně se jedná o simulaci provedenou v programu Gretl. Výsledkem je, že zjistila, která z proměnných má významnější dopad. Při této příležitosti jsou připojena autorova vysvětlení a doporučení.

**Klíčová slova:** Obchod, Vývoz, Dovoz, Výroba, Kazachstán, Ekonomika;

### Summary

This thesis describes the state of foreign trade and influencing factors in Kazakhstan. Explains what the market is, how it works and the overall development of trade in the country in different periods. The general information on the current situation on the foreign trade market and its change in the dynamics over the last period of 15 years analyzed. And also, explanations are given regarding instruments of trade regulation, trade balance, exports, and imports of the country. As for the practical part, data found for several years, and they analyzed to make mathematical models for further analysis. Regression analysis showed the impact of export of oil, foreign direct investment, unemployment on GDP per capita in the country. In general, the simulation performed in the Gretl program. As a result, it revealed which of the variables has a more significant impact. On this occasion, the author's explanations and recommendations attached.

**Keywords:** Trade, Exports, Imports, Production, Kazakhstan, Economy;

## **Table of contents**

1	Introduction.....	10
2	Objectives and Methodology .....	11
2.1	Objectives.....	11
2.2	Methodology .....	11
3	Theoretical part .....	12
3.1	Trade Market.....	12
3.1.1	Regulation of Foreign Trade .....	13
3.2	Development of World Trade .....	14
3.3	Overview of Kazakhstan .....	16
3.3.1	Kazakhstan and the Soviet Period.....	17
3.3.2	Independence of Kazakhstan.....	20
3.4	Foreign Trade Activities .....	21
3.4.1	Eurasian Economic Union.....	22
3.4.2	World Trade Organization.....	23
3.4.3	Membership of the WTO .....	25
4	Practical part .....	27
4.1	Trade in Kazakhstan.....	27
4.1.1	Export.....	28
4.1.2	Import .....	29
4.1.3	Estimation of the dynamics of GDP .....	31
4.2	Regression Model. Impact of various variables on GDP of Kazakhstan ...	32
4.2.1	Data .....	32
4.2.2	Declaration .....	33
4.2.3	Estimation of parameters in Gretl .....	34

4.2.4	Verification of estimated parameters .....	36
4.2.5	Testing for Autocorrelation in Gretl.....	37
4.2.6	Test for Collinearity .....	38
4.2.7	Test for heteroskedasticity.....	39
4.3	Regression Model II.....	41
5	Conclusion .....	45
6	References.....	47



## List of Tables

Table 1: Top 10 exporters of Kazakhstan 2016 .....	28
Table 2: Top 10 importers of Kazakhstan 2016.....	29
Table 3: GDP, export of oil, FDI and unemployment rate in Kazakhstan 2002-2016 .....	32
Table 4: Correlation matrix.....	34
Table 5: OLS using observations 2002-2016 (T = 15) .....	35
Table 6: OLS II using observations 2002-2016 (T = 15).....	41

## List of Figures

Figure 1: Kazakhstan area	16
Figure 2: Ethnic demography of Kazakhstan	17
Figure 3: Total trade in goods and services 2005 - 2016	27
Figure 4: GDP per capita (current US\$) 2005 - 2016	31
Figure 5: Graphs of variables	34
Figure 6: Normality test	39

## **1 Introduction**

The Republic of Kazakhstan is a region with many valuable resources, but colliding in its development with many problems. On the one hand, the rich natural resources, an educated workforce, cultural diversity. In particular, the proximity to China and Russia is a good basis for the development of the economies of the region. On the other hand, the country has no direct access to seaports, is at a great distance from many global economic centers.

Foreign trade is one of the most important factors of economic development. Growth and improvement of foreign trade are one of the most difficult foreign economic problems of Kazakhstan. It has always been and remains a key issue in national development. The country is one of the largest suppliers of oil in the world oil market (Dukenbaev, 1998). Oil trade plays a key role in international relations with the countries of Asia, the CIS and Europe. Nowadays, Kazakhstan's exports represent a large branch of the economy, through which about twenty percent of its gross national product is sold. Almost 60% of the oil produced is exported. It is an important source of currency for meeting the priority needs of the national economy. The state of exports largely determines the process of Kazakhstan's integration into the world economy. In the country because of the difficulties of access to global markets. Trade with other countries in the region can be of particular importance.

In the theoretical part, one can find the detailed situation of the economic situation in the country and the most recent changes in regional trade policy, such as the creation of the Customs Union (CU) and accession to the WTO.

The practical part is devoted to the analysis of the trade balance, the top exports and imports, the evaluation of the indicator economy of the country's annual GDP growth in the period from 2005 to 2016. And regression analysis also shows the impact of such indicators as oil exports, foreign investment and unemployment in the country on GDP.

## **2 Objectives and Methodology**

### **2.1 Objectives**

The task of the study is to review and assess the position of the Republic of Kazakhstan in foreign trade, assess market relations with other countries or, more precisely, the relationship of imports and exports. Review the membership of market activity. Identify status of the country, the prevailing goods and services that it owns. Describe the turnover and stability of foreign trade. Analyze the dynamics of the country's growth in the period from 2005 to 2016. Recognize the factors through testing that can directly or indirectly affect GDP growth.

### **2.2 Methodology**

In this work, to achieve greater truth, methods such as synthesis, abstraction, observation, deduction, descriptive and comparative analysis are used. The analysis is then carried out in practice using a qualitative and quantitative method, as well as evaluation parameters and tests. With the help of the data found, a model is constructed for the regression analysis to identify the influencing factors and, in the end, confirming the testing and interpreting the responses.

### **3 Theoretical part**

In general, this chapter examines the primary definitions of the market, the structure of the country's development at different stages in this direction and how it works theoretically.

#### **3.1 Trade Market**

Trade is a traditional and ancient form of international economic relations. Having arisen many centuries ago, it continues to hold important positions in the overall complex of world economic relations. International trade allows us to expand the markets for goods and services that would not have been available without it. Thanks to it, we can buy foreign goods, choose not only between domestic competitors, but also between foreign ones. As a result of international trade, a broader competitive environment appears, and sellers try to offer the consumer more favorable prices.

World trade is the exchange of goods and services among state-owned farms. The development of world trade has led to the emergence of a world market of goods. The world market is a set of interconnected and interacting national markets of individual countries participating in the international division of labor and connected with each other by a system of international economic relations (Center-yf.ru, 2009).

International trade is growing and developing regarding the profitability and appropriateness of the international division of labor, the concentration of the production of certain products in individual countries with a view to their subsequent sale in the world market and thereby meet the needs of other countries creating demand for this product. Previously, the basic prerequisite for international trade was the uneven distribution of resources between different countries, but today differences in the efficiency of the use of resources and the technologies used are becoming increasingly important.

Foreign trade in goods and services is defined as changes in services or resources between two or more economies. At the world level, trade is less mobile if compared to domestic trade. Moreover, many countries have their own national currency, which means necessity to compare different currencies in world trade and assess their value in the market.

Foreign trade is subject to significant state control, as compliance with trade rules and regulation of competition in the market. Indicators characterizing foreign trade in

many countries such as trade volume of turnover, which means the volume of exports and imports. Ratio of exports and imports, withholding of foreign trade balance. A positive balance of foreign trade means that if the quantity of exports exceeds imports, the active trade balance is called. Negative or passive trade balance when the amount of imports exceeds exports. Meanwhile, the difference between export and import is a net export.

A quota is used to regulate the volume of trade or restrictions. The export and import quota is the proportion of the gains in the gross national product. The volume of exports and imports of national production shows the extent to which the country is included in international trade as a degree of openness of the economy. Export potential or export quota is the number of products that can be sold without damage to its own economy. In foreign trade of the country with which the country is traded are subjects, and what is traded in the country is called objects.

### **3.1.1 Regulation of Foreign Trade**

To assist regulation the commodity turnover such instruments of influence as customs tariffs, restrictive conditions, intergovernmental treaties and measures to stimulate exports and imports.

Tariff and non-tariff methods are two groups of protectionist policies. Where protectionism means the economic protection of the state, manifested in fencing the domestic market of its country from the penetration of foreign goods on it, as well as in encouraging the export of competitiveness of goods in foreign markets. So, the tariff method is a systematized list of duties by which the government imposes certain goods imported into or exported from the country. Customs duties are taxes levied by the state for transporting goods, property, valuables across the border of the country. Since customs duties are related to goods crossing the border, they are subdivided, first of all, into import, export and transit. The owner of the imported goods after payment of the duty will raise the price. Tariff limiting imports, which leads to a deterioration in the capacity of the consumer, but it is beneficial to the state and domestic producers.

Non-tariff regulation is a method of state regulation of foreign trade in goods, implemented through the introduction, termination of quantitative restrictions and other measures of state regulation of foreign trade activities, other than measures of customs and tariff regulation. Non-tariff (quantitative) restrictions represent the direct administrative

norms established by the state, which determine the number and range of goods allowed for importation or exportation. Along with the type and quantity, the range of countries from which these goods can be imported is sometimes restricted. Quantitative restrictions can also be used to eliminate trade imbalances with individual countries and also as a response to discriminatory actions of other countries. State restrictions on exports are introduced most often in relation to those goods in which the country itself is in dire need. Just the same, quoting is a restriction on the quantity (quota) of exports or imports of goods of certain denominations. A quota is used to regulate the volume of trade or restrictions. The export and import quota is the proportion of the gains in the gross national product. The volume of exports and imports of national production shows the extent to which the country is included in international trade as a degree of openness of the economy. Export potential or export quota is the number of products that can be sold without damage to its own economy. In foreign trade of the country with which the country is traded are subjects, and what is traded in the country is called objects (Aup.ru, 2005).

### **3.2 Development of World Trade**

The need for foreign trade is caused by the uneven development of various industries in different countries. The products of the most dynamically developing industries, which cannot be sold on the domestic market, are exported abroad.

Structural shifts occurring in the economies of states under the influence of the scientific and technological revolution (STR), the specialization and co-operation of industrial production strengthen the interaction of national economies, which facilitates the intensification of international trade. Development of foreign trade:

- allows to overcome the limitations of the national resource base;
- Expands the capacity of the domestic market and establishes links between the national market and the world market;
- ensures the receipt of additional income due to the difference in national and international production costs;
- Expands the production capabilities of countries (there is a shift in the production capacity curve to the right);

- leads to a deepening of the specialization of production and, on this basis, increasing the efficiency of the use of resources and increasing the volume of production;

World trade is formed on the basis of foreign trade and carried out by different countries. The term "foreign trade" refers to trade with other countries, consisting of paid import (buy from abroad) and paid export (sell abroad) of goods.

Foreign trade, or international trade, is the exchange of goods and services between different countries, related to the overall internationalization of economic life and the intensification of the international division of labor in the context of scientific and technological revolution.

Since the second half of the twentieth century, world trade is developing rapidly. Evolution of foreign trade in the second half of XX century was characterized by overcoming the main consequences of the disorganization of world commodity turnover, the political decolonization of most of the newly free countries, the shifts in the world market due the scientific and technological revolution, fuel and raw materials, monetary, financial and economic crises.

At the present stage of the world economy development, there is a tendency to unlimited expansion of production volumes, while the capacity of the domestic market is limited by the solvency of the population. Therefore, production inevitably grows beyond the boundaries of domestic demand and entrepreneurs in each country are struggling for foreign markets. Concerning the ever-increasing consumption of raw materials, all the resources available in the world are needed almost every country in the world.

According to the World Trade Organization (WTO), for every 10% of world output growth, a 16% increase in world trade volume is created, and thus more favorable conditions for its development are created. When there are failures in trade, the development of production also slows down. The pace of world trade has significantly increased over the past two decades.

### 3.3 Overview of Kazakhstan

The Republic of Kazakhstan is the core of the Eurasian continent with rich historical and cultural values and the birthplace of the Great Silk Road and nomads. Geographically, the country's territory is located on the borders with such countries as Russia, China, Uzbekistan, Kyrgyzstan and Turkmenistan. The Caspian Sea washes the western part of the country.

Figure 1: Kazakhstan area

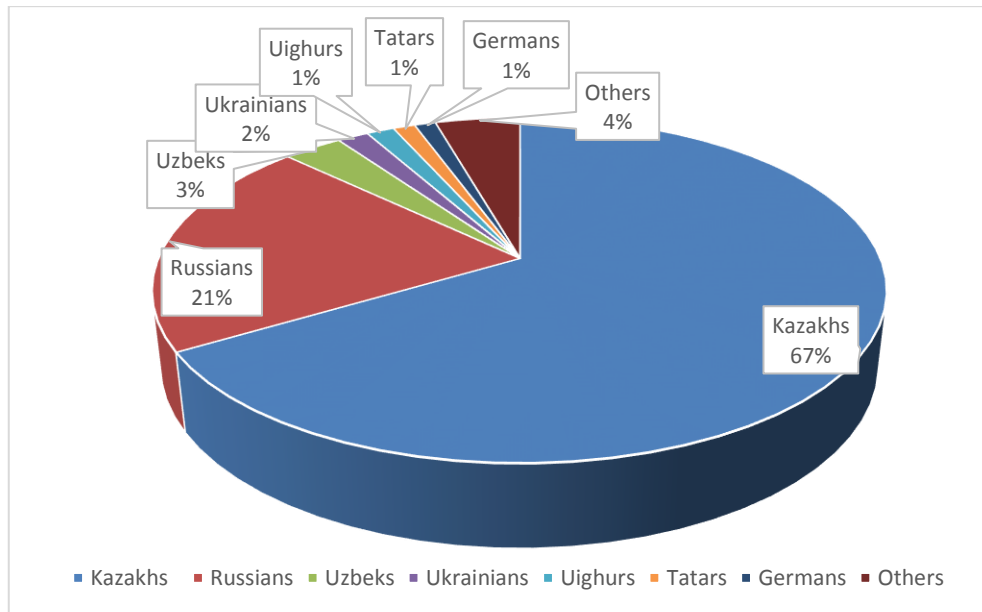


Source: ([Kazconsulny.org](http://Kazconsulny.org), 2013)

It is worth mentioning that, the land of area of the republic is 2,724,902 kilometers of square and occupies an honorary ninth place in the list with large countries, the population is more than 18 million people. In addition, it can be noted that Kazakhstan bigger than Japan seven times or also can accommodate five countries the size of France. Modern Kazakhstan is a home for many nations with a historical culture and customs. According to the population census in the country are 125 nationalities living permanently.



**Figure 2: Ethnic demography of Kazakhstan**



Source: Data from [Stat.gov.kz](http://stat.gov.kz) 2018, own figure

"Kazakhstan is a unique state in Asia, in which European and Asian roots are intertwined. Representatives of different peoples make up unity in diversity. The combination of diverse cultures and traditions allows us to absorb the best achievements of European and Asian cultures "(Nazarbayev, 2015).

### **3.3.1 Kazakhstan and the Soviet Period**

The precedents that took place in 1917, the October revolution of the Bolsheviks conquered Kazakhstan. The country was waiting for great losses. Civil and First World Wars are those incidents that finally ruined the economy of the country. The existing farms and warehouses were devastated. The population covered famine. As a result, industrial production was 5 times less than in 1914, and the production of grain was 3 times less. The government collected all the forces and only by 1920 restored the economy of the country and became known as the (Kazakh ASSR) Kazakh Autonomous Socialist Soviet Republic. The period of industrialization in the country began from 1928 to 1938. The main objectives of industrialization:

- the liquidation of the country's technical and economic backwardness;
- achievement of economic independence;
- creation of a powerful defense industry;

- primary development of basic industries (fuel, metallurgy, chemical, engineering);
- formation of the working class and cadres of the industrial and technical intelligentsia; (Testent.ru, 2009).

In 1936 Kazakhstan joined the Union of Socialist Republics. The government of the USSR directly worked on the most important task of economic development in regime to transform the country from an agrarian into an industrial one, to ensure its economic independence and to strengthen its defensive capacity. Since then, the situation has improved significantly. The time has come for the opening of metallurgical factory, large coal mines, tractor and automobile factories, a movement was opened on the Turkestan-Siberian Railway. Industrial production was gaining momentum as well as extraction and sale of minerals and the search for new deposits. In the years of industrialization, large enterprises of the food industry were also built. In 1939, the share of economic activity was 58.9 percent. To see the difference in 1926 workers was only 10.7 percent in the national economy, while increased to 34 percent in 1939. Extraction of coal increased nearly 1.5 times over the previous year, and 2.2 times of oil. Across the country, the production of heavy industry increased over the five-year period by 2.8 times, mechanical engineering - 4 times.

Like any changes, industrialization also had negative consequences. The migration flows to Kazakhstan has increased. They were immigrants from Russia, Ukraine, Belarus and other regions of the country. In 1928-1939, the mechanical growth of the population of cities in Kazakhstan due to migration amounted to 1.8 million people. Due to the fact the famine of the 1920s and 1930s and migration processes, the share of Kazakhs in the total mass of the population of Kazakhstan declined in 1939 to 38%. Also, the industry of Kazakhstan had a raw materials orientation. It took a huge budget, and these funds were extracted from their pumping from agriculture and domestic loans. Kazakhstan fell behind in the relative weight in the country's electric balance, in the presence and operation of railways.

In the Soviet Union in 1953-1965, a wide program of The Virgin Lands Campaign (VLC), within the frameworks of which it was planned to cultivate in Kazakhstan about 4 million hectares of land. Referring to the development of virgin land in Kazakhstan, hundreds of thousands of people were resettled (Krugosvet.ru, 1997). As the population rapidly increased in particularly industrial centers and cities, the demand for grain crops

gained immediately. Every year, a large number of students and urban residents from other regions and republics visited the harvesting. Deficit which occurred in 1953, when procured 31 million tons of grain but spent 1 million ton more. This shortcoming had to be filled thanks to state reserves. Such actions indicated that collective farms don't cope with their task of providing food for the population. The managers came to such a decision that a profound transformation of the production relations is necessary, this implies a transition to the market and the inclusion of personal economic interest.

Meanwhile, if consider the role of The Virgin Lands Campaign in these years, then its significance was impressive. The result was that Kazakhstan began to produce much more than 2 thousand kilograms per capita of grain. As the world practice shows that if have an indicator within the limits of 1 thousand kg, then this will be enough to solve food problems. In the world such indicators have only seven countries, such as: USA, Canada, Australia, France, Denmark, Romania, Hungary. As a rule, it was believed that Kazakhstan has all opportunities to ensure not only the needs of the country, but also to be an exporter in the world market. VLS caused a series of negative social moments. Due to the fact, that a contingent of immigrants from Russia, Belorussia, Ukraine and Moldova arrived in Northern Kazakhstan, the culture and customs of the population changed, which not all shared. Despite everything, social life became international. This fact has allowed the population to grow by 61 percent. The state created incentive funds from own resources. The capital of the fund was allocated for the development of production, bonuses for workers and housing issues. Industrial productions doubled, the chemical industries and mechanical engineering tripled, from 1970 to 1985. There were more than 50 enterprises that produced infantry fighting vehicles, artillery systems, armored vehicles, torpedoes and small arms (Tarikh.kz, 2012). In 1985, every third food product was imported from the USA, Canada, Argentina, Turkey. The indicator of annual consumption of imported goods reached a mark of 3.8 billion US dollars. The dissolution of the USSR was caused by contradictions and difficulties that aroused due to mismanagement and socio-political unrests, and economic crisis as well. Consequently, as a sign of protest, the authorities resigned, and the Kazakhs lost faith in the USSR.

### **3.3.2 Independence of Kazakhstan**

After the collapse of the USSR in 1991, the same year was proclaimed Kazakhstan's Independence. Besides, in 1993 the head of state Nazarbayev introduced the national currency - "tenge", which made it possible to form a sovereign monetary system. In the first years of independence, due the transition to a market economy and market relations, all branches of the national economy were covered by another crisis state of the republic. As a result, in 1991-1996 production was significantly reduced. It was possible to observe the economic decline. The decline in production in Kazakhstan in the 1990s was accompanied by an increase in the general price level, while real GDP contracted more than 2 times. The standard of living of the population of Kazakhstan over the last 90 years has dramatically decreased. The economic recession generated a decline in foreign trade. That is why the main task in the conditions of the most severe crisis was the gradual construction of effective market mechanisms that allow stabilizing financial and credit systems and reduce the rate of decline in the level of production. The main direction of the economic reform was the liberalization of economic relations, the changing forms of ownership on the basis of privatization, the development of entrepreneurship, the wide attraction of foreign investment. So, Russia and the Central Asian republics, as well as China, are the most important trading partners of Kazakhstan. The influx of foreign investments into the country was quickened, the industrial production increased rapidly, the financial system was strengthened, and the possibilities of the republican budget significantly expanded (Karenov, 2011).

The main external factor contributing to the growth of the national economy was the improvement of the world market situation in relation to the main export goods of Kazakhstan. The domestic political environment, macroeconomic stability, increased domestic demand as a result of higher living standards and a favorable investment climate acted as internal factors that had a positive impact on the economic growth rate. At the initial stage of the reforms, the model of economic development was based on high rates of development of oil and gas fields. During this period, the basis was laid for further economic growth, including the implementation of restrictive monetary policy, the establishment of strict conditions for spending the state budget funds, the completion of price liberalization, the adoption of many systemically important legislative acts, the conclusion of agreements with international financial organizations on loans for the

implementation of stabilization and structural and institutional reforms. Results of provided improvements in 2000:

- The Development Bank of Kazakhstan was established, a monetary amnesty
- Laws on financial leasing, construction savings, mortgage lending, insurance activity, tax, land, forest and water codes were adopted.
- reforms in the production, financial and budget sectors continued;
- the issues of liquidation of the debts of the state and enterprises were resolved;
- Further institutional changes were carried out, in particular, programs were adopted to combat poverty and rural development.
- measures were implemented to ensure the stability of the financial and fiscal systems.
- The result of the reforms made increased production growth rates, the socio-economic situation in the country improved. (Karenov, 2011)

### **3.4 Foreign Trade Activities**

The foreign trade activity of the country tends to develop towards stabilization of the economy and liberalization. It strives to expand its borders and cooperates with many countries, has a sufficient number of established relations in various fields and participates in multilateral economic cooperation organizations and improving the world situation for the main goods of Kazakhstani exports. The key tasks in this direction for many years were joining the World Trade Organization, creating and deepening the Eurasian integration. Having joined the WTO, Kazakhstan on the way to implementing the strategy of 2050, one of the main goals is to enter the republic into 30 competitive countries of the world. A lot of work has been done in this direction and significant results have been achieved that allowed the Republic of Kazakhstan to be positioned in international markets as a reliable strategic partner with a favorable business and investment climate. If at the time of independence Kazakhstan had trade relations mainly with the countries of the post-Soviet space, at present the geography of Kazakhstan's trade relations has significantly expanded. The main trading partner of Kazakhstan are the countries of the European Union, the share of trade with which accounts for more than 40%. Trade is carried out with 185 countries of the world. Commodity turnover in 2015 amounted to about 75 billion US dollars and if compare with 1991 increased by 10 times. The volume of mutual trade with Russia, China,

the USA, Canada and a number of other countries also makes a significant contribution to the trade turnover of Kazakhstan.

Since 1991, gross inflow of foreign direct investment in Kazakhstan has amounted to more than 222 billion US dollars. The largest investors of the Republic of Kazakhstan are the companies of the Netherlands, the USA, Switzerland, France, Great Britain, Canada, Japan and Korea. The growing volume and structure of trade and investment shows that Kazakhstan is already deeply integrated into the world trade and economic system. <http://economy.gov.kz/ru/pages/vneshnetorgovaya-deyatelnost-rk> Nowadays, Kazakhstan sees itself as competitive in such spheres as food and textile industry, oil and gas, engineering, metallurgy and raw materials, transport and logistics services and tourism. Almaty International Airport annually serves more than 4.5 thousand transit freight flights. It becomes the largest hub in Central Asia. In terms of cargo transportation, Kazakhstan “Temir Zholy” is one of the seven largest railway companies, after the companies of the USA, China, India, the EU, Russia.

### **3.4.1 Eurasian Economic Union**

The Eurasian Economic Union (EAEU) is currently an international association of such republics as Kazakhstan, Russia, Belarus, Armenia and Kyrgyzstan. The treaty that was formed during the long negotiations entered into force on January 1, 2015. National leader N.Nazarbayev for the first time put forward the idea of creating such an alliance in the distant 1994. According to the requirements of the agreement, the EAEU is open for the accession of other states sharing its goals and principles, on the terms agreed by the participating countries (Tengri news, 2015). Such a union is a key component of the market, which allows countries to integrate, in other words the process of developing deep and stable interrelationships of groups of countries based on conducting or coherent interstate economy and policy. The Union has the prospect of expansion in the near future, because about 50 countries expressed interest in cooperation, 16 of them on stages of agreement. The International Organization (EAEU) includes important components are the Eurasian Customs Union (EACU) and the (CISFTA) Commonwealth of Independent States Free Trade Area. It is worth explaining that the EACU is an agreement adopted by the members of the Eurasian Economic Union, whose goal is to abolish customs payments in trade relations. On the basis of these agreements, common ways of implementing

economic activity are created, a platform for quality assessment and certification. And also, the Free Trade Area speaks for itself. The free trade regime operates within the union. During the development of the union, the were taken goals set for the formation of a common financial market. There are rules for trade in goods and services in domestic markets. Conditions have been created for free duty-free movement of goods produced on the territory of the states of the community, without exceptions. On the territory of the union there is access to a state-guaranteed free medicine and to social security. This means that people who have come, for example, from Kazakhstan to Russia, will receive the same medical care as Russians.

Kazakhstan is the second largest economy in this union, but there are positive factors of participation in Eurasian structures. The country has the opportunity to legally regulate the flow of people and goods (Eurasian Studies, 2017). Additional benefits for the country are the formation of common markets in the field of electricity, oil and gas. The heads of states approved the concept of the formation of a common electric power market, which will ensure the stability of the energy system and activate the export potential of the electric power industry in Kazakhstan (Zakon.kz, 2016). Since the country doesn't have direct access to the sea, cargoes are transported from Kazakhstan to Europe via Russian seaports. Since the beginning of the functioning of the EACU exports have increased by 33%. The share of processed goods in the total volume of Kazakhstani exports to partner countries increased from 45 to 55 percent. There are reforms to improve the conditions for attracting investments. The volume of direct foreign investment in the manufacturing industry has grown 3 times, compared with the period before the formation of the EACU. In fact, there are more positive moments for the EAEU countries, which helps to develop and economically integrate with each other.

### **3.4.2 World Trade Organization**

The World Trade Organization (WTO) is an international economic organization that regulates the rules of international trade in accordance with the principles of liberalism (Krugosvet.ru, 2015). The WTO functions since January 1, 1995, the decision to establish it was made at the end of the multi-year negotiations within the framework of the Uruguay Round of GATT, which ended in December 1993. Officially, the WTO was formed at a conference in Marrakech in April 1994, so the Agreement on the Establishment of the

WTO is also called the Marrakech Agreement. Nowadays, 164 countries are members of the WTO. If GATT dealt with the regulation of only trade in goods, the scope of WTO activities is broader: in addition to trade in goods, it also regulates trade in services and trade aspects of intellectual property rights. The WTO has the legal status of a specialized agency of the (UN) United Nations system. The main activity of the WTO combines three international agreements signed by the majority of states that actively participate in world economic relations, namely the General Agreement on Trade in Goods (GATT) in 1994, the General Agreement on Trade in Services (GATS) and the Agreement on Trade Aspects of Intellectual Rights property (TRIPS). The main purpose of these agreements is to assist firms of all countries involved in export-import transactions. The WTO supports compliance with the requirements of the basic agreements and monitors the policies of the WTO member states in the area of international trade. The organization creates conditions for negotiations between the participating countries on foreign economic relations, as well as regulates disputes between states on the problems of foreign trade policy. An important event was the entry into the WTO in December 2001 of China, considered one of the most promising participants in world trade.

The WTO promotes unhindered international trade. Also, economic freedom in international trade promotes economic growth and economic well-being of people. In trade between countries there is no discrimination. No state should infringe on any other country, imposing restrictions on the export and import of goods. In the domestic market of any country there should be no differences in the terms of sale between foreign products and national. One of the tasks is to reduce trade barriers by restricting imports and to support domestic commodity producers. For example, in a number of European countries, farmers receive subsidies. Using such tools as customs duties and import quotas (quantitative restrictions on imports). A list of standards has been created which does not match the products sold on the international market. International trade is also affected by administrative obstacles and the policy of determining the exchange rates of currencies. For the equal competition of firms from different countries suppress the "unjust" methods of competition - such as export subsidies (state aid to exporting firms), use of dumping (deliberately understated) prices to seize new markets. Also in international trade provides privileges are granted to less developed countries. This principle is necessary for drawing peripheries to the world economy of the underdeveloped countries, which obviously can't



compete with the developed countries at the outset on an equal footing. Therefore, it is considered "fair" to represent special privileges for the underdeveloped countries.

### **3.4.3 Membership of the WTO**

Kazakhstan is increasingly drawn into the orbit of globalization and is building an open democratic society, forming a liberal economic system, establishing extensive ties with many countries of the world (Investkz.com, 2003). The country has made a long and complex journey to join the organization, having applied for membership back in 1996. Accession to the WTO was one of the priority policies of the Government aimed at the country's full integration into the world economy through strengthening of competitiveness and diversification of the national economy (Abdrash, 2013).

July 27, 2015 became historically significant for the country. In Geneva on that day, the President of the Republic of Kazakhstan, Nursultan Nazarbayev, signed the protocol on Kazakhstan's accession to the World Trade Organization (Inform.kz, 2015).

Kazakhstani economists respond positively to the issue of Kazakhstan's entry into the WTO and make positive forecasts. "It was a long process, and how much Kazakhstan was able to defend its interests, we learn in the process of work. In any case, the country will receive more advantages from joining the WTO than minuses" (Abzhekenova, 2015) Thus, during the last half century the world trade in industrial products grew 17 times, while the volume of world production itself increased only 6 times. Trade has become an important factor in the economic growth of both developed and developing countries. And this is its growing influence on the development of the economy. The dynamics of world trade and its growing influence on the development of the world economy arose not by chance, but on the basis of a gradual and consistent development of internationally agreed rules that facilitate the free movement of goods, capital and services. Great prospects opened up for domestic producers after Kazakhstan joined the organization. It should be noted that this event is of high importance for the country's economy, since more than 90% of the foreign trade turnover of the Republic of Kazakhstan is trade with WTO member countries. This is especially significant for domestic export-oriented enterprises, because there will be no barriers to access to international markets. Membership of the republic in the WTO is a definite indicator for the international community, indicating that Kazakhstan follows the civilized, generally accepted rules of trade, and in the event of

trade disputes, domestic companies will use international mechanisms and institutions to resolve trade disputes (Sibac.info, 2015). Domestic goods gained access to the markets of other countries without any discrimination, there was an additional inflow of investments, not only into the raw materials sector, but also into other sectors of the economy.

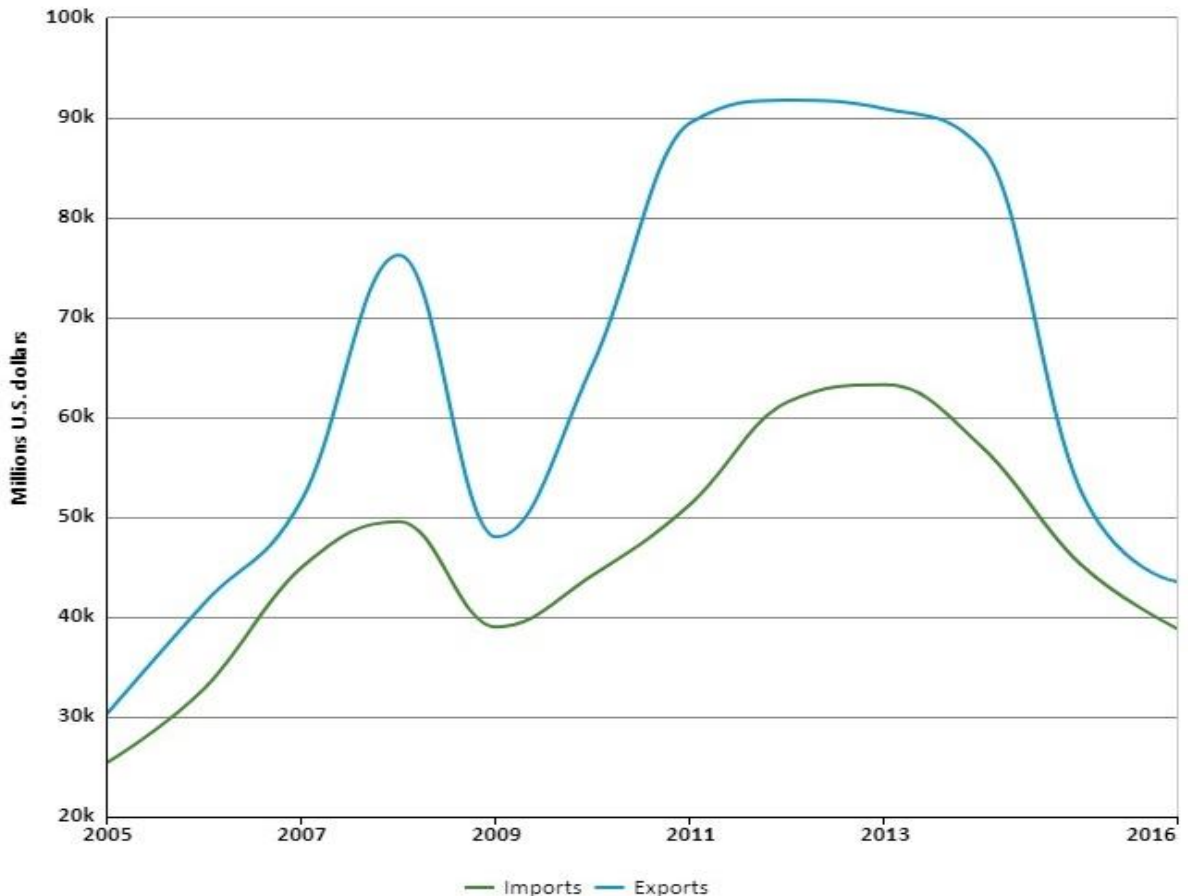
The timing of the entry was considered primarily for the preparation of the country itself to benefit from participation in the liberalization of international trade. To date, the resource, institutional, legislative, human and information base in Kazakhstan does not allow us to say that the country receives the benefits that it counted on. More precisely, the benefits of Kazakhstan's accession to the WTO are more remote, long-term, and therefore not so obvious, while the losses affected quickly and very painfully throughout the domestic economy. Negative factors include: a noticeable decline in production in a number of industries; tangible financial losses in the form of a decrease in budget revenues from customs duties; weakening the stability of the financial and banking system due to its low capitalization; threat to national and food security due to loss of control over individual markets that have fallen into the hands of foreign companies; rising unemployment and the influx of cheap foreign food (Investkz.com, 2003). Another very important issue is measures to protect own commodity producer and domestic market. In the conditions of trade liberalization under WTO rules, a number of industries with low competitiveness of the produced goods will either cease to exist or will be reoriented. And while this will partly help to overcome the difficult legacy of a multifaceted Soviet economy, at the same time, if we do not take protective measures, a number of vital industries will simply be crushed by foreign competition. This is agriculture, light and food industry, engineering, construction materials and other industries (Investkz.com, 2003).

## 4 Practical part

### 4.1 Trade in Kazakhstan

As the chart shows over the period from 2005 to 2016, a positive trade balance is always maintained in the country.

Figure 3: Total trade in goods and services 2005 - 2016



Source: Data from ([Knoema](#), 2018)

If take a look to the beginning of the point on the column 2005 for consideration, then the trade balance in that period was 6.7 billion. Nevertheless, it is worth noting that since the independence of the country, if we take the year 1995 where the balance was only 11 million. So, in 2008, the balance sheet developed actively and amounted to 24.5 billion. According to the data, in the second half of 2007, the economy came impact when oil prices fell, and growth slowed and there was a sharp decline in 2009, this is due to the fact that trade balance was 12.4 billion, which is almost half the previous year. The peak of the trade balance can be noted in 2012 was 39.9 billion. In the period 2013 - 2016, the decline

in the indicators can be observed. The shares of exports decreased, the blame for all was the decline in exports of ferrous, non-ferrous metals and mineral resources. Both the cost and the relative indicators of Kazakhstan's total exports decreased compared to 2011-2012. Such a sharp fall was typical only for periods of major global crises, which once again recalls the vulnerability of raw materials economies. Given the presence of a specific dependence of the volume of imports on exports, in 2013 there was a moderate decrease in the import of services, fuel and mineral resources, raw materials and agricultural products. As a result of the decline in exports with the continued growth in imports of goods, the trade surplus fell from 38 billion USD to 28 billion USD in 2013 (Adb.org, 2016).

#### 4.1.1 Export

On results can see below of 2016 the top export destinations billionaires can see countries such as Italy, China, Russia, the Netherlands, Switzerland, France. Spain, Uzbekistan, UK, and Turkey are countries which import from the country contains in a million dollars USD.

Table 1: Top 10 exporters of Kazakhstan 2016

	<i>USD \$</i>	<i>percent</i>
<b>Italy</b>	7.47B	20%
<b>China</b>	4.21B	11%
<b>Russia</b>	3.51B	9,5%
<b>Netherlands</b>	3.26B	8,9%
<b>Switzerland</b>	2.69B	7,3%
<b>France</b>	1.8B	4,9%
<b>Spain</b>	992M	2,7%
<b>Uzbekistan</b>	923M	2,5%
<b>United Kingdom</b>	891M	2,4%
<b>Turkey</b>	851M	2,3%

Source: Data from ([Atlas.media.mit.edu](http://Atlas.media.mit.edu), 2018)

Here perhaps it is necessary to explain which goods the country's data exports in percentage terms. Export of products of Kazakhstan to Italy is 98% of oil and oil products. Metals of 40%, 35% of oil and mineral products, chemical products 20% and wheat 3% are exported to China. Russia receives 30% of oil and mineral products, 25% of metals and

17% is chemical products, 5% of machinery, the rest is wheat, food products, textiles. The Netherlands exports to itself 93% of oil and oil products, 5% of metals and the rest of machinery, chemistry, wheat. Switzerland exports crude oil and oil gas by 98/100%. So France 88 out of 100% exports crude oil and 11% is radioactive chemicals. Spain exports 92/100% of crude oil from Kazakhstan and also crude lead 7.7%. Uzbekistan has 40% of wheat and wheat products, 17% of metal, oil and mineral products 18% of exports. England exports 66/100% silver, refined copper 26%, the remainder is machinery, wheat, and chemistry. Exports to Turkey account for all types of metals 60%, 33% of crude oil and oil gas, the rest is wheat and foodstuff.

It can note above most of the country exports oil products, metals, chemistry, wheat from the country. Kazakhstan is on the forty-second place in the export rating. The best and most exported goods are crude oil, petroleum and oil gas, mineral products, accounting for almost 60% of exports. As the data show, the remaining metals are 12%, refined copper 5%, chemical products 6%, wheat 3.5% and silver 2%.

#### 4.1.2 Import

By the end of 2016, the top import origins of Kazakhstan are the countries of Russia, China, Germany and the United States in billions of dollars. The rest of the states from the table below their imports are in millions of US dollars.

Table 2: Top 10 importers of Kazakhstan 2016

	<i>USD \$</i>	<i>percent</i>
<b>Russia</b>	9.13B	36%
<b>China</b>	3.67B	15%
<b>Germany</b>	1.44B	5,7%
<b>United States</b>	1.28B	5,1%
<b>Italy</b>	834M	3,3%
<b>France</b>	661M	2,6%
<b>Turkey</b>	618M	2,5%
<b>Uzbekistan</b>	588M	2,3%
<b>Japan</b>	553M	2,2%
<b>South Korea</b>	453M	1,8%

Source: Data from ([Atlas.media.mit.edu](http://Atlas.media.mit.edu), 2018)

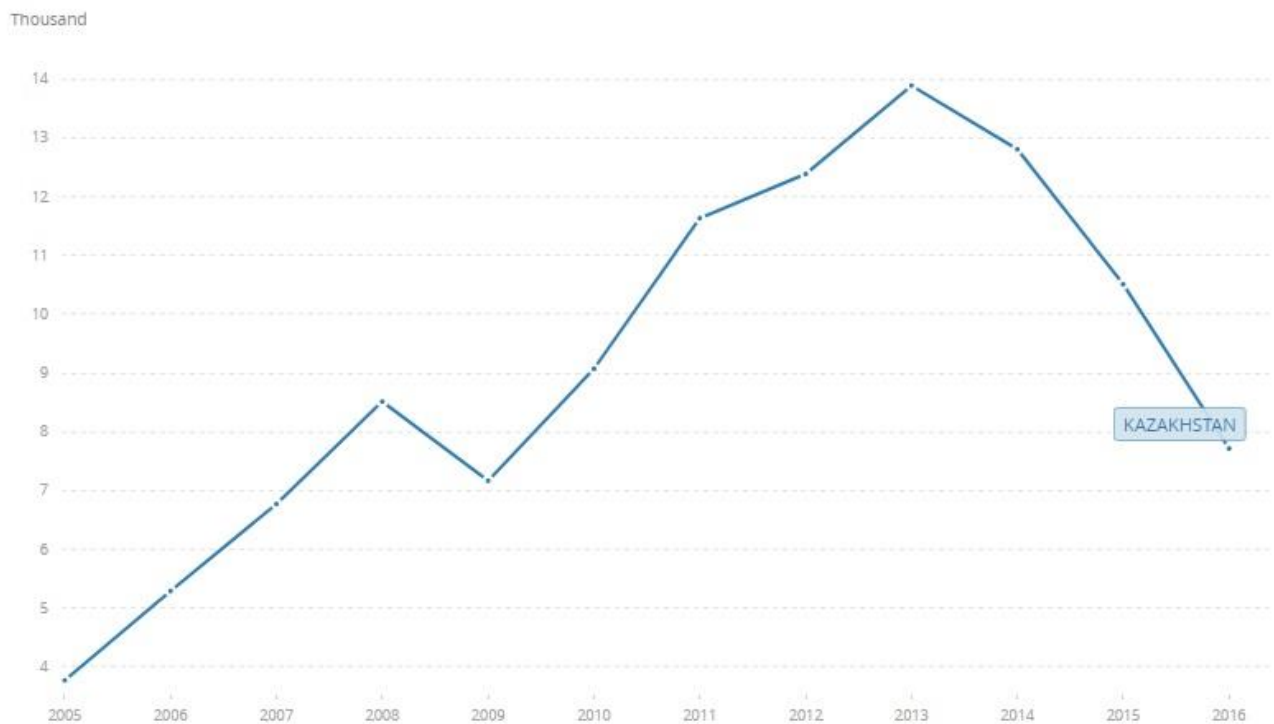
Kazakhstan imports from the partner country of Russia such goods as mineral products and oil 12%, machinery 7%, foodstuffs 5%, transport 7%, metals 5%, tools and chemical products 10%, and the rest reaches less than 5%. The second partner of Kazakhstan, China imports to the country of machinery 30%, metals 10%, plastic and rubber 5%, pesticides and textiles about 15%. Third, in the ranking, Germany imports 30% of machinery, 15% of chemical materials, 5% of medical instruments, transport of 5%, plastic 3%, chocolate 3%. The USA supplies almost 35% of machinery to Kazakhstan, 17% of metals, 20% of chemical products and tools, 6.4% of animal products, 10% of metals, 5% of transportation, clothing and jewelry. Italy supplies 35% of machinery, 15% of metals, 10% of chemicals, and more. Import from France is 30 out of 100% of transport, 25% of machinery, 18% of chemistry, metals of 5%. Turkey imports look like machinery 15%, textiles 15%, metals 10%, food and other. Import from Uzbekistan is 50% of 100% vegetable products, 18% of oil gas, 10% of textiles, 7% of tools and chemicals. Japan brings to the country pipes and metals 45% out of 100, machines 26%, miscellaneous machinery 10%, medicines 5%. Imports from South Korea is almost 30% of machinery, chemicals and metals 30%, transportation, plastic, food.

It can be seen that inverse relations are maintained with countries such as Italy, China, Russian Federation - the main partner of the country, then such countries as France, Uzbekistan, Turkey.

### 4.1.3 Estimation of the dynamics of GDP

The chart below indicates the state of the common market of the country. The country in 2013 with gross income per capita of 9.7 thousand dollars, which is higher than the average. Over the period 1998 - 2013 years, per capita GDP in Kazakhstan increased from \$ 1,500 to \$ 9,700. The subsequent decline in GDP in the country can be explained due to the situation in the oil market (the collapse of prices) and devaluation, and the precarious position in the neighboring republic of Russia, on which many trading factors depend (ABDRASHITOVA, 2013).

Figure 4: GDP per capita (current US\$) 2005 - 2016



Source: Data from ([Data.worldbank.org](http://Data.worldbank.org), 2018)

## 4.2 Regression Model. Impact of various variables on GDP of Kazakhstan

The model aims to write a general economic model, write a multiple linear regression model for the indicated problem and declare its variables, calculate and interpret the statistical data, evaluate the regression model and interpret the estimated parameters. The time series observes data based on a 15-fold period from 2002 to 2016. This method is an analysis of the output data of variables and the dynamic relationship between the two variables. It is necessary to clarify the relationship between the economic indicators of the country's economy. Rise and fall in the Gross Domestic Product per capita of annual terms in the country and explanatory variables such as exports of crude oil, foreign direct investment, and unemployment rate.

### 4.2.1 Data

The data found in official sources for the subsequent assessment of the situation in the country.

Table 3: GDP, export of oil, FDI and unemployment rate in Kazakhstan 2002-2016

Variable	GDP per capita *	Export of crude oil **	Foreign direct investment net***	Unemployment rate****
T = 15	$y_t$	$x_{1t}$	$x_{2t}$	$x_{3t}$
2002	1,657	0,78	2,58	9,3
2003	2,062	0,87	2,48	8,8
2004	2,863	1,08	5,61	8,4
2005	3,753	1,08	2,54	8,1
2006	5,261	1,12	7,61	7,8
2007	6,733	1,25	11,97	7,3
2008	8,349	1,25	16,81	6,6
2009	7,117	1,40	14,27	6,6
2010	9,005	1,41	7,45	5,8
2011	11,553	1,45	13,76	5,4
2012	12,300	1,42	13,64	5,3
2013	13,789	1,47	10,01	5,2
2014	12,712	1,42	7,22	5,1
2015	10,435	1,38	6,17	5,0
2016	7,511	1,35	16,97	5,0

Source: Data from ([Kazakhstan GDP, 2016](#))\*, ([Fred.stlouisfed.org, 2017](#))\*\*, ([Indexmundi.com, 2018](#))\*\*\* and ([Data.worldbank.org, 2018](#))\*\*\*\*, own table processing Gretl



#### 4.2.2 Declaration

1) *General economic model.*

Gross Domestic Product =  $f$  (Export of crude oil; Foreign Direct Investment; Unemployment rate)

2) *Multiple Linear Regression model.*

$$y_{1t} = x_{1t} + x_{2t} + x_{3t} + \mu_{1t}$$

3) *Declaration of variables.*

$$y_{1t} = x_{1t} + x_{2t} + x_{3t} + \mu_{1t}$$

Dependent variable:

$y_{1t}$  – Gross Domestic Product in thousand dollars per capita;

Independent variables:

$x_{1t}$  – Export of crude oil in million barrels;

$x_{2t}$  – Foreign Direct Investment in billion dollars;

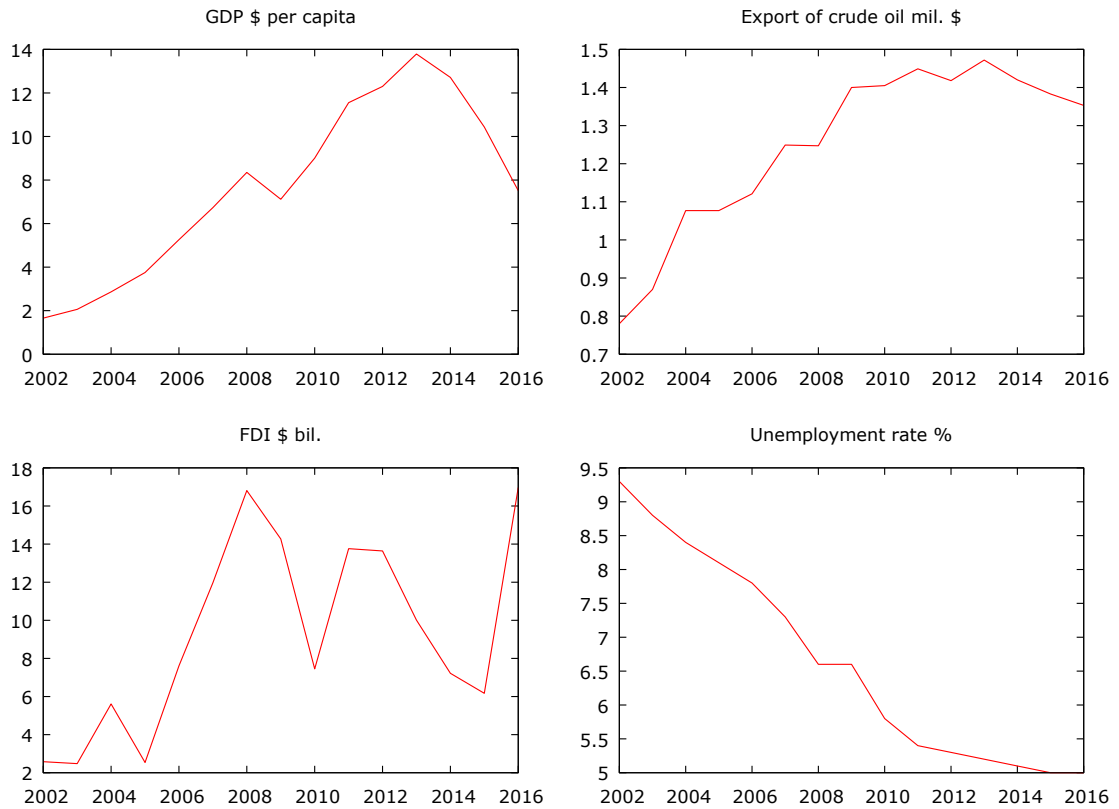
$x_{3t}$  – Unemployment rate in %;

$\mu_{1t}$  - error

4) *Generation graphs of variables.*

These dynamics of graphs, as presented below, allows seeing the movement of the constant and variables. It can see that the maximum GDP per capita was 13.789 in 2013, and the minimum one can observe at the beginning of the 2002 period was 1.657 per capita. In the case of exports, the maximum indicator also kept in 2013 was 1,470,000 barrels, it can assume that exist the relationship between GDP per capita and oil exports. As for foreign investment, it can see significant receipts in 2008 and 2016, namely 16.81 and 16.97 billion US dollars. Also, as the chart shows, the unemployment trend decreases every year and at the time of 2016 has a minimum rate of 5%.

**Figure 5: Graphs of variables**



Source: Own figure used Gretl

### 4.2.3 Estimation of parameters in Gretl

#### Multicollinearity test

**Table 4: Correlation matrix.**

Correlation coefficients, using the observations 2002 - 2016  
 5% critical value (two-tailed) = 0.5140 for n = 15

y	x1	x2t	x3t	
1.0000	0.9077	0.5167	-0.9241	y
	1.0000	0.6498	-0.9367	x1
		1.0000	-0.5992	x2t
			1.0000	x3t

Source: Own table processing used Gretl

It can see that in the correlation matrix above there is no multicollinearity between exogenous variables of the model. Consequently, there is no close correlation among the

factors (x1t, x2t, x3t) chosen for analysis that affect the overall result. This model is completely suitable for further testing.

Estimation of parameters used **Ordinary least square method in Gretl**.

Based on minimizing the sum of the squared deviations of the observed values of the dependent variables from the values predicted by the model. In this case, need to investigate whether the variables affect the constant.

Table 5: OLS using observations 2002-2016 (T = 15)  
Dependent variable: GDPpercapita

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
const	9.03714	12.0866	0.7477	0.4703	
x1t	7.83982	5.84725	1.341	0.2070	
x2t	-0.0921100	0.110055	-0.8369	0.4204	
x3t	-1.54879	0.791265	-1.957	0.0762	*
Mean dependent var	7.673333	S.D. dependent var		3.985108	
Sum squared resid	27.49781	S.E. of regression		1.581076	
R-squared	0.876323	Adjusted R-squared		0.842593	
F(3, 11)	25.98038	P-value(F)		0.000027	
Log-likelihood	-25.82950	Akaike criterion		59.65900	
Schwarz criterion	62.49120	Hannan-Quinn		59.62883	
rho	0.485967	Durbin-Watson		0.972133	

Source: Own table processing used Gretl

○ *Statistical verification by Goodness of Fit:*

Measured by  $R^2$  - coefficient of determination shows how close the data are to the fitted regression function. So, in this case, R-square = 0.8763. Particular estimated model and its variables explained **87.63%** of the variability of the dependent variable. This indicates that resulting line in 87.63% matches the original data numbers as the model fits within the sample. From high R-square, can predict that the correlation between variables is relatively high.

- *Statistical significance according to p-values.*

Hypotheses of the P-value: **H<sub>0</sub>**: parameter is not statistically significant

**H<sub>1</sub>**: parameter is statistically significant

Decision rule is: **If *p-value* ≤ α then, reject H<sub>0</sub>**

Evaluation for α = 0.05 and α = 0.1

- 1) Constant = 0.4703; so, 0.4703 more than 0.05, and also more than 0.1, it means cannot reject **H<sub>0</sub>**, constant is statistically insignificant at a 5% and also at a 10% level of significance
- 2) x<sub>1</sub> = 0.2070; x<sub>1</sub> > 0.05 and x<sub>1</sub> > 0.1 is *statistically insignificant* at a 5% and at a 10% level of significance
- 3) x<sub>2t</sub> = 0.4204; x<sub>2t</sub> > 0.05 and x<sub>1</sub> > 0.1 is *statistically insignificant* at a 5% and at a 10% level of significance
- 4) x<sub>3t</sub> = 0.0762; x<sub>3t</sub> > 0.05 and x<sub>1</sub> < 0.1 is *statistically significant* at a 10% level of significance

#### 4.2.4 Verification of estimated parameters

*Final estimation model*

$$y_{1t} = 9,03714 + 7,83982x_{t1} - 0,09211x_{t2} - 1,54879x_{t3}$$

*If all variables are equal to zero, gross domestic product is 9,03714 thousand dollars per capita.*

Relationship between *export of crude oil* and *gross domestic product* explained by following function:

$$y_{1t} = 7,83982x_{t1}$$

*If the export of crude oil increases by 1 unit, the gross domestic product will increase by 7,83982 thousand dollars per capita. And vice versa.*

The parameter *x<sub>t1</sub>* with a plus sign also has a positive effect on GDP. Logically, this is true, because it is worth acknowledging that the country is very dependent on oil exports, as mentioned above, almost 60% of exports are oil. Among other indicators, oil has a significant impact.

Relationship between *foreign direct investment* and *gross domestic product* explained by following function:

$$y_{1t} = -0,09211x_{2t}$$

*If the average foreign direct investment increases by 1 unit, the gross domestic product will decrease by 0,09211 thousand dollars per capita. And vice versa.*

In a real situation, looking at the indicators in the table is also so, that when there is a noticeable increase in FDI, in the case of GDP, the indicators decrease.

Relationship between *unemployment rate* and *gross domestic product* explained by following function:

$$y_{1t} = -1,54879x_{3t}$$

*If the average unemployment rate increases by 1 unit, the gross domestic product will decrease by 1,54879 thousand dollars per capita. And vice versa.*

In the case of unemployment in the country, the issue becomes questionable, because not all indicators work this way, and in some cases yes, that when a high unemployment rate is also low GDP. But at the same time, there is a situation where the unemployment rate has decreased, and at the same time, GDP has declined. This is just the case in the period of devaluation in the country, GDP has become less, but at the same time people have remained at their jobs, that is, the unemployment rate has not become less.

#### 4.2.5 Testing for Autocorrelation in Gretl

**Breusch-Godfrey** test for first-order autocorrelation

OLS, using observations 2002-2016 (T = 15)

Dependent variable: uhat

$x_{1t}$  = export of crude oil;  $x_{2t}$  = foreign direct investment;  $x_{3t}$  = unemployment rate

	coefficient	std. error	t-ratio	p-value
const	-0.776446	11.4618	-0.06774	0.9473
x1t	-0.216071	5.54121	-0.03899	0.9697
x2t	0.0317447	0.106379	0.2984	0.7715
x3t	0.0979639	0.752429	0.1302	0.8990
uhat_1	0.534038	0.355482	1.502	0.1639

*Unadjusted R-squared* = 0.184132

*Test statistic:* LMF = 2.256887,

with p-value = P (F (1,10) > 2.25689) = 0.164

*Alternative statistic:* TR<sup>2</sup> = 2.761982,

with p-value = P (Chi-square (1) > 2.76198) = 0.0965

Observed R-squared 0.184132 and corresponding p-value 0.164 are greater than significance level (0.05) → No Autocorrelation

In addition, critical value for Chi-square (1) is found as follows;

TR<sup>2</sup> = 2.761982, p-value 0.0965 > 0.05 **No Autocorrelation**

Chi-square (1) right-tail probability = 0.05; complementary probability = 0.95

Critical value = 3.841 > TR<sup>2</sup> = 2.761982 **No Autocorrelation**

That means there is NO serial correlation in this model

#### 4.2.6 Test for Collinearity

Variance Inflation Factors

Minimum possible value = 1.0; Values > 10.0 may indicate a collinearity problem

x1t 9.062

x2t 1.733

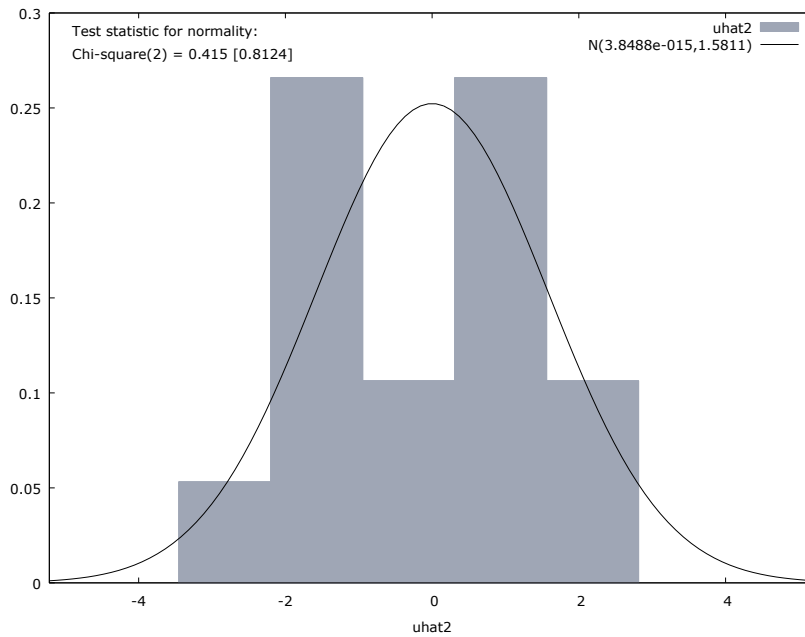
x3t 8.169

Source: Own table processing used Gretl

There is NO collinearity has been detected in the model.

The next table below also illustrates how normal the residuals in the model are distributed.

**Figure 6: Normality test**



Source: Own table processing used Gretl

**Using Jarque Bera test for normality**

Null hypothesis: residuals are normally distributed

Alternative Hypothesis: residuals is normally distributed

Jarque-Bera test = 0.415418, with p-value = 0.812443

According to the p-value estimated for Jarque-Bera test, null hypothesis cannot be rejected. Because estimated p-value is higher than significance level that is 0.05 so null hypothesis is accepted. That means residuals in this model are normality distributed.

**4.2.7 Test for heteroskedasticity**

Null Hypothesis: Heteroskedasticity not present

Alternative Hypothesis: Heteroskedasticity present

**Breusch-Pagan test**

OLS, using observations 2002-2016 (T = 15). Dependent variable: scaled uhat<sup>2</sup>

coefficient	std. error	t-ratio	p-value
const	13.9119	7.17605	1.939 0.0786 *

x1t	-5.86994	3.47163	-1.691	0.1190
x2t	0.0976014	0.0653416	1.494	0.1634
x3t	-0.976554	0.469790	-2.079	0.0618 *

Explained sum of squares = 8.29461

Test statistic: LM = 4.147307,

with p-value =  $P(\text{Chi-square}(3) > 4.147307) = 0.245991$

Chi-square (3)

right-tail probability = 0.05

complementary probability = 0.95

Critical value = 7.815

P value  $0.245991 > 0.05$

Null hypothesis "Accepted" Heteroskedasticity NOT present

Critical value = 7.815  $>$  LM = 4.147307

Null hypothesis "Accepted" Heteroskedasticity NOT present

### **White's test for heteroskedasticity**

OLS, using observations 2002-2016 (T = 15)

Dependent variable:  $\hat{u}^2$

Unadjusted R-squared = 0.893005

Test statistic:  $TR^2 = 13.395070$ ,

with p-value =  $P(\text{Chi-square}(9) > 13.395070) = 0.145529$

Chi-square (9)

right-tail probability = 0.05

complementary probability = 0.95

Critical value = 16.919

Null hypothesis "Accepted" Heteroskedasticity NOT present



Heteroskedasticity according to Econometrics Modeling means that variance of the error term is constant throughout the model. The difference does not change from observation to observation.

In general, the model has been showed a good result, but it does not quite describe the reality, to achieve a better result, need to try to create another model.

### 4.3 Regression Model II.

Since the previous model did not entirely satisfy its performance, despite the fact that there was no autocorrelation and heteroscedasticity not presented, it was not enough to determine the indicators by statistical significance according to p-values affect the model. Now the situation looks like it's left all the same data and period 2002-2016 as in the first econometric model, just excluded the variable that did not initially relate to the name of the chosen thesis, namely it was decided to eliminate unemployment rate from the table. It is worth to test and to see what will come of this presently.

Estimation of parameters used Ordinary least square method in Gretl.

Table 6: OLS II using observations 2002-2016 (T = 15)

Dependent variable: GDP per capita

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
const	-14.0344	2.97295	-4.721	0.0005	***
x1t	18.1342	2.84087	6.383	<0.0001	***
x2t	-0.0997551	0.122274	-0.8158	0.4305	
Mean dependent var	7.673333	S.D. dependent var		3.985108	
Sum squared resid	37.07523	S.E. of regression		1.757726	
R-squared	0.833246	Adjusted R-squared		0.805454	
F(2, 12)	29.98119	P-value(F)		0.000022	
Log-likelihood	-28.07082	Akaike criterion		62.14164	
Schwarz criterion	64.26579	Hannan-Quinn		62.11901	
rho	0.319360	Durbin-Watson		1.257092	

Source: Own table processing used Gretl

- $R^2 = 0.833246$ . Particular estimated model and its variables explained **83.32%** of the variability of the dependent variable.

○ *Statistical significance according to p-values.*

Hypotheses of the P-value:  $H_0$ : parameter is not statistically significant

$H_1$ : parameter is statistically significant

Decision rule is: If  $p\text{-value} \leq \alpha$  then, reject  $H_0$

Evaluation for  $\alpha = 0.05$  and  $\alpha = 0.1$

1) Constant = 0.0005; so, 0.0005 definitely less than 0.05, and also less than 0.1, it means reject  $H_0$ , constant is *statistically significant* at a 5% and also at a 10% level of significance.

2)  $x1 = 0.0001$ ;  $x1 < 0.05$  and  $x1 < 0.1$  is *statistically significant* at a 5% and at a 10% level of significance

3)  $x2t = 0.4305$ ;  $x2t > 0.05$  and  $x1 > 0.1$  is *statistically insignificant* at a 5% and at a 10% level of significance

○ *Verifying of estimated parameters.*

Final estimation model

$$y1t = -14.0344 + 18.1342 x1t - 0.0997x2t$$

*If all variables are equal to zero, gross domestic product is -14.0344 thousand dollars per capita.*

The interpretation does not make much sense in this particular example. The constant does not have a logical economic interpretation every time, in every case, but it is needed in the regression model. In general, can say "no export of oil, no GDP" and so on. (Bubáková, 2014).

Relationship between export of crude oil and gross domestic product explained by following function:

$$y1t = 18.1342 x1t$$

*If the export of crude oil increases by 1 unit, the gross domestic product will increase by 18.1342 thousand dollars per capita. And vice versa.*

Here observes a much more significant increase in the variable, logically this is permissible.

Relationship between foreign direct investment and gross domestic product explained by following function:

$$y_{1t} = -0.0997x_{2t}$$

*If the average foreign direct investment increases by 1 unit, the gross domestic product will decrease by - 0.0997 thousand dollars per capita. And vice versa.*

- **Breusch-Godfrey Testing for autocorrelation**

Null hypothesis: no autocorrelation

*Test statistic:* LMF = 1.21565,

with p-value =  $P(F(1, 11) > 1.21565) = 0.293754$ ;

corresponding p-value 0.293 are greater

than significance level (0.05) → **No Autocorrelation**

- **Test for collinearity**

Variance Inflation Factors

Minimum possible value = 1.0

Values > 10.0 may indicate a collinearity problem

$x_{1t}$  1.731

$x_{2t}$  1.731

**Source:** processing in Gretl

There is NO collinearity has been detected in the model.

- **Testing for Normality**

**Using Jarque Bera test** for normality

Null hypothesis: residuals are normally distributed

Alternative Hypothesis: residuals is normally distributed

Jarque-Bera test = 1.71615, with p-value = 0.423978

According to the p-value estimated for Jarque-Bera test, null hypothesis cannot be rejected.

Because estimated p-value is higher than significance level that is 0.05 so null hypothesis is accepted. That means residuals in this model are normality distributed.

- **Test for heteroskedasticity**

**Breusch-Pagan** test for heteroskedasticity

Null hypothesis: heteroskedasticity not present

Test statistic:  $LM = 0.235277$   
with p-value =  $P(\text{Chi-square}(2) > 0.235277) = 0.889018$   
Chi-square (2)  
right-tail probability = 0.05  
complementary probability = 0.95

Critical value = 5.991  
P value  $0.889 > 0.05$   
Null hypothesis "Accepted" Heteroskedasticity NOT present  
Critical value = 5.991  $> LM = 0.235277$   
Null hypothesis "Accepted" Heteroskedasticity NOT present

**White's** test for heteroskedasticity

Null hypothesis: heteroskedasticity not present  
Test statistic:  $LM = 2.17442$   
with p-value =  $P(\text{Chi-square}(5) > 2.17442) = 0.824522$   
Chi-square (5)  
right-tail probability = 0.05  
complementary probability = 0.95  
Critical value = 11.071  $> LM = 2.1744$ ; P value =  $0.8245 > 0.05$   
Null hypothesis "Accepted" Heteroskedasticity NOT present

Heteroskedasticity according to Econometrics Modeling means that variance of the error term is constant throughout the model. The difference does not change from observation to observation.

Now can confidently say that this model more accurately reveals the situation in reality, since the export of oil and everything associated with it undoubtedly plays a significant role in the country.

## 5 Conclusion

This review of literature and research helped to identify answers to questions and the thesis in the field of foreign trade of the Republic of Kazakhstan. Similarly, it also mentions how various factors influence the dynamics of GDP per capita from year to year. One of the tasks of the thesis was to analyze the country's relations in the world trade market, to clarify the main factors as it works, and the role of foreign trade in the economic development of Kazakhstan. In this article, examined the trade balance reaction and the changes in GDP in the country after changes in various relative situations. The Republic has a convenient location and strengths regarding mining minerals, raw materials, crude oil, petroleum and oil gas on which the main export of the country is built. It is worth noting the important events that took place in the country. The first is the development of the country after Independence in 1991. The second is the creation of the Customs Union between some republics of the post-Soviet space in January 2015. The third can be said is a significant development for the country after long negotiations this entry into the World Trade Organization in July 2015.

Econometric modelling using the Ordinary Least Square method does not include important factors, such as the political situation in the country, the catastrophe in the world, the movement in the trade market, since such factors cannot be stated in figures. In the process of globalization and information systems, foreign trade influenced by the world market, as well as economic, political and even forecast information. Since the independent variables were chosen important economic indicators: oil exports, foreign direct investment, unemployment. From the economic point of view, these indicators could explain the relationship and change with the help of the endogenous variable  $y_{1t}$  of GDP per capita. The parameters were calculated manually in Microsoft Excel and automatically in Gretl. The result of the final evaluation model showed one of the independent variables 18.1342  $x_{t1}$ . This means that the variable has a significant relationship. If the export of crude oil increases by 1 unit, the gross domestic product will increase by 18.1342 thousand dollars per capita. And vice versa. This seems quite logical because we must pay attention to the dependence of exports of oil products on GDP dynamics. With the falling export, which estimates in dollars, and the change in the exchange rate of the national currency, the revenues of oil companies are rapidly declining, as a definite proportion of spending in dollars and profits of these companies reduce. There is a significant conclusion that the

revenues from the oil sector in the country's budget exert a huge influence, as they reduce the number of revenues to the state budget and the possibility of financial support from the real state of the economy of Kazakhstan. Therefore, the growth of world oil prices for the economy of Kazakhstan should increase the annual GDP growth in Kazakhstan.

However, it's heavy objectively to cite exact factors, calculate, explain and predict the real situation using only the econometric model, since there are many other reasons that may influence the estimation of production, which affects the dynamics of the country's GDP. Thus, for further research in this topic, the current recommendation remains, that it is necessary to study the situation from the other side, it is possible to expand the survey, to identify likely other factors and another view of testing.

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