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ANALYSIS OF OIL AND GAS INDUSTRY IMPACT ON THE ECONOMIC ENVIRONMENT OF THE COUNTRY

NAFTAS UN GĀZES RŪPNIECĪBAS IETEKMES ANALĪZE UZ VALSTS EKONOMISKO VIDI

MASTER THESIS

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ABSTRACT

The oil and gas producing and exporting country usually counted as developing. The Republic of Kazakhstan is one of the example of so called developing countries with a huge oil and gas reserves. The first parts of the work describe the current global economy situation of the industry and the place of the oil and gas sector in the Kazakhstan. The research that has been made by the author includes a PESTLE analysis that helps to understand the impact of the oil and gas industry on the Kazakhstan's economy taking into account the influence of the MNCs in such kind of key areas as politics, economy, technology and environment . The results of the research show us number of negative and positive impacts, which could be decreased or increased. And the author provides with suggestions of the way of their development or reduction.

Keywords: oil and gas industry, impact on the national economy, multinational corporations, PESTLE analysis, GDP growth, unemployment rate

АҢДАТПА

Мұнай мен газды өндірумен және экспорттаумен айналысатын ел әдетте дамып келе жатқан деп саналады. Қазақстан Республикасы мұнай мен газдың үлкен қоры бар дамушы елдердің бір мысалы болып табылады. Жұмыстың бірінші бөлімінде әлемдік экономикалық нарықтың мұнай-газ саласы жағдайындағы жағдайы және Қазақстандағы мұнай-газ секторының рөлі сипатталған. Автор жүргізген зерттеу мұнай және газ өнеркәсібінің Қазақстан экономикасына әсерін, сондай-ақ саясат, экономика, технология және қоршаған орта сияқты маңызды салалардағы халықаралық компаниялардың әсерін түсінуге көмектесетін PESTLE талдауын қамтиды. Зерттеу нәтижелері төмендетуге немесе көбейтуге болатын теріс және оң әсер ететін факторлардың санын көрсетеді. Автор сонымен қатар белгілі бір факторларды азайту және арттыру бойынша ұсыныстар мен кенестер береді.

Түйінді сөздер: мұнай-газ саласы, ұлттық экономикаға әсер ету, трансұлттық корпорациялар, PESTLE талдау, ЖІӨ өсуі, жұмыссыздық деңгейі

ANOTĀCIJA

Valsts, kura ražo un eksportē naftu parasti tiek uzskatīta par attīstības valsti. Kazahstānas Republika ir viena no attīstības valsts piemēriem ar lielām naftas un gāzes rezervēm. Šī darba pirmajās daļās tiek aprakstīta globālās ekonomikas tekošā situācija naftas un gāzes industrijā, un kādu vietu šī nozare ieņem Kazahstānā. Darba autora veiktie pētījumi, iekļauj sevī PESTLE analīzi, kas uzskatāmi parāda naftas un gāzes industrijas ietekmi uz Kazahstānas ekonomiku, ņemot vērā starptautisko korporāciju ietekmi uz tādām nozarēm kā politika, ekonomika, tehnoloģijas un apkārtējā vide. Pētījuma rezultāti attēlo negatīvas un pozitīvas ietekmes faktoru virkni, kuri savukārt var būt paaugstināti vai pazemināti. Autors piedāvā risinājumus tā attīstībai vai samazināšanai.

Atslēgas vārdi: naftas un gāzes rūpniecība, ietekme uz valsts ekonomiku, daudznacionālas korporācijas, PESTLE analīze, IKP pieaugums, bezdarba līmenis

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Assem Yeslambekova

University of Latvia, May, 2020

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LIST OF ABBREVIATIONS

GDP – Gross Domestic Product

VIOGC – The vertically integrated oil and gas company

GNP – Gross National Product

AD – Aggregate Demand

OPEC – Organization of Petroleum Exporting Countries

CIS – Commonwealth of Independent States

USSR – Union of Soviet Socialist Republics

FDI – Foreign Direct Investment

TCO – TengizChevroil

EAEU – Eurasian Economic Union

KEGOC – Kazakhstan Electricity Grid Operating Company

WTI – West Texas Intermediate

UK – United Kingdom

CPC – Caspian Pipeline Consortium

JV – Joint Venture

JSC – Joint Stock Company

KMG – KazMunayGas

USA – United States of America

NYMEX – The New York Mercantile Exchange

ICE – London Petroleum Exchange

SIMEX - Singapore International Commodity Exchange

LLC – Limited Liability Company

OTC – Over-The-Counter

VAT – Value-Added Tax

OUN – Oil Metering Units

COVID-19 – Corona Virus Disease

CNPC – China National Petroleum Corporation

NCOC – North Caspian Operating Co

KPO – Karachaganak Petroleum Operating

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INTRODUCTION

The petroleum industry (oil and gas industry) includes to itself such kind of the global processes as: exploration, extraction, refining, transporting and marketing of petroleum products. The oil and gas industry are so called « engine » of the global economy nowadays.

The world's dependence on oil and gas is increasing as global economies and infrastructure continue to rely heavily on petroleum-based products. Discussions of when world oil and gas production will peak seem to be on the periphery, even amid a weakened global economy and the shrinking availability of oil. The oil and gas industry continues to wield incredible influence in international economics and politics - especially in consideration of employment levels in the sector.

Negotiations and discussions of oil and gas producing and exporting countries are always at the top level of the global economy. All developing countries closely monitor the currencies and oil rates, and reforms, agreements and all the remaining consequences of negotiations always positively or negatively affect to the countries domestic economy. A large number of questions about how this will affect to other sectors of the domestic economy and how the ordinary citizens should cope with the all kind of impact are still remain.

The subject of the Master Thesis – «Analysis of Oil and Gas industry impact on the economic environment of the country».

The aim of the thesis is to make a research about impact of Oil and Gas industry on the economy of the chosen particular country.

Tasks of the Master Thesis are the following:

1) To analyse a literature and research results concerning Oil and Gas industry
2) To scrutinize the published and unpublished data of chosen companies
3) To identify a negative and positive impacts of the Oil and Gas industry companies to the economy of the chosen country
4) To recommend activities and innovations to decrease the number of the negative impacts of the Oil and Gas industry companies to the economic factors of the chosen country

The hypothesis of this work is the following:

- The Oil and Gas industry is the main leading factor of the Kazakhstan economy

The Master's work consists from three parts: theoretical, analytical and from the research.

1. Theoretical framework of the research economical part under the PESTLE analysis. The following part consists from 4 subchapters.

The 1st subchapter describes the meaning of the national economy globally.

The 2nd subchapter gives a picture of different indicators of the economy growth, and the ways of their measurements.

Within the subchapter No.3 the author would like to show the variable economists and researchers opinion in the frame of economy growth factors.

And the 4th subchapter describes the meaning of the petroleum business in the country economy as well as how location of the business can influence on the income growth and the factors of price creation within the industry.

2. Analytical part. The 2nd chapter consists from the following 5 subchapters.

The 1st subchapter describes the history of development of oil and gas extraction in the country. Also it gives a names of scientists, who have investigated the chosen country and their input to the one of the biggest oil and gas reservoir, it's development in the world.

The subchapter No.2 gives us a clear picture of the particular country's GDP, its development through the different economic stages and periods of time. Also it describes a reasons of the growth or inequality of the particular rates. The author has shown the oil price volatility from the beginning of its history till nowadats. .

3. Research include to itself 4 subchapters.

The 1st subchapter will make able to take a look for the major factors that are most likely to drive growth in the Oil and Gas Industry, as well as description of such kind of factors as increasing exploration of unconventional gas resources, rapid technological advancements, cost-revenue ratio.

The next subchapter gives us a look into Oil and Gas sector development in the world and describes the organization that coordinates and unifies the petroleum policies and activities of its members - oil-exporting developing countries.

The subchapter No. will be able to show the results of the made PESTLE analysis.

The research method – in order to be able to understand an impact of the industry to the country's economy, the data about multinational corporations activities in the country, national company activities and the governmental state information have been gathered. Afterwards, the PESTLE is selected as the type of analysis. The number of analyzed companies is 3, the number of country is 1.

Limitations of the work – due to to current situation with COVID-19 around the world, the most of the needed official information sources were limited, all the libraries were closed, had no opportunity to make an interview with experts. Although the author have chosen the wide topic for the research a huge volume of information had to be analyzed. The author would like to point out, that there are a plenty of sources for the petroleum industry giants but not much officially and constructively is written about Kazakhstan. That's why the author has used the scientific researchers and book also in Russian and Kazakh languages.

In order to describe and highlight a key points of the theoretical part, the following scientists works were used by the author: Ravil Cherdabayev, Yermukanov M., Pomfret Richard, Dombusch Rudige and etc. The analytical and research were created on the base of the official Kazakhstan's statistical data, the Annual reports of the companies, World Bank statistical data and etc.

1. THEORETICAL FRAMEWORK OF THE RESEARCH ECONOMICAL PART UNDER THE PESTLE ANALYSIS

In this chapter, the meaning of the national economy, it's measures, the factors that influence on the economy growth, and the role of location on the pricing creation in the Oil and Gas industry are described. The author by taking into account found sources have tried to show an idea how the national economy growth was understood by different economists and scientist all over the world, as well as to introduce the reader the petroleum sector business, how it can be classified and what are the factors of the price creation and afterwards, how the economy of the country is able to see and forecast profit. Also, it is widely explained the purchase, sale, transportation and storage of oil and gas types of measurement units, that are divided by volume, by value, or by the capacity of vehicles and oil storage facilities. The each of the type have own function, that have an impact on the economy taking into account the role location of the oil and gas fields and their companies.

1.1. The national economy definition

There are number of economy factors are existing and developing nowadays. All of the business media-sources are always broadcasting and trying to "savor" them. But not of all them are capable to fully understand the truthful meaning of the national economy and how it can be measured.

Reading through the Macroeconomic research of Shaltakov the author are going to highlight the key takeaways. The national economic itself was understood as a holistic system of relationships between business entities regarding the production, distribution and use of the national product in order to improve the welfare of the nation. The most important areas of the national economy are material and intangible production, non-production sphere. Each of the spheres also has its own structural elements - industries.In the national economy, on the one hand, the principles and laws inherent in the entire world economy are operating, and on the other hand, it reflects national characteristics and originality in the economic activities of the people.[1]

[1] Shaltakov V.P., "Macroeconomica", Omskiy gosudarstvennyi universitet putei soobsheniya, Omsk, 1999, PP. 5

For instance, nowadays, a market organization of the economy is developing in all countries of the world, but the degree of market influence, the share of non-market structures, the degree of state intervention in the economy, etc. in different countries may vary significantly.

National accounting allows us to determine the value of the macroeconomic parameters of the past period in order to identify the achieved results of the national economy development.

The main and determining goal of macroeconomic development is economic growth.

An any national economy is resolving and trying to find the better ways to solve such kind of matters as:

- ensuring a high level of employment;
- an economic efficiency;
- a stable price level, meaning the absence of sharp jumps in their dynamics;
- economic freedom - both the goal and the principle of macroeconomics;
- fair distribution of income is also an important goal of the economy.[2]

By the author opinion, an each nation at the stage of its development has a certain set of needs for the goods masses, resources, means of defense, etc., and it seeks to develop its economy in order to satisfy the need in a proper way.

Looking back to the history we obviously can see that the progress of the national economy, firstly, depends on the conquest of land, the number and composition of the population and the existence of the various natural resources. This is a very significant development factor, but not fundamental.

Looking at the scientific works, journals and books published in different type of sources we can generalize all of them and create a common definition of the economy growth.

Secondly, the progress is determined by the division system of labor and a productive forces combination, which is expressed in the formed system of production branches.

Thirdly, the development of the national economy is determined by the organization and effectiveness of scientific and technological progress.

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[2] Ipek P., "The role of Oil and Gas in Kazakhstan's Foreign Policy: Looking East or West?", Europe-Asia studies, Taylor & Francis Group, Vol.59, No.7, November 2007, PP. 1180

Fourthly, an economic mechanism (competition, financial and credit system, etc.) has a huge impact on the country's economic process as well. [3]

Fifthly, the influence of politics and law, the level of political, legal and general culture should also be taken into account. .The economic basis itself is large product of culture.

And the determining principle of the country's development is its ability to timely reform its economic organization and management system.

History gives examples of the death of a number of nations, their collapse, because they did not know how to solve the great task at a favourable time - to achieve the constructive interaction within the social groups.

Important prerequisites for development are material interests realized through the income system of individuals, enterprises, and the state. Based on this, a complex system of levers and incentives was formed - wages, profits, interest, rents, taxes, subsidies, subsidies, etc. The market mechanism is based on the economic interests of people and incentives.[4]

Summarizing the 1st subchapter, the author would like to highlight the meaning of the national economy term. It's a complex process that includes to itself the relationships between nation and the local production enterprises, and also the process of meeting the society needs. So in this frame we are able to see that it deals with such questions as the level of employment, stabilization of the price level, economic efficiency, the freedom of economy, and fair distribution of the income. By the author's opinion, this kind of the national economy definition is applicable for every country around the world.

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[3] Kazakov A.P., Minayeva N.V., "Economika", Moskva, 1998, PP. 10

[4] Shaltakov V.P., "Macroeconomica", Omskiy gosudarstvennyi universitet putei soobsheniya, Omsk, 1999, P. 5

1.2. Key indicators of the national economy development and their measurements

By using a certain macroeconomic indicators, it is possible to conduct an analysis covering the national economy in its integrity and unity, in the interconnection of all its processes. These indicators reflect the results of the totality of economic entities behavior that use the productive forces of their country in order to better meet the needs of society.

The most widely used indicator of the functioning of the national economy - the production of goods and services, is the gross national product (GNP). It is defined as the market value of all final goods and services produced in the country's economy per year. [5]

This takes into account the annual volume of final goods and services created by citizens of a certain country within the national territory and beyond the country. Among many indicators, GNP is a central, concrete measure of an economic activity.

In the creation of GNP, all sectors of the economy, all the available economic potential of society take a part. In order to measure GNP, its representation is used, on the one hand, in the form of a flow of goods and services, on the other hand, in the income stream, both flows having the same value. In this case, the repeated account associated with the intermediate product is primarily excluded. Only final products that are purchased for final use are taking into account. Intermediate products, by contrast, are bought for further processing or resale several times before reaching the final consumer. Therefore, GNP can be calculated as the sum of the added values of enterprises in the economy. Value added is the gross output of enterprises minus current material costs, but with the inclusion of depreciation. GNP is equal to the amount of value added at all stages of production. [5]

The GNP indicator is close to the gross domestic product (GDP).

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[5] Baulchova T.B., “Factory vliyaushie na tempy ekonomicheskogo rosta vedushih stran” , Research paper, Tambov, 2008, P. 3

[5] ibid, P.5

It represents the cost of final products produced in the territory of a given country per year, regardless of the nationality of enterprises. When calculating GDP, the cost of products produced at enterprises of a given state outside of its territory is not taking into account.[6]

The GNP differs from GDP by the amount of so-called factor income from the use of the country's economic resources abroad. Factor income includes income of employees, rental income, loan interest and profits of enterprises (firms).

So, now the author can clearly write down that the GNP - the entire volume of final products produced with the help of residents of a certain country during the year, and GDP - the total volume of final products produced in the territory of a certain country during the year.

Continuing the measurement of national economy theme let's take a look to the formulas of GNP. The calculation of GNP by expenditure includes to itself the following factors [7]:

$GNP = C + I_g + G + X_n$,

where the C - personal consumer spending,

I_g- gross private domestic investment

G - government procurement of products and services

X_n - net export.

The calculation of GNP by income includes the following items: wages of employees; profit of firms and corporations, income of enterprises that are in individual and family ownership, and income of independent workers; rental payments, i.e. income received by property owners: land, other real estate, etc .; interest on loan capital.

An important question in terms of measuring the national production is the difference between nominal and real GNP. Nominal GNP reflects the volume of production, expressed in prices of the period when it was produced. Real GNP is a more accurate indicator of the results of national production, as it shows the market value of the output of each year, measured in constant prices, which makes it possible the comparison of GNP movement in different years.

Therefore, it is necessary to adjust the nominal GNP by the price index.

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[6] Houser Tr., Hsiang S., Kopp R., Larsen K., Delgado M., "Economic Risks of Climate Change: An American Prospectus", Chapter 14th, "Macroeconomic Effects", Columbia University Press, 2015, P. 149

[7] Baulchova T.B., "Factory vliyaushie na tempy ekonomicheskogo rosta vedushih stran" , Research paper, Tambov, 2008, P. 3

The price index is a measure of the relationship between the total price of a set of goods (a "market basket") for a given time period and the total price of a "basket" in the base year [7]:

$$Current\ year\ price\ index = \frac{current\ year\ market\ basket\ price}{price\ of\ a\ similar\ basket\ in\ the\ base\ year} \text{ x } 100$$

The GNP price index is called the deflator, and it can be used to inflate (increase the value expression of GNP taking into account price dynamics) or deflate (lower the value expression of GNP taking into account price dynamics).

A simple method of deflating or inflation of a nominal GNP of a given year is to divide the nominal GNP by the price index[8]:

$$Real\ GNP = \frac{nominal\ GNP}{price\ index}$$

Potential GNP is the level of output that would be achieved with full employment or, in other words, it is an indicator of the production capabilities of the country's economy. It is determined on the basis of the assumption that there is a natural level of unemployment at normal rates of economic growth.[9]

In short, there is obviously visible by the author's opinion, that the question of the relationship between welfare and GNP is quite complex. The GNP indicator provides an opportunity in monetary terms to measure the country's annual production. However, it is believed that GNP does not fully reflect the real economic welfare of the nation, which is associated with a number of circumstances as:

1) some of goods and services created this year do not enter the market, and therefore, do not have a market price. But in the GNP indicator, they are taken into account at conditionally accrued value.

2) many of goods and services are produced and consumed in households without entering the market and are often not taken into account in the GNP indicator

3) in all countries there is an issue with accounting of the shadow economy.

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[7] ibid, PP. 7

[8] Baulchova T.B., "Factory vliyaushie na tempy ekonomicheskogo rosta vedushih stran" , Research paper, Tambov, 2008, P. 4

[9] Shaltakov V.P., "Macroeconomica", Omskiy gosudarstvennyi universitet putei soobsheniya, Omsk, 1999, P. 7

1.3. Literature review of an economy growth factors

Each publicist has his own view in the frame of economy growth factors. And that's why the author would like to sharpen the focus on the most interesting proposals and recommendations by her opinion.

Let's start an overview with a proposal of Rudiger W.Dombusch, from the Massachusetts Institute of Technology, who points out that most economists were educated to believe that steady improvements in growth – as measured by a robust gross domestic product – served all, albeit not equally.

Dombusch says that many of the economists looked to the "rising tide" of growth to lift all boats. Also he mentioned that the old view would have been trickle-down works. He believes economists must reassess that faith in rising tides.[10]

Alternatively, Dombusch argues, economy and policy should aim to build future resources. He says: "That means education is important". He claims that the governments need a better and more explicit focus on not leaving people "off the buss".[10]

In other words, by his opinion improving workers' skill and bolstering health care policies are should be on the list of the economy growth factors. Dombusch believes that the poor economic performance is not the result of taxation but of an aggressive lack of attention to education and skill of the workers.

The next source which are going to be analysed by the author is the article of Simon Kuznets published by the Cambridge University press. The Kuznets draws an analogy between organic units growth and the economy growth definitions. The 1st definition he interprets as "a process, indirectly resulting from chemical, osmotic and other forces, by which material is introduced into the organism and transferred from one part of it to another". And the economic growth he underline as a process by which economic material is introduced into a nation's economy and transferred from one part of it to another. The economic material he describes as the most directly represented by what economists designate productive resources:

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[10] Dombusch R., Fischer St., Startz R., "Macroeconomics", 10th edition, McGraw Hill Education, May, 2012, 665 pages, P. 332

[10] ibid, P.333

natural, irreproducible goods, such as land, mineral deposits, rivers, and waterways; population; and reproducible wealth, in the form of all types of equipment, inventories, and so on.

And as the growth of organism would be measured by the increase of its weight, height, number of cells, and etc., the growth of nations would be measured by additions to its wealth and population.[11]

The natural resources viewed as a material, a population viewed as labour supple, reproducible resources viewed as accumulated capital, and all together are indicators of the nation's economic growth according to the Kuznets' article .

Meanwhile, Klaus Steinitz and Michel Vale closely connect the economic growth and social progress. They recommend to pay attention at the necessity of studying and evaluating economic growth even more consistently as a process of economic development which is inseparable from social progress under socialism. Following their ideas, the economic growth is intimately interrelated with all aspects of social development under socialism, with change in the productive forces on the basis of the scientific and technical revolution, with the rise in the productivity of labor and effectiveness, with the perfection of socialist relations of production, and with the development of the socialist way of life. By their opinion, economic growth is based on these processes of social and economic development. They constitute the foundations and driving forces for economic growth, which creates the crucial conditions for higher development and evolution. Also Steinitz and Vale highlight the importance of scientific and technical progress for economic growth, as it is manifested in the increase in the objective necessity and possibilities of increasing its share in the growth in production as well as in the rise in productivity and effectiveness. This necessity, by the publicists, comes first and foremost from the fact that economic growth can no longer be secured by quantitative expansion of the basic elements of the production process, i.e., labour power, energy and raw materials, and the instruments of labour.[12]

Robert Barro studied a panel of a 100 countries to find the factors that affected economic growth of countries.

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[11] Kuznets S., " Measurement of Economic Growth", The Journal of Economic History, Vol.7 Supplement: Economic Growth, Cambridge University Press, (1947), P. 10

[12] Steinitz Kl. and Vale M., "Economic Growth and Economic Strategy", Eastern European Economics Journal, Taylor & Francis Ltd., Vol.27, No.1, August, 1998, P.65

He found out that the growth rate of real per capita GDP was connected with maintenance of the rule of law, smaller government consumption, longer life expectancy, more male secondary and higher levels of schooling, lower fertility rates, bigger amount of investment, the level of democracy, a lower inflation rate, and openness to trade. He also highlighted the theory of convergence, which determines that as the real GDP level increases, the growth rate descreases.[13]

Despite international aid and support, developing countries were not able to grow and prosper because of economic traps. The traps include conflicts or wars, rent seeking on natural resources, dependence on only one neighbouring country, and lack of the rule of law (Collier, 2007). Although real per capital GDP growth of developing countries was higher than the world average, they had low levels of socio-economic conditions.[14]

It was caused by poor institutions, low human and physical capital, conflicts, poverty, level productivity of the low, lack of international trade, and heavy reliance on external help.

But despite all the problems, they have had a higher growth rates comparing with developed countries.

International trade increase the strength of the importing and exporting countries economy . The positive relationship between international trade and economic growth take place as well. Kavoussi (1984) found that higher rates of economic growth had a mutual connection with higher rates of export growth. He found the positive connection between exports and growth holds for both middle and low income countries. Sachs and Warner (1995) found that open developing economies outperformed closed developing economies every year in terms of real GDP growth. Even in lower living standard countries, openness to trade increase growth in productivity, and thus, human capital (Harrison 1996). Even though, least developed countries are dependent on primitive agriculture and are more vulnerable to shocks.[15]

Kumar and Woo (2010) found out a linear inverse connection between initial debt and subsequent growth in emerging and advanced economics.

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[13] Barro R. J., "Determinants of Economic Growth: A cross-country empirical study", National Bureau of Economic Research, Working paper: 5698

[14] Steinitz Kl. and Vale M., "Economic Growth and Economic Strategy", Eastern European Economics Journal, Taylor & Francis Ltd., Vol.27, No.1, August, 1998, P.66

[15] Ray D., "Development Economics", Princeton University Press (1998), P. 12

The impact of high debt was smaller in economics of developed countries. They also found out that only very high levels of the debt-to-GDP ratio had significant negative effects on economic growth.

Reinhart and Rogoff (2010) studied economies of 20 developed countries for about two centuries and found out that the negative relationship between growth and level of debt was very weak.

An increase in life expectancy is directly related to the control of diseases and better health level. Increases in life expectancy have a direct impact on population growth. A study by Acemoglu and Johnson (2006) cast doubt on the claim that unfavourable health conditions are the main cause of poverty in some countries, but agreed that improvement in health conditions may lead to improvement in economic conditions. Another study by Cervellati and Sunde (2009) predicted that improvements in life expectancy foster human capital accumulation and have an effect on generation income.[16]

The level of education is widely accepted as a factor of the economic growth. Barro (1999) found out that an additional year of schooling increased the country's growth rate by 0.7 percent per year. Investment in a human capital improves the ability to work productively. Al Nassar (2007) has noted that the level of education of the workers was a measure of human capital and was directly related to productivity.[17]

By Tejvan Pettinger, economic growth is an increase of GDP, or in other words, an increase in the value of goods and services produced in an economy. He splits the factors affecting economic growth into[18]:

- Demand side factors (e.g. consumer spending)
- Supply-side factors (e.g. productive capacity).

Also he specifies the causes of economic growth which are shown in the Table 1.

Table 1 - Causes of economic growth

Demand AD = C+I+G+X–M	Supply–side (LRAS)

[16] Upreti P., "Factors affecting economic growth in developing countries", Spring, 2015, P. 8

[17] Barro R. J., "Determinants of Economic Growth: A cross-country empirical study", National Bureau of Economic Research, Working paper: 5698

[18] Pettinger T., Factors affecting economic growth, https://www.economicshelp.org/blog/2671/economics/factors-affecting-economic-growth/

Higher real wages C	Increased investment
Tax cuts C	Higher labour productivity
Demand AD = C+I+G+X–M	Supply–side (LRAS)
Devaluation X M	Discover raw materials
Government spending G	Increase in labour force
Demand AD = C+I+G+X–M	Supply–side (LRAS)
Lower interest rates I C	Improved technology

(Source - Factors affecting economic growth, Tejvan Pettinger article, https://www.economicshelp.org/blog/2671/economics/factors-affecting-economic-growth/)

Demand side factors – Aggregate Demand (AD)

The factors that could affect the AD are the following:

- Interest rates. Lower interest rates would make borrowing cheaper and should encourage firms to invest and consumers to spend
- Consumer confidence. That's important factor as if consumers are confident about the future they will be encouraged to borrow and spend. In case if they are pessimistic they will save and reduce spending
- Asset prices. Rising house prices create a positive wealth effect
- Real wages. In case of failing real wages consumers have to cut back on spending
- Value of exchange rate. When exports become more competitive and imports more expensive, it will help to increase demand for domestic goods and services.
- Banking sector. If the banks lose money and no longer want to lend, it can make it very difficult for firms and consumers leading to a decline in investment.[19]

Pettinger mentions also the factors that can influence LRAS (productive capacity). And they are following:

- Levels of infrastructure. Investments in roads, transport and communication can help firms reduce costs and expand production
- Human capital. Here is the productivity of the workers is the main factor. It determined by the level of education, training and motivation

[19] Pettinger T., Factors affecting economic growth, https://www.economicshelp.org/blog/2671/economics/factors-affecting-economic-growth/

- Development of technology. In the long-run development of new technology is a key factor in enabling productivity and higher economic growth
- The strength of labor markets If labor markets are flexible, it will help the firms to hire the workers they need in an easier way.[20]

By the reviewing mentioned above many of kind of sources, author is able to conclude that most of the economists and researches described in the sub-chapter have an almost similar opinion when we are asking, so what is the main factors that influence on the country economy growth. As it is mentioned, the one of the key factor is the labor productivity. This factor touches all the levels of employment, education, and afterwards a production of goods and services.
So even it sound very typical, the engine of the national economy growth is the nation, its mood and behavior to the current situations within a country.

1.4. The role of the location in the creation of petroleum industry prices

Generally, the main oil reserves are controlled by state-owned oil companies. This is explainable by the fact that the oil industry is the most important sector of the economy for countries that receive the main income from oil exports. The budget and the ability to develop other sectors of the economy depend on the funds received.

Every year the amount of new discovered reserves of easy available oil in the world is decreasing. The number of discovered deposits in the world increased once, then began to decrease slightly, and the decrease in the growth of large deposits was especially noticeable.

In global practice, large petroleum business companies usually sell “their own”, produced by the company, crude oil is selling to the companies and buy crude oil for their own refineries from their nearest local suppliers, oil consumers which o do not have “their own” production, purchase it from affiliates - interdependent oil companies close to refineries, which are following all the industry standards, requirements and practices .

[20] Pettinger T., Factors affecting economic growth, https://www.economicshelp.org/blog/2671/economics/factors-affecting-economic-growth/

Oil prices at the wellhead are significantly different from the corresponding estimated prices and from actual selling prices to the final consumer,

including because the product sold on the global crude oil market is different from the mineral raw materials that rise from the oil well to the earth's surface and sold at the mouth of this well.[21]

A wellheads are located in very remote places where crude oil has a low cost until it is transported and revised into higher value products. It is essentially impossible to compare the price of oil at the wellhead with the price of oil delivered to the final consumer.

That means from an economic point of view, there is no reason to determine the cost of oil at the wellhead as similar or indicative of the selling prices to final consumers operating in places located far from the place of oil production.

Such an attempt ignores the increase in the cost of oil in the process of its movement from the well to the consumer.[22] The effectiveness of the company's strategy is reflected in the operating and financial statements of the company.

Making a profit and increasing the market capitalization of a joint-stock company, in other words, the value of its shares, is the goal that joint-stock companies set themselves everywhere. The increase in production volumes, cost reduction and tight control of technological processes indicate effective management.

Oil and gas companies all over the world, operate within the product market with clearly defined segments that have specific characteristics. The owners of such companies can be either private shareholders, the number of which can vary from one to tens of thousands in a public company, or government of states (in the case of state-owned oil companies).[22]

The crude oil is the most widely traded commodity in the world: it is produced in the most countries and consumed in all corners of the world.

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[21] Maureen Kl., Kopalek M., Wong P., "Energy prices", Monthly Energy Review, June 2019, P.154

[22] Cherdabayev R., "Neft' Kazakhstana. Vekovaya istoriya", Seriya: Neftyannoe nasledie, Astana: OF "Aldongar", 2012, Vol. 354 pp, P 24

[22] ibid, P.25

The purchase, sale, transportation and storage of physical crude oil can be measured by volume (in tons or barrels), by value (unit price times volume), or by the capacity of vehicles and oil storage facilities. For a number of reasons, it is measured using all three variables:

- the volume indicator gives an idea of the total size of the market for crude oil and related products, the total global supply and demand for petroleum products

- the cost indicator shows the economic impact of the crude oil trade and its impact on the balance of payments between countries and geographic regions

- the capacity indicator allows the transport system, including tankers, pipelines, oil storages and other transport facilities, to build the necessary infrastructure and calculate the appropriate costs based on the forecast of the development of world trade.[23]

The oil and gas reserves indicated in the balance sheet in barrels of oil equivalent, or "b.o.", is an exhaustible natural resource, which production decreases within a certain period of time, as sales decrease in the amount of reserves in a particular field. Oil companies each year need to find and balance new reserves in order to maintain and expand the company.

The development of new and replacement of depleted reserves is an important indicator of the success of any oil company around the world . The movement of oil to markets begins at the mouth of wells located on the land or at the sea.[24]

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[23] Jensen T. J., "Gas suppliers for the world market", The Energy Journal, Vol.15, Special Issue on the Changing World Petroleum Market, International Association for Energy Economics, 1994, PP.240

[24] Cherdabayev R., "Neft' Kazakhstana. Vekovaya istoriya", Seriya: Neftyannoe nasledie, Astana: OF "Aldongar", 2012, Vol. 354 pp, P 23

Oil flows through field pipelines to the central delivery point, where oil from various deliveries is collected in tanks, and then can flow directly to refineries located near such facilities, or to a transportation system for shipment to more distant points for processing or use.

That kind of transportation can be carried out through a pipeline to the seaport, where oil is transshipped into tankers and sent to world markets; barges to various refineries and to customers located along river banks; by tankers and by rail to markets not served by pipelines and ships.

All of these transportation methods involve costs that vary depending on the distance over which the oil is delivered, the final delivery or export destination, and the volumes of oil produced and transported. After oil refining, gasoline, diesel fuel and other products are delivered by pipeline, rail, road for distribution to retail customers.[24]

The crude oil and petroleum products are moving to markets that provide maximum economic value to the supplier.

Consequently, oil usually goes first to the nearest markets, since the cost of its transportation will be lower. However, local markets are not always able to use the entire volume of oil and gas production, so deliveries are directed to regions where oil and gas demand exceeds supply. At any given moment in time in the world there is a certain number of barrels of oil in transit, representing a “reserve” necessary for timely deliveries from production sites to processing and consumption sites.

In a number of countries, the state requires that oil and petroleum products, such as gasoline and fuel oil, be sold on local markets at reduced subsidized prices as part of government regulation. Thus, the state influences the possible price for the sale of oil or oil products or even sets such a price.

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[24] Cherdabayev R., “Neft’ Kazakhstana. Vekovaya istoriya”, Seriya: Neftyannoe nasledie, Astana: OF “Aldongar”, 2012, Vol. 354 pp, P 24

Once domestic demand is satisfied, excess crude oil is exported to the world market. The greater the distance, the more expensive the transportation and, consequently, the lower the income of the supplier.[25]

There are some exceptions to this economic rule, the countries which decided to sell oil to farther at a higher cost than in the case of sales to closer markets due to large volumes, access to political capital, and for security reasons.[26]

Also, the choice of the nearest market is influenced by the need for a specific product range dictated by laws and regulations established by the government, the capacity of the transport system and the productivity of oil refineries (refineries), technical requirements for products in terms of quality.

According to the Mirova Tatiana, the world oil prices also depend on the location and quality of oil. The farther the place of oil production is from the final consumption market (a landlocked area thousands of km away from the markets for refined products), the lower its wellhead price.[25]

The heavier the crude oil, the less such oil costs at the wellhead. It costs less because it is more difficult and more expensive to process into light products of higher cost.

Thus, a single or average global market price for crude oil did not exist and does not exist. Instead, indicative prices vary by region and quality in world oil trading.

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[25] Mitrova T., FOREWORD Sarah O. L., "New Russian Oil and Gas export strategy", Shifting Political Economy of Russian Oil and Gas, Center for Strategic and International Studies (CSIS) research report, Mar.1 2016, P.43

[26] Maureen Kl., Kopalek M., Wong P., "Energy prices", Monthly Energy Review, June 2019, P.66

[25] ibid, P.44

In addition, there are plenty of different indicative prices that exist and are tracked, which vary greatly in level at the same time due to factors such as the quality, density and location of crude oil.[27]

The petroleum companies that supply to export markets is not the same oil that was refined or sold to the country.

This is because, the crude oil sold on the market is often a mixture of oils from different fields that have been collected and pumped to a single location on land or at sea. All major export crude oils from different countries are a mixture of a large number of different oil flows. They are blended and sold as a variety.[27]

Moreover, the determining indicator that distinguishes oil is its qualitative composition. Other factors affecting oil prices worldwide: seasonality of demand for heating and transport fuels, refining capacities, general economic conditions in consuming or producing regions, geopolitical events, weather, government actions, including taxes and tariffs.

Ravil Cherdabayev says that crude oil is sold either on the spot market or through derivatives contracts. Spot market contracts refer to a specific volume or cargo of crude oil sold at a time. Derivatives contracts may be related to specific volumes of oil sold over a period of time, for example, from month to month, or for a specified period, for example, five years. Under such fixed-term contracts, the price may be fixed or fluctuate on an agreed basis, for example, calculated monthly, taking into account transport costs, quality, duration of the contract and other factors of the oil markets. [28]

There are three of segments by the Cherdabayev's opinion in the petroleum industry exist nowadays:

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[27] Malthouse Press, "Refining of Petroleum and Processing of Gas", 2003, PP. 385

[27] ibid, P. 383

[28] Cherdabayev R., "Neft' Kazakhstana. Vekovaya istoriya", Seriya: Neftyannoe nasledie, Astana: OF "Aldongar", 2012, Vol. 354 pp, P. 23

- exploration and production, or “upstream”;

- pipelines and logistics, or "midstream";

- processing and marketing, or “downstream”.

All vertically integrated international oil and gas companies operate in at least two of these segments.

The exploration and production, or “upstream”.

The such type of companies make an exploration, drilling, development and production of oil and gas from the subsoil. This type of activity is characterized by a high level of risk, since there is no guarantee of cost-effective detection and production of oil and gas.

This segment is capital-intensive, that is, it requires large investments, since drilling and oil and gas production can be very expensive, and requires a large number of equipment and large industrial facilities for the extraction of oil and gas, their processing and processing.[28]

The oil exploration and production companies in a vertical holding typically sell their crude oil to an associated oil sales company. Small companies sell their crude oil to an independent oil trading company.

A large oil companies which are part of the transnational vertically integrated oil and gas company (VIOGC) usually do not have their own traders, since global markets and logistics are complex, prices are characterized by instability with sharp jumps up and down. The risk of falling prices below the cost of production creates an absolutely unnecessary threat of a shortage of free cash flow.

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[28] P. Cherdabayev R., “Neft’ Kazakhstana. Vekovaya istoriya”, Seriya: Neftyannoe nasledie, Astana: OF “Aldongar”, 2012, Vol. 354 pp, P. 24

The vertically integrated oil and gas company takes measures to protect its oil producing company from market risks of falling oil prices, and allows it to focus on its core function - oil exploration and production.[29]

Trading and marketing companies within the vertically integrated oil companies are specifically responsible for the sale of crude oil and its transportation to the next buyer.

Thus, risks are transferred from the oil producer to the trading company as part of a vertically integrated structure. The issue of how headquarters provides significant cash and risk management through its companies requires a lot of attention.[30]

The pipelines and logistics, or "midstream".

This type of companies transport oil and gas from their production locations to various sales markets or to other customers who supply them further to remote markets. Means of transportation include public or private pipelines, ships, barges, car and rail tanks.

The supplier or buyer usually pays for shipping costs outside the place of production and assumes the risk of price changes in connection with the subsequent sale or sale of oil.

If the pipeline capacities are insufficient for pumping all of the oil produced and intended for transportation, more expensive transportation methods, such as railways, are used - at an increased cost per barrel. tanks, tankers, tankers.

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[29] Jensen T. J., “Gas suppliers for the world market”, The Energy Journal, Vol.15, Special Issue on the Changing World Petroleum Market, International Association for Energy Economics, 1994, P.240

[30] The official website of the OPEC organization, Annual report, https://www.opec.org/opec_web/en/, accessed on April-May, 2020, P. 14

Besides states that own pipelines can set limits on oil volumes (quotas) in relation to oil companies, allowing them to transport part, but not all, of the oil produced through the pipeline.[31]

A processing and marketing, or “downstream”.

The refining and marketing companies (downstream segment) purchase crude oil from the producing companies or enter into contracts for the primary processing and transportation of crude oil at their own expense from the place of production to the refinery, where it can be converted into refined products such as diesel fuel, gasoline, petrochemicals.

Or they simply sell the crude oil to another buyer or trading organization, after which the oil enters the free market and can be resold many times before it reaches the final buyer.[31]

The trading companies in the refining and marketing segment assume the price risk from mining companies and protect them from price volatility and market uncertainty associated with short-term price fluctuations after the moment of oil production. The refining and marketing segment can exist independently or be part of a large international oil and gas company.

Refining and marketing companies can also manage refineries that process crude oil into other products, taking into account local demand, the quality of crude oil and the availability of transport infrastructure for the transportation of crude oil and petroleum products.[32]

Trading companies buy and sell crude oil, taking on the price risks associated with international markets, price volatility and logistics, of which transportation is part.

Such companies can have high turnover and receive increased income, but there is no guarantee that they will make a profit. However, this trading process protects the producing companies, as

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[31] Cherdabayev R., “Neft’ Kazakhstana. Vekovaya istoriya”, Seriya: Neftyannoe nasledie, Astana: OF “Aldongar”, 2012, Vol. 354 pp, P. 23

[31] ibid, P.24

[32] Maureen Kl., Kopalek M., Wong P., “Energy prices”, Monthly Energy Review, Jun2019, P.163

they are guaranteed payment for crude oil, which provides compensation for the costs of its production, regardless of the actual sale of oil to the final consumer and the price of such sale.

Trading companies buy oil at the point of sale at the wellhead or at a centralized transshipment depot and assume the risks of price volatility, logistics, supply disruptions, possible loss of goods, and, consequently, ultimate profit or loss.

They can buy additional volumes of oil for their own refineries or customers, or they can sell crude oil to other refineries or trading companies [33]

The difference in the organizational structure of the trading divisions of VIOGC depends on the needs of the business and the management decisions of each particular company.

In addition, oil and gas are traded in large volumes, requiring capital and financing to pay huge amounts of money for oil and gas. In centers, in order to facilitate commodity trading, banks and other financial institutions are always available to trading companies as a source of short-term loans needed to supply oil, for the period from delivery to receipt of payment from the final buyer.[33]

There are a large number of independent refineries that do not own upstream assets and have no control over the supply or price conditions contained in the contracts for the purchase of crude oil.

There are number of the ways of oil and gas transportation are existing nowadays. The author would like to explain the relation of the costs using different transportation methods and the risks connected with them.

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[33] Mitrova T., FOREWORD Sarah O. Ladislaw, "New Russian Oil and Gas export strategy", Shifting Political Economy of Russian Oil and Gas, Center for Strategic and International Studies (CSIS) research report, Mar.1 2016, P.43

[33] ibid, P. 45

Tankers are used to transport oil between continents and can be very large for transporting oil over long distances for a month or more, as well as small ones for transporting shorter distances for half of the month or less. Pipelines are used for transcontinental transportation of crude oil. Both transportation methods have specific risks and costs[34]:

- tanker transportation provides flexibility in the sense that, while on the move, goods can be redirected to higher cost markets, while pipeline transportation is more commercially safe because it passes by land, however, the possibility of flexible route changes moves down;

- pipelines provide significantly lower transportation costs per barrel, but give fewer options than shipping by tankers; their work may be interrupted due to operational problems;

- for land transportation of crude oil and refined products, as well as transporting them over short distances, railway tanks and motor vehicles can be used, but the costs will be higher than for pipeline or tanker transportation;

- oil storage facilities can be used to maintain a balance between production and consumption, acting as a buffer between the receipt and shipment of oil and oil products, and are an integral part of the global system of the oil logistics and refined products.[35]

Access to one or more modes of transportation may directly affect the pricing of oil produced in a particular field.

International trading companies can be located in several countries around the world, while they are mainly located in energy trading centers formed and used by other traders.

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[34] The official website of the OPEC organization, Annual report, https://www.opec.org/opec_web/en/, accessed on April-May, 2020, P. 17

[35] Cherdabayev R., “Neft’ Kazakhstana. Vekovaya istoriya”, Seriya: Neftyannoe nasledie, Astana: OF “Aldongar”, 2012, Vol. 354 pp, P. 23

The most of the large vertically integrated oil and gas companies own several international trading subsidiaries in one or more of these locations, regardless of the location of their corporate headquarters or industrial facilities. Trading companies buy and sell crude oil, taking on the price risks associated with international markets, price volatility and logistics, of which transportation is part. Such companies can have high turnover and receive increased income, but there is no guarantee that they will make a profit.

However, this trading process protects the producing companies, since they are guaranteed payment for crude oil, which provides compensation for the costs of its production, regardless of the actual sale of oil to the final consumer and the price of such sale.[35]

Trading companies buy oil at the point of sale at the wellhead or at a centralized transshipment depot and assume the risks of price volatility, logistics, supply disruptions, possible loss of goods, and, consequently, ultimate profit or loss.

They can buy additional volumes of oil for their own refineries or customers, or they can sell crude oil to other refineries or trading companies.

The difference in the organizational structure of trading units depends on the needs of the business and management decisions of each particular company.

In addition, oil and gas are traded in large volumes, requiring capital and financing to pay huge amounts of money for oil and gas.

In centers, in order to facilitate commodity trading, banks and other financial institutions are always available for trading companies as a source of short-term loans needed to supply oil, for the period from delivery to receipt of payment from the final buyer.

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[35] Cherdabayev R., “Neft’ Kazakhstana. Vekovaya istoriya”, Seriya: Neftyannoe nasledie, Astana: OF “Aldongar”, 2012, Vol. 354 pp, P. 23

Such short-term loans sometimes amount to millions of dollars and are provided to trading companies on the security of oil itself.

The industry has a large number of traders who buy and sell crude oil. Thus, each barrel of oil produced can be sold many times on the way from the wellhead to the final consumption point located thousands of kilometers across the globe. In some cases, such traders "exchange" their own oil in one part of the world for the oil of another oil company, which is closer to the physical location of the market.

This is a matter of geography. In particular, refineries built in remote areas are capable of processing only crude oil produced in this region and cannot import oil from other territories due to the lack of pipelines, long distances and costs. Vertically integrated international oil and gas companies also use trading companies to increase their own ability to sell volumes and manage risks effectively.[36]

But the activities of trading companies are not only in the sale of oil, but may include the use of financial instruments - futures contracts and options - to reduce price risks. The trading companies can also operate in the futures market regarding future changes in oil prices.

Such operations bring liquidity to the market and provide price identification, increase the efficiency of sales and purchases of petroleum products and crude oil. The commercial goals of trading companies are to profit at various retail outlets and centers through the purchase and resale of crude oil and petroleum products.

Traders perform an important function of linking suppliers and refineries and markets, balancing supply and demand in the global market. Just as international trade can lead to increased profits by accessing international markets and minimizing taxes, there may be tax advantages for placing trading companies in specific places in a country, for example, providing

[36] Mitrova T., FOREWORD Sarah O. Ladislaw, "New Russian Oil and Gas export strategy", Shifting Political Economy of Russian Oil and Gas, Center for Strategic and International Studies (CSIS) research report, Mar.1 2016, P.44

tax breaks or creating economic favored zones. If all the oil produced by a producing company is refined in the country of production, then the need for an international trading company disappears. Instead, a national trading company will be engaged in the sale of products on the domestic market.[37]

An internationally integrated vertically integrated oil and gas companies have trading and marketing subsidiaries located in large shopping centers around the world.

There are no requirements or commercial reasons why these companies should be located where the extractive assets are physically located. Such trading companies may be located where their holdings have neither upstream nor downstream assets, but instead have legal or regulatory conditions necessary to provide services. Such trading companies can be both domestic and foreign structures.

These companies may be called sales or trading, but their task is to buy and sell crude oil and oil products around the world in those markets for which demand is most consistent with the volume of production and quality of crude oil and oil products. Shopping centers have sprung up in response to supply and demand for crude oil and petroleum products worldwide.[38]

In some of the countries, large oil and gas companies usually sell their own, produced by the company, crude oil to trading companies and buy crude oil for their own refineries from their nearest local suppliers.

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[37] The official website of the OPEC organization, Annual report, https://www.opec.org/opec_web/en/, accessed on April-May, 2020, P. 15

[38] Mitrova T., FOREWORD Sarah O. Ladislaw, "New Russian Oil and Gas export strategy", Shifting Political Economy of Russian Oil and Gas, Center for Strategic and International Studies (CSIS) research report, Mar.1 2016, P.44

There are a large number of independent refineries that do not own upstream assets and have no control over the supply or price conditions contained in the contracts for the purchase of crude oil.

The fact when crude oil producing companies tend to send it to their own refineries instead of selling it and buying volumes traded on the open market within the region also can take place.

This is a matter of geography and logistics, determined by long distances from other potential markets and the initial structure of the industry, which consisted of state-owned integrated oil and gas companies.

Also, an international trade can lead to increased profits by accessing international markets and minimizing taxes, there may be tax advantages for placing trading companies in specific places in a country, for example, providing tax breaks or creating economic favored zones.

If all the oil produced by a producing company is refined in the country of production, then the need for an international trading company disappears. Instead, a national trading company will be engaged in the sale of products on the domestic market.

Internationally integrated vertically integrated oil and gas companies have trading and marketing subsidiaries located in large shopping centers around the world.

There are no requirements or commercial reasons why these companies should be located where the extractive assets are physically located. [39] Such trading companies may be located where their holdings have neither upstream nor downstream assets, but instead have legal or regulatory conditions necessary to provide services. Such trading companies can be both domestic and foreign structures.

That kind of companies may called as sales or trading, but their task is to buy and sell crude oil and oil products around the world in those markets for which demand is most consistent with the volume of production and quality of crude oil and oil products.

Shopping centers have sprung up in response to supply and demand for crude oil and petroleum products worldwide. These centers are regional in nature, reflecting sources of supply.

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[39] The official website of the OPEC organization, Annual report, https://www.opec.org/opec_web/en/, accessed on April-May, 2020, P. 13

Trading companies can take risks associated with the international transportation of crude oil and petroleum products and ownership of those, freeing the rest of the corporation from such risks. Environmental risks and product safety risks are examples of legal liability that may be shifted to trading companies.

Trading companies can achieve in the conclusion of transactions ease that is unattainable by mining companies. This may include connections with banks in different countries; transactions, as necessary, in various world currencies;
reduction of risks caused by currency fluctuations, as well as risks of expropriation of capital or funds by foreign countries or countries of location. The trading companies can optimize trade and transport logistics using a large portfolio of delivered products and markets, without being tied to a single zone or country of physical supplies. Logistics may require working capital, loans, long-term contracts and arrangements that the mining company could not have provided on its own.

The complexity of trading operations, taking into account the volume of transactions per day, week and month around the world, makes it very difficult for a mining company that does not have a trading subsidiary to organize its own sales activities on an international scale. [40]

By analyzing the read literature and sources in different languages, the author would definitely say that the role of location in the development of the country's economy in the oil and gas sector is one of the key. Looking to the examples and facts mentioned above, it is very clear that the formation of the product's final cost directly depends on the transportation costs of the exporting oil product or crude oil.

Therefore, it can be dare said by the author that in the global oil and gas sector the variety of oil products prices for each region is absolutely fair, and the trading companies are the main helpers in this matter.

[40] Mitrova T., FOREWORD Sarah O. Ladislaw, "New Russian Oil and Gas export strategy", Shifting Political Economy of Russian Oil and Gas, Center for Strategic and International Studies (CSIS) research report, Mar.1 2016, P.45

2. ANALYTICAL REVIEW OF THE KAZAKHSTAN MARCOECONOMIC PERFOMANCE AND PETROLEUM INDUSTRY CURRENT SITUATION

2.1. Historical context of the USSR impact on the macroeconomic performance of Kazakhstan from the past till the present time

In the initial years following independence Kazakhstan's leadership was preoccupied with nation building in the context of real prospects of secession or internal conflict. Economic policy in 1992-94 was driven in large measure by President Nazarbayev/s attempts to maintain close economic ties with Russia. Kazakhstan was the last Soviet republic to formally declare its independence in 1991 and its leader was the most assiduous in trying to construct a viable successor organization to the USSR. Kazakhstan followed Russia's radical reforms, notably the price of liberalization of January 1992 and early privatizations measures, but macroeconomic stability was not pursued, even if it had been desired, was hamstrung by retention of the ruble until November 1993 (Pormfret, 1995). In 1994 pluralism briefly flourished, before the process of political repression began to take shape and Kazakhstan become noticeably less democratic than Russia. Despite statements to the contrary, economic reform was put largely on hold for the remainder of the decade.[41]

In the mid-1990s Kazakhstan's privatization process took a similar turn to Russia's as a voucher scheme was displaced by asset sales. Between September 1995 and the end of 1996 many of the most valuable state enterprises were sold.[43] During this period the government's attention also began to focus more narrowly on oil sector development, and became associated with wealth accumulation by the elite. Externally, Kazakhstan became seen less as one of the reformist CIS countries and more as an example of corrupt Soviet successor state. The economy was hit by several negative exogenous shocks in the late 1990s, notably low oil prices and the August 1998 Russian crisis.

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[41] Pomfret R., "Kazakhstan's Economy since Independence: Does the Oil Boom offer a Second Chance for Sustainable Development?", Europe-Asia Studies, Taylor & Francis, Vol. 57, No.6, Sept.,2005, P. 859

[43] Sage Publications Ltd., "Kazakhstan: Oil Reserves Could Exceed Oil Reserves of Former USSR Review of Current Projects", WORLD ENERGY REVIEW ISSUE, 1995, Vol.13, No.1, P. 79

Following a large currency devaluation in 1999 and an upturn in proven oil reserves and in oil prices Kazakhstan entered a boom period in the early twenty-first century.[42]

Regarding the economic level, the Kazakh economy was a part of a planned economy and strongly linked to Russian market during the Soviet times; therefore at the beginning of the 1990s Kazakh President decided to start a transition to a more open economy. Indeed, the ruling elite has pursued several reforms of its economic structure, welcoming foreign investments in its economy: Kazakhstan is the most favorable country to foreign investments in the regional.

Yet, in the 1st years the economy suffered quite a lot, declining significantly until 1995.[44] In fact, Kazakh economy suffered from disrupted supply chains and higher prices for imports, as other regional countries, and Kazakhstan faced deep recessions in the first half of the 90; it recovered marginally in 1995-1997, but it was hit by the 1998 Russian crisis.[45]However, the economic trend changed significantly at the beginning of the new millennium when Kazakhstan's economy has soared at an averaged 8% annually between 2000 and 2010.

According to the macroeconomic factors history Kazakhstan faced with different types of issues on the way of it's establishment. And the high immigration during the 1990s is among them. The Kazakh's population fell from over 17 million at the time of independence to less than 15 million a decade later.

According to the final Soviet census in 1989 the population consisted of roughly two-fifths Kazakhs, two-fifth Russians and one-fifth other ethnic groups.[46] The Russians, who had been the largest group in the republic a decade earlier, were concentrated in the capital city, Almaty, and in northern and eastern regions bordering the Russian Federation. Among the "other" groups were large contingents of ethnic Germans and Koreans who had been shipped to Kazakhstan by Stalin, who feared their potential to be a fifth-column supporting invaders from the west and east.

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[42] Pomfret R., "Kazakhstan's Economy since Independence: Does the Oil Boom offer a Second Chance for Sustainable Development?", Europe-Asia Studies, Taylor & Francis, Vol. 57, No.6, Sept.,2005, P. 860

[44] Raimondi P. P., "Central Asia Oil and Gas Industry – The External Powers' Energy Interests in Kazakhstan, Turkmenistan and Uzbekistan", Fondazione Eni Enrico Mattei (FEEM), 2019, P. 25

[46] Pomfret R., "Kazakhstan's Economy since Independence: Does the Oil Boom offer a Second Chance for Sustainable Development?", Europe-Asia Studies, Taylor & Francis, Vol. 57, No.6, Sept.,2005, P. 86

Most of the Germans took advantage of German citizenship laws to emigrate to Germany in the early 1990s.

Together with Russian emigration, both of which contained a disproportionate number of the country's well-educated and skilled people, this constituted a substantial brain drain in the early post-independence years.[47]

Emigration complicates comparison of Kazakhstan's economic performance because output comparisons across transition countries are usually by total output rather than per capital GDP, so that Kazakhstan's relative performance may look worse than it was. In addition, the biases of all GDP estimates for transition economies probably overstate the extent of the initial recession. [46] Other indicators of well-being reinforce the impression that Kazakhstan did not perform as poorly as the GDP estimates suggest, and that this gap between estimates and reality was bigger for Kazakhstan than for neighboring CIS countries (Pomfret, 2003). Nevertheless, whatever its absolute or relative magnitude, Kazakhstan's output performance in the 1990s was well below potential.

Despite the problems, Kazakhstan has been relatively successful among CIS countries in attracting foreign direct investment (FDI). As was mentioned earlier, Kazakhstan has been the focus of attention of the world's oil industry since the break-up of the USSR.[47] Chevron's (one of the largest petroleum corporation in the world) huge investment to develop the kazakh's Tengiz oilfield is the largest by far and the success of this venture will influence all other investments.

Chevron began negotiating for the Tengiz oilfield in 1990, in what was the biggest FDI deal of the USSR's history, but otherwise FDI was sluggish in the first half of the 1990s. On April 6, 1993, Chevron completed all agreement needed to form a joint-venture within the Republic of Kazakhstan, once part of the Soviet Union. With the signing of the agreements, Chevron acquired a 50 percent working interest in the Tengizchevroil (TCO) Joint Venture, which will develop and produce the immense Tengiz and Korolev oil fields. Chevron's partner in this Joint- Venture is

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[47] Sage Publications Ltd., "Kazakhstan: Oil Reserves Could Exceed Oil Reserves of Former USSR Review of Current Projects", WORLD ENERGY REVIEW ISSUE, 1995, Vol.13, No.1, P. 83

[46] Pomfret R., "Kazakhstan's Economy since Independence: Does the Oil Boom offer a Second Chance for Sustainable Development?", Europe-Asia Studies, Taylor & Francis, Vol. 57, No.6, Sept.,2005, P. 90

[47] Sage Publications Ltd., "Kazakhstan: Oil Reserves Could Exceed Oil Reserves of Former USSR Review of Current Projects", WORLD ENERGY REVIEW ISSUE, 1995, Vol.13, No.1, P. 83

the state-owned Tengizmunaigaz. The sales of 1995-96, creation of a "one-stop" State Investment Committee in November 1996, and a generally more inviting environment encouraged greater FDI, although it remained overwhelmingly in the energy and metal sectors.

From 1996 to 2000 FDI exceeded a billion dollars a year since 2001 has exceeded two billion dollars, with over 85% going to natural resource activities.[48]

In manufacturing some of the earliest investors have made further investments, eg. Phillip Morris built a 340 USD million tobacco factory in 2000 and now controls 80% of Kazakhstan's tobacco market (Olcott, 2002, p.145), but the amount of FDI in manufacturing is small.[49]

Returning to the Russia's influence on the Kazakhstan economy, we see an interesting data provided by different sources. By analyzing them we see that the influence from the past till nowadays is still high and does not seems to decrease in the future.

Today, between the regions of Russia and the regions of Kazakhstan, more than 240 Agreements have been concluded in the field of trade, economic, scientific, technical, humanitarian cooperation, as well as cooperation in the field of environmental protection, the use of natural resources and environmental safety in neighboring territories, in the field of prevention accidents, catastrophes, natural disasters and liquidation of their consequences and others.

Cross-border cooperation between the two countries have a particular importance. Today, inter-regional trade accounts for 70%, and cross-border trade - 40% of Russian-Kazakh trade. Moreover, almost half of the turnover is formed by 12 border regions of the Russian Federation and 7 border regions of the Republic of Kazakhstan.[50]

After the start of the EAEU, the number of Russian enterprises registered in Kazakhstan and located in the border regions began to grow.

Russia also plays a role in the structure of foreign direct investment in Kazakhstan. Their share (according to the results of the "pre-crisis" 2014) occupied about 6.4% of all foreign investments. Russia accounts for 4% of gross external debt. There are four Russian banks in the economy of Kazakhstan (VTB, Sberbank, Alfabank, Eximbank), among them two banks (Sberbank and VTB) are under sanctions, but only one - Sberbank - is systemically important.

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[48] Data from European Bank for Reconstruction and Development, Transition Report, 2003

[49] Olcoltt, Martha Br., "Kazakshtan: Unfilled Promise", Washington, DC, Carnegie Endowment for International Peace, 2002

[50] The website of national statistical data of the Kazakhstan, http://ranking.kz/c/ekonomika

The entire Russian group provides about 12% of lending to the economy and 9% of the contribution to the economy. [51]

The main influence is through foreign trade channels.

Russian goods and services in the structure of imports to Kazakhstan account for 33% of all imports and, conversely, 9% of all goods exported by Kazakhstan are in the Russian Federation.

Table 2 - Commodity turnover between Russia and Kazakhstan

The largest share in mutual deliveries (turnover) of Russia and Kazakhstan (2017)	In Kazakhstani imports from Russia (2017)	In Kazakhstan's export to Russia (2017)
Machinery, equipment and vehicles (24.6%)	Machinery, equipment and vehicles (31,9%)	Machinery, equipment and vehicles (5,4%)
Mineral products (24.1%)	Mineral products (15,2%)	Mineral products (47,5%)
Metals and products from them (16.2%)	Metals and products from them (13,5%)	Metals and products from them (23,4%)
Chemical industry products, rubber (13.2%)	Chemical industry products, rubber (13,3%)	Chemical industry products, rubber (12,9%)

Source: The table was created by author using statistical database - www.ranking.kz

To sum up the author would highlight the fact that the Russia is a major player in the Kazakhstan's market, actively represented in many areas. There is a similarity between the Kazakh-Russian structure of import-export, which confirms the similar models of countries economies.

2.2. Market volatility

The author has been divide the following subchapter into 2 parts, within the 1st one the macroeconomical performance of Kazakhstan are described, and 2nd one is describing the oil price volatility within a country.

[51] The national political and economical media sources journal website, https://pravo.zakon.kz/, May, 2020

2.2.1. Macroeconomical performance

The economy of Kazakhstan has changed significantly over the past 30 years. The state of the economy is most easily viewed by the main macroeconomic indicators as, for instance, GDP, inflation and unemployment rates.

Gross domestic product is an indicator that shows the market value of all goods and services produced in a country. In 2018, this indicator in Kazakhstan amounted to 58.8 trillion tenge and in comparison with 2017 increased by 4.1%. In terms of tenge,

looking at the data provided by Committee on Statistics of the Ministry of National Economy, GDP indicators have been growing in a non-stop mode during all the years of independence.[52]

Figure 1 – GDP by production method, mln U.S. Dollar

Source: The figure was created by the author using data from the website of national statistical data of the Kazakhstan, http://ranking.kz/c/ekonomika, accessed on April, 2020.

As it visible from the Figure 1 and Figure 2 a real growth, in terms of net inflation, moved in different directions: from the "minuses" in the 1990s, GDP grew to double digits in the 2000s,

[52] Annual Report of national petroleum extraction compamy JSC “KazMunayGas” ,2018

and then slowed down in the 2010s. The change in dynamics is primarily associated with economic crises: the Asian crisis of 1997-1998 and the default in Russia in 1998[53], then the global economic crisis that began in 2008 and the fall in oil prices in 2014-2015.

In the last two cases, problems in the economy were overcome with the help of large-scale injections into the economy and the launch of state programs, such as the Employment Roadmap, Business Roadmap and Nurly Zhol.[54]

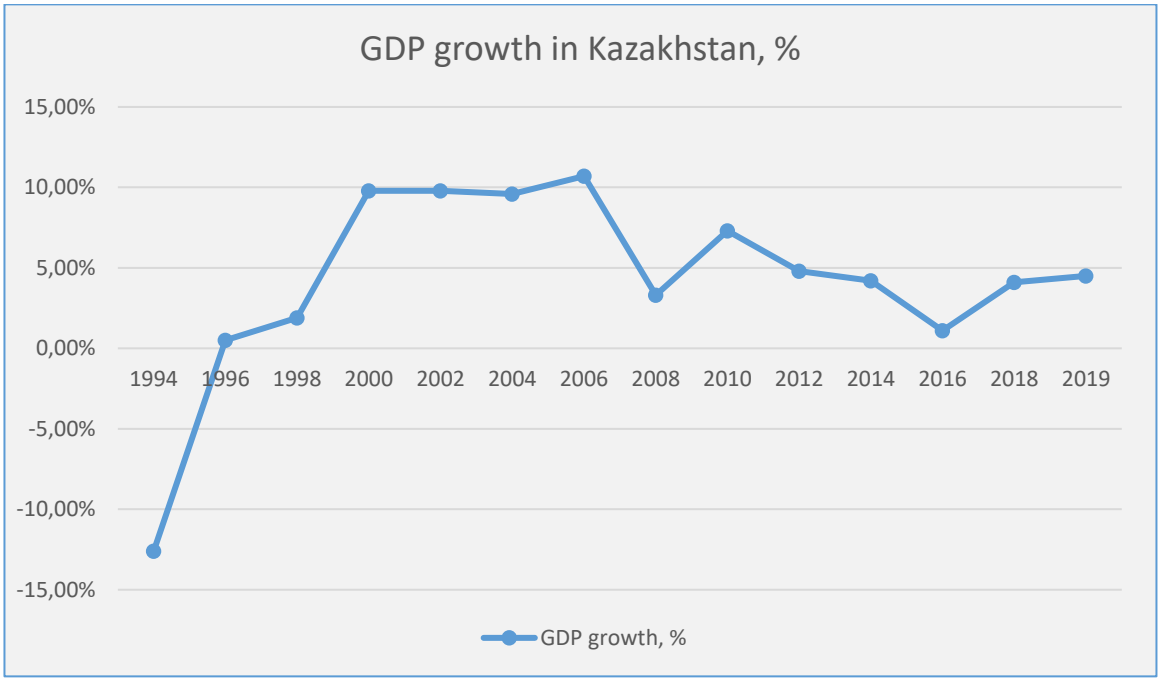

Figure 2 – Annual GDP growth

Source: The figure was created by the author using statistical data from the official website of the National Economy Ministry of the Republic of Kazakhstan, Statistics Committee, https://stat.gov.kz/, accessed on May, 2020

Another question is how GDP growth affects the income on an individual citizen. The direct connection between them is not that strong yet. An interesting trend is observed in the

[53] Oilcott, M.B., "Oil and Politics in Kazakhstan", Caspian Crossroads, 1995

[54] The official website of the National Economy Ministry of the Republic of Kazakhstan, Statistics Committee, https://stat.gov.kz/, accessed on May, 2020

structure of gross domestic product. In 2018, the production of goods gave the country 38.3% of total GDP, and the production of services - 54.4%. The rest is food taxes.

Moreover, back in 2002, the production of goods was 43.8%, and services - 50.5%. In 2010, the share of goods grew to 45.1%, but in 2014 it fell again - to 37.6%. It's almost in the same level now.

In other words, different kind of services - trade, car repair, real estate, finance and insurance - give the country more added value than real production. In recent years, the trend has been continued.[55]

Since 2001, official unemployment in Kazakhstan (from the statistics) has been steadily decreasing until this day. And this despite the fact that labor force in the country is rapidly growing.

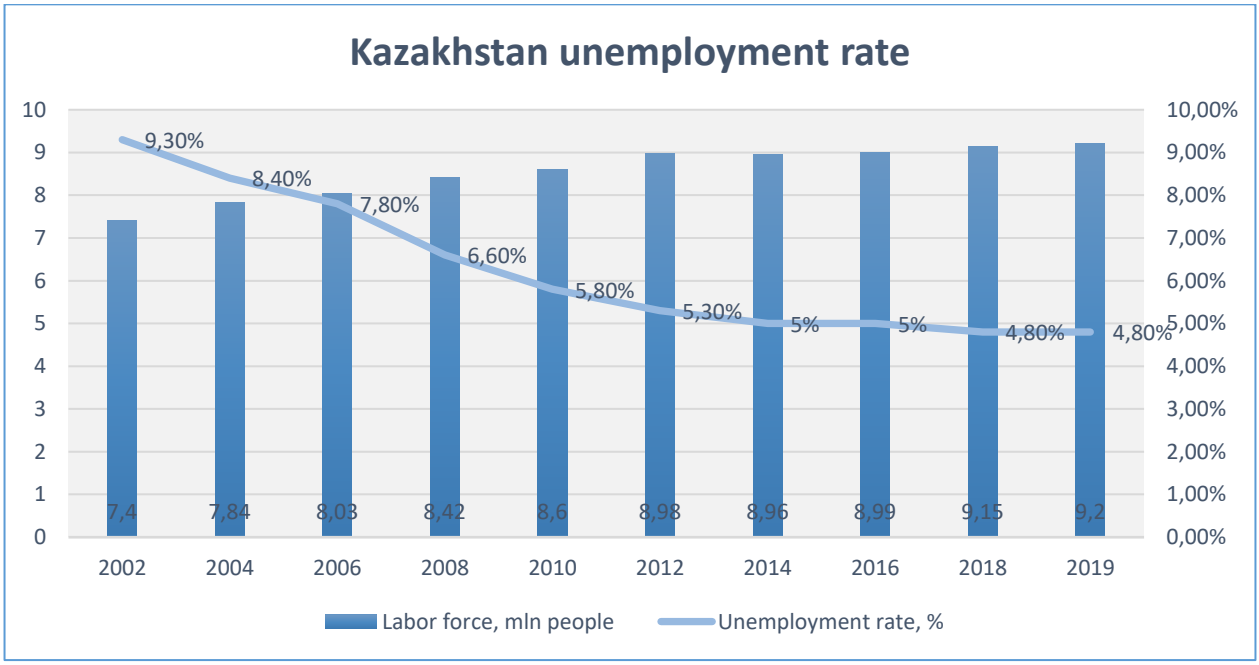

Figure 3 – Unemployment rate in Kazakhstan

[55] The official website of the National Economy Ministry of the Republic of Kazakhstan, Statistics Committee, https://stat.gov.kz/, accessed on May, 2020

Source: The figure was made by the author on the basis of the statistical data from the official website of the National Economy Ministry of the Republic of Kazakhstan, Statistics Committee, https://stat.gov.kz/, May, 2020

However, experts often pay attention to the fact that "positive" unemployment results in Kazakhstan are achieved by the peculiarities of the counting system. People who are not officially registered as unemployed are reported as self-employed in statistics.

In 2002, there were slightly less than 2.7 million people among Kazakhstanis, with the entire workforce of 7.4 million, that is, about a third. According to the latest statistics from the Committee on Statistics, the number of self-employed has decreased to 2.078 million with 9.5 million workforce. The ratio has decreased, but still exceeds 20%.[56]

In order to remove the category of workers from the “shadow”, government introduced the “single aggregate payment” - a special regime under which the self-employed can participate in state social security systems. However, by March, only 28 000 Kazakhstanis paid the SAP.

Keeping part of the economy in the “shadow” - according to some estimates up to one third of the total GDP - leads to a lack of tax revenues and, accordingly, affects the deficit of the republican budget. And the last one in Kazakhstan has been stably in deficient during last years.

In 2018, the budget deficit amounted to 1.1% of GDP, in 2019 it was planned about 2%. The deficit is usually covered by transfers from the National Fund. Experts explain the excess of state spending over income by the need to fulfill their social obligations to the population.[57]

The next indicator is inflation. In recent years, the National Bank has been steadily reducing it with the help of inflation targeting. Due to a decrease in liquidity on the market through the notes issuance, indicators were falling.

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[56] The official website of the National Economy Ministry of the Republic of Kazakhstan, Statistics Committee, https://stat.gov.kz/, accessed on May, 2020

[57] The official website of the National Economy Ministry of the Republic of Kazakhstan, Statistics Committee, https://stat.gov.kz/, accessed on May, 2020

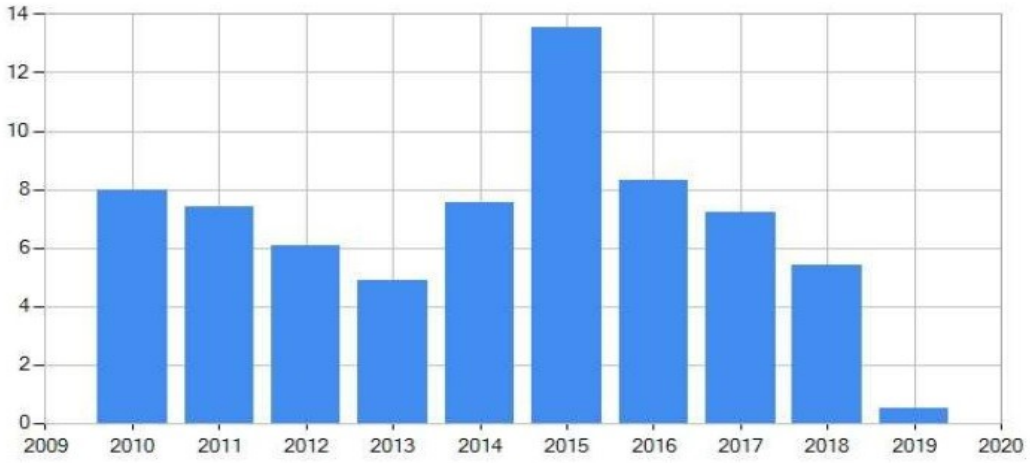

Figure 4– Inflation rate in Kazakhstan for the last 10 years

Source – The official statistical data website,
https://www.statbureau.org/en/kazakhstan/inflation

With the introduction of inflation targeting, a new stage of regulation was opened not only for inflation, but also for the tenge - in August 2015, the national currency was sent for free float. Then the average rate from about 190 tenge per dollar rose to 322 tenge by the end of the year.

And on March 22, 2019, according to the website of the National Bank, the national currency rate against the dollar amounted to 378.17 tenge.

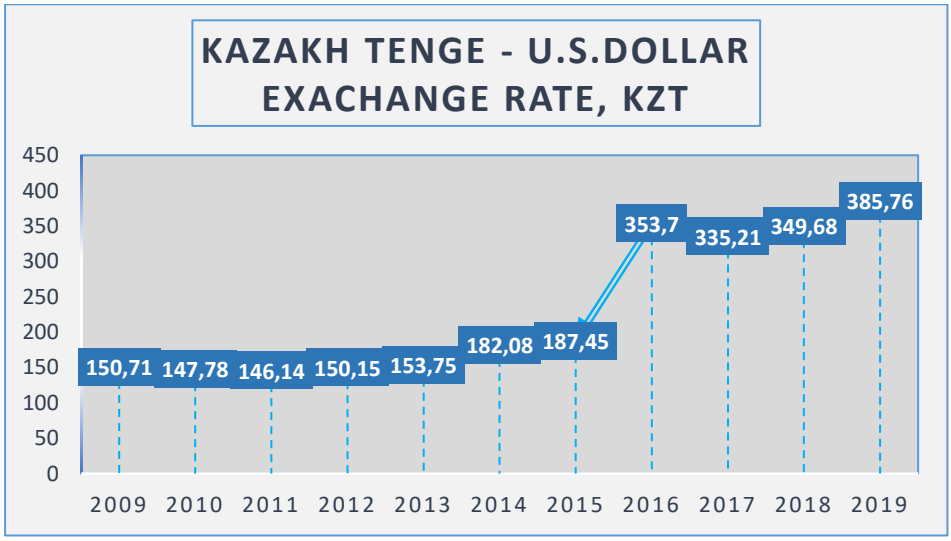

Figure 5 – The Kazakh tenge and U.S. Dollar exchange rate during the last 10 years

Source: The figure was created by author using the statistical data from
https://www.statbureau.org/en/kazakhstan/inflation

In general, since November 1993, when the tenge was put into circulation, the national currency weakened 80 times against the US dollar.

Meanwhile, many of Kazakhstanis directly connect tenge with their welfare. In the fall of 2018, the macroeconomic report of the Halyk Finance investment company noted that devaluation expectations are growing along with inflation expectations among the population. In the September survey, they rose to 70.7% from 66.9% in August.

At the same time, experts noted that in 2019 the national currency will weaken by another 3%, but the exchange rate of 400 tenge per dollar is improbable.[58]

Other, equally important indicators are the country's debt and "bins". The first is, of course, the external debt of Kazakhstan, and the second is extra budgetary funds, for example, the National Fund or the Unified Accumulative Pension Fund.

External debt, which includes debt of government agencies, the National Bank, and intercompany debt, grew from a number slightly less than 137 billion dollars in 2013 to 161.4 billion in October 2018. The main growth here was shown by investments.

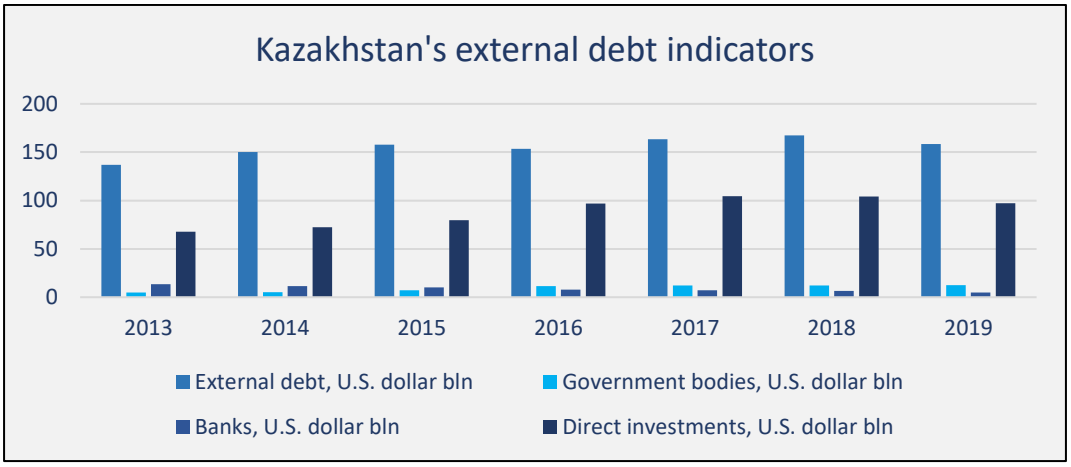

Figure 6 – Kazakhstan's external debt indicators for the last 7 years

Source: The figure was made by the author on the basis of the official statistical data of Kazakhstan

[58] The official website of the National Economy Ministry of the Republic of Kazakhstan, Statistics Committee, https://stat.gov.kz/, accessed on May, 2020

The following Figure 6 shows us that banks are reducing their external debt, while investments and borrowing by government are gradually growing.

Foreign direct investment for Kazakhstan is one of the most important priorities in economic policy. According to statistics from the National Bank, from 2005 to 2018,

the volume of foreign direct investment in the country was equal to the $ 265 billion. And this is 70% of the Central Asia total.[58]

In order to attract foreign investors, Kazakhstan is taking a variety of measures: servicing on a "one-stop-shop" basis, giving preferences in special economic zones, creating a specialized national company called "Kazakh Invest", and appointing responsible people for attracting investments at each Kazakh embassy abroad.[59]

Public debt is only a fraction of all external debt, and a limit has been set on it: the size of the National Fund cannot be exceeded. However, at the end of 2017, this indicator approached the limit value: the country's total debt amounted to $ 55.5 billion, or 96.2% of the total foreign currency assets of the National Fund - $ 57.7 billion. Then it was predicted that by the end of 2018, the limit will be exhausted. Due to this fact, the Government changed the methodology for calculating the risks of debt, excluding the internal loans of the Cabinet. The performance of the debt indicator decreased from 96.2% at the end of 2017 to 63% as of October 1, 2018. The government can borrow more now.[60]

According to official sources, the state spends money from the National Fund mainly on guaranteed transfers to cover the budget deficit. But there are also targeted transfers for government programs or for the bank assistance, for example.

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[58] The official website of the National Economy Ministry of the Republic of Kazakhstan, Statistics Committee, https://stat.gov.kz/, accessed on May, 2020

[59] Ipek P., "The role of Oil and Gas in Kazakhstan's Foreign Policy: Looking East or West?", Europe-Asia studies, Taylor & Francis Group, Vol.59, No.7, November 2007, P. 1183

[60] The national political and economical media sources journal website, https://pravo.zakon.kz/, accessed on April, 2020

Touching the privatization within the country's borders we can mention a denationalization. Denationalization is generally a long history for Kazakhstan, since, among other things, the construction of a market economy began after the collapse of the USSR. [61] The "first wave" of privatization took place in four stages, and in 1991-2005 it affected on more than 39.8 thousand objects of state property. State revenues exceeded 334 billion tenge. Afterwards, in 2011,

the "National IPO (Initial Public Offering)" program was adopted, according to which Kazakhstanis would be able to purchase the shares of national companies, the first of which were the KEGOC electricity system operator and the KazTransOil trunk oil pipeline operator.

After two years of privatization program launching, state participation in the economy remained significant. For instance, in October 2017, about 47% of all large enterprises in Kazakhstan were either fully state-owned or partially state-owned. And afterwards it was the highest number since 2007.

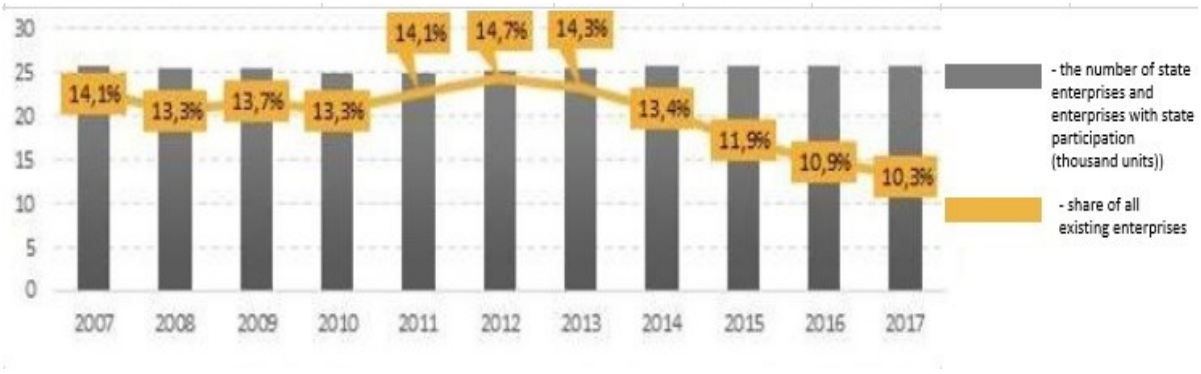

Figure 7 - Dynamics of the number of state enterprises and enterprises with participation in the Republic of Kazakhstan

Source: The was created by author using the website of national statistical data of the Kazakhstan, http://ranking.kz/c/ekonomika

Meanwhile, companies of the quasi-public sector often work in the same industries with private entities, such as KazMunayGas in the oil and gas sector or Air Astana in the air transportation.

[61] Ipek P., "The role of Oil and Gas in Kazakhstan's Foreign Policy: Looking East or West?", Europe-Asia studies, Taylor & Francis Group, Vol.59, No.7, November 2007, P. 1184

But the 1st ones, unlike the 2nd ones, can count on some support in case of financial failures. One striking example is the purchase by the National Bank of the Republic of Kazakhstan in 2015 of a 10% share in KazMunayGas due to the company's difficulties.[62]

In the foreign trade of Kazakhstan, leadership is still held by oil and other raw materials. In the research that has been made by Energyprom in 2017 was mentioned that over the year, the share of oil exports in its total volume increased from 59% to 62%.

And that means that the country's economy still remains dependent on exports of the oil and gas industry and other raw materials.[63]

GDP growth is mainly driven by raw materials. It can be easily confirmed by the provided numbers. As was shown in the Table 2 the gross domestic product in Kazakhstan in 2018 increased by 4.1%. A year earlier - in 2017 - the indicator grew by 4%, and in 2016 - by 1%.

At the same time, Kazakhstan's GDP has an interesting relationship with changes in oil prices: for 2016 there were lows for quotations for black gold - the price fell below $ 40 per barrel. However, in 2017 and 2018, oil prices began a gradual increase - up to $ 70-80, and GDP crawled up.[64]

A hydrocarbons greatly help to the economy, but not completely. For example, even if the oil costs $ 100 per barrel, the tenge unlikely will be strengthened robustly. The economy dependence on oil is a structural problem, and it manifests in many ways. For example, in 2017, 38% of all taxes in the country was paid by the oil and gas companies. The largest 10 from them contributed 32.7% of tax revenues, and only one - Tengizchevroil - paid 19.4%, or almost a fifth.[64]

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[62] Yermukanov M., "Sino-Kazakh Pipeline Project has Demographic, as well as Economic Dimensions", Eurasia Daily Monitor, 2005

[63] Annual Report of the National Fund JSC "Samruk Kazyna", 2017

[64] The official website of the National Economy Ministry of the Republic of Kazakhstan, Statistics Committee, https://stat.gov.kz/, accessed on May, 2020

[64] ibid

The industrialization had to help to overcome the "oil curse". The first attempt - the Strategy of industrial and innovative development of 2003 - was already in 2010 replaced by the State program of forced industrial and innovative development.

From that moment, in accordance with it, in the process of losing the word “forced”, 1,250 projects were put into operation.[65]Among them, in the context of sectors, the largest number of enterprises are in the agro-industrial complex, the construction industry, and machine building.

However, not everything went smoothly: there are a number of projects that either closed or are idle for various reasons. The Kazakh media wrote about them more than once: for example, a tablet factory in Aktau, launched in 2011, or in the same year, an open production of domestic aircraft in the Karaganda region. These enterprises have not released a single product sample yet.

There is no noticeable influence on the structure of the economy. Experts say this is due to the fact that in Kazakhstan, the raw materials sector is traditionally strong, which does not stay in the same level and develops in parallel with the manufacturing sector. Therefore, it is not worth waiting for a quick return from the industrialization. And the last economic performance indicators which are going to be analyzed by the author is population growth and the growth of socials expenses with it.

By February 1, 2019 the 18,415,501 is the number of the people that are living in Kazakhstan, from which more than 58% are in cities and 42% - in villages. At the dawn of independence - in 1991 - the ratio of citizens and villagers was almost the same, but the number was 2 million less.[66]

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[65] The national political and economical media sources journal website, https://pravo.zakon.kz/, accessed on April, 2020

[66] The website of national statistical data of the Kazakhstan, http://ranking.kz/c/ekonomika, accessed on April, 2020

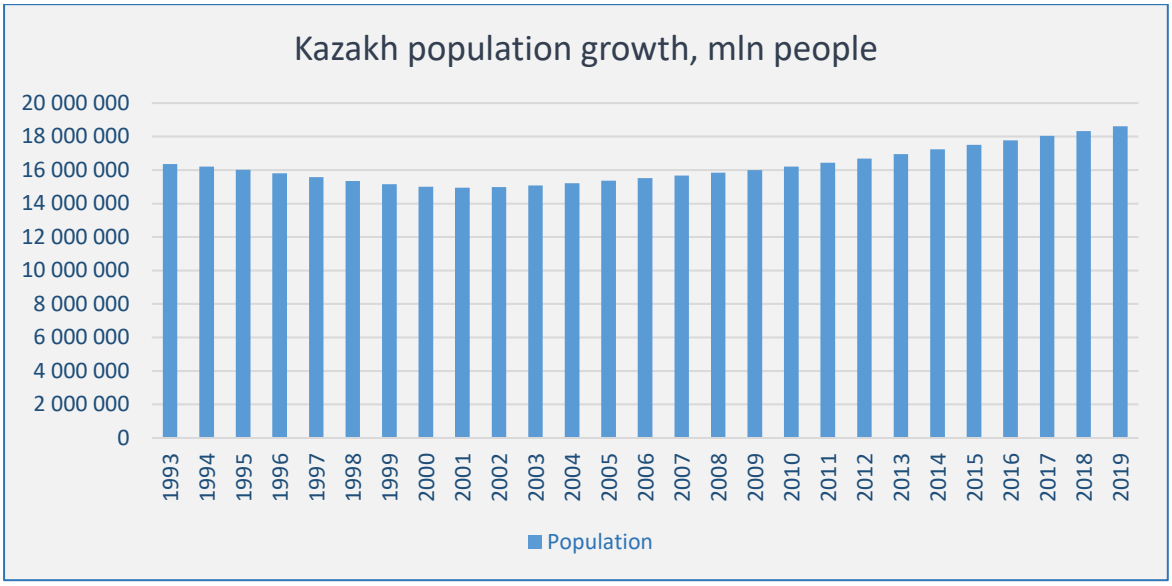

Figure 8 – The population growth in Kazakhstan since 1993

Source: The figure was created by the author using the data of United Nations Department of Economic and Social Affairs: Population Division, https://www.un.org/en/development/desa/population/index.asp

According to the Figure 8, an noticeable population growth, coupled with internal migration, led to the growth of cities: Astana, and then Shymkent, became "millionaires", in addition to Almaty, over the years of independence.

Such trend has generated a number of social problems regarding the incomes of citizens and their provision with housing. These questions were revealed in the winter of 2019, when mothers with many children in large cities began to demand from the authorities to improve the quality of life of their families. Now the state has pledged to send even more funds to the social sphere. And this despite the fact that in the republican budget about 45% of all expenses are accounted for precisely by social programs.

2.2.2. Oil price volatility

In 1st Chapter and 3rd subchapter the author superficially touched upon the oil price creation influencing factors. And the location is determined as one of the key.

Within the current subchapter the author would like to deeply introduce the readers to the oil and gas measurements.

That means we are going to start with the definition of the oil itself, what kind of sorts exists, how they differ, and what are the costs of this difference, as well as analyzing the oil prices and their influence to the macroeconomic factors of the Kazakhstan.

Oil is a combustible substance, often black, for which it was called "black gold." However, the color in different areas of production may vary. Oil can be brown, cherry, green, yellow, and even transparent. Crude oil is practically never used. Valuable products like fuels, oils, bitumen, synthetic acids, soot and raw materials are obtained from oil only during processing.[67]

"Black gold" can have a different composition and quality, which largely depend on the place of extraction. For this reason, all the oil produced in the world is divided into grades. Each variety has a unique composition and contains a different amount of sulfur, alkane groups and other impurities. As a rule, grades of oil are divided into - Light and Heavy.[68]

There are many varieties, but there are several "marker" ones that determine the volume of supply and demand for oil in a particular region:[69]

1) Brent is a variety that serves as a standard in the UK, Europe and OPEC, this is more than 70% of the total oil turnover. The Brent quote consists of the varieties Brent, Forites, Oseberg and Ekofisk, all of these varieties are mined in the North Sea;

2) WTI (West Texas Intermediate) and Light Sweet - the main reference varieties for the United States and the Western Hemisphere;

3) Urals is a mixture of oil grades, mainly produced in Russian fields. It is exported through Russian ports (Baltic and Black Sea) or through the Druzhba pipeline to Europe. Part of Kazakhstani oil is also exported as Urals;

4) Arab Light and Arab Heavy - Arab oil;

5) Kuwait Export Crude is one of the highest quality grades of oil produced in Kuwait;

6) Iran Heavy and Iran Light - extracting in Iran;

7) Basra Light, Basra Light and Kirkuk - extracting in Iraq;

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[67] Alexandrova E.N., Shevchenko I.V., “Faktory ekonomicheskogo rosta v rossii: sostoyanie i perspektivy”, Research paper, June, 2003, P. 2

[68] World Bank data website, https://data.worldbank.org/country/kazakhstan, accessed on April, 2020

[69] Fehd S. C., “Productivity in the petroleum pipelines industry”, Vol.94, No.4, April, 1991, PP.46

8) Statfjord - mined in Norway

9) Tengiz or Tengiz Light is a Kazakhstani brand of oil. It is extracting at the Tengiz field. Exporting through the CPC pipeline.

Now, by getting familiar with different varieties of the oil we can proceed to the segments of the oil and gas sector. As was mentioned in the Chapter number 1, there are 3 segments of the industry: upstream, midstream and downstream. The author would like to provide with examples of all 3 segments through the companies in the Kazakhstan.

The upstream as was already written before is the segment that includes everything related to the oil deposits and oil production from them. This is the most risky and most profitable sector in the petroleum world. A national companies are usually involved to the oil production in most of oil producing countries. More than 80 companies operate in the oil production sector in Kazakhstan, but the lion's share - more than 90% of oil - is produced by 11 subsoil users. The leaders are JV Tengizchevroil, Karachaganak Petroleum Operating, Kashagan and NC KazMunayGas.[70]

The midstream sector includes the transportation of crude oil and finished petroleum products in various ways: by tankers, pipelines, in railway tanks or by road. Most of the world's oil companies do not have their own midstream divisions, therefore they use the services of third-party companies for transportation. The cheapest and safest way of transportation is through the pipeline.

The largest oil pipeline company in Kazakhstan and the national operator of the main oil pipeline is KazTransOil JSC. The length of Kazakhstan's oil pipelines is 5,377.3 km.[71]

The downstream sector includes oil refineries (petrochemicals) (refineries, see above), oil storages and gas stations. For example, NC “KazMunayGas” has a subsidiary company - the international company KMG International, which is active in the downstream sector: it is engaged in oil refining and marketing of petroleum products in 12 international markets.

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[70] Oilcott, M.B., “Oil and Politics in Kazakhstan”, Caspian Crossroads, 1995

[71] Official statistical data website, accessed on May, https://www.statbureau.org/

At the Petromidia refinery (largest in Eastern Europe, and located in Romania), the main production asset of the KMGI group, 3.1 million tons of crude oil was refined for the first half of 2018 - this is a record number for the entire history of the refinery.[72]

The world produces several 10k grades of oil. For instance, Russia supplies 5 grades of oil to the world market and is preparing to supply the 6th. Even more grades of oil are produced and used in the United States.

Obviously, all existing oil grades cannot be traded on exchanges. Currently, stock quotes are set only for a few so-called marker grades of oil.

The marker standard for international oil markets is Brent, WTI, which increased in value in the late 1980s after abandoning the system of prices regulated by OPEC.

Brent is a mixture of 4 types of oil produced in the North Sea since the 1970s, which at one time was developed by the oil exporting countries (OPEC).

Prices of other varieties are determined using the differential - discounts or surcharges due to differences in quality.

For example, Russian Urals oil is sold at a discount to Brent, due to its higher density and higher sulfur content. In connection with the reduction of reserves and oil production in the North Sea, there is a decrease in liquidity and distortion in determining the price of both the mixture itself and other types of oil. therefore, vague doubts are ripening among traders about the need to continue to consider Brent a marker variety.[73]

The price of Brent crude oil is determined in the course of oil trading on the stock exchange at current (spot) prices and futures contracts focused on future deliveries. For Brent crude oil futures, the main% of all oil transactions occurs, which reflects a lesser dependence of futures prices on specific delivery conditions compared to spot Brent crude quotes.[74]

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[72] Yermukanov M., “Sino-Kazakh Pipeline Project has Demographic, as well as Economic Dimensions”, Eurasia Daily Monitor, 2005

[73] Scientific article, “ Factory ekonomicheskogo rosta v Rossii: Sostoyanie i perspektivy”, https://cyberleninka.ru/article/n/faktory-ekonomicheskogo-rosta-v-rossii-sostoyanie-i-perspektivy

[74] Fehd S. C., “Productivity in the petroleum pipelines industry”, Vol.94, No.4, April, 1991, P.46

The discount of the current price of Brent oil to the nearest futures is from 0.4 - 0.6 US dollars / barrel. Brent prices typically averaged $ 1 / bbl lower than WTI prices and $ 1 / bbl higher than OPEC baskets.[75]

All oil produced in the world (in Saudi Arabia, the North Sea, the USA, the Gulf of Mexico, Southeast Asia, etc.) is related to the standard of Brent oil. The oil produced at various fields differs from the standard, and its price depends on the magnitude of this difference.

Theoretically, the price of oil, like any other product, is formed taking into account the quality in the markets of this product and reflects the ratio of supply and demand.

The worse the oil, the more it differs in quality, properties and composition from the standard - grade Brent, the lower its price. Although oil prices are quite volatile and depend not only on the standard, but also on many, including political and economic factors.

The formation of world dynamics and the current level of oil prices occurs in the process of exchange trading. Three main reference grades of oil are sold through three main exchanges:

- The New York Mercantile Exchange (NYMEX), trading in West Texas Oil (WTI);
- London Petroleum Exchange (ICE) - Brent crude oil;
- Singapore International Commodity Exchange (SIMEX) - Dubai Middle Eastern Oil.

The price of other varieties, including Russian ones, is formed at a discount to one of the reference varieties, which does not always adequately reflect the difference in the conditions of oil production and refining, and consequently, the cost of producers and consumers, as well as differences in its quality indicators.[76] Formulas for calculating the price, taking into account the main properties of this oil grade (density and sulfur content) and the costs of its transportation, are given in purchase and sale contracts.

The dependence of the prices of most varieties of oils (about 70% of traded oil) on the price of the Brent brand leads to volatility of the oil market.

In addition, the transformation of physical oil markets into markets with a predominance of trading in derivative financial instruments,

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[75] Data from European Bank for Reconstruction and Development, Transition Report, 2003

[76] Sage Publications Ltd., “Kazakhstan: Oil Reserves Could Exceed Oil Reserves of Former USSR Review of Current Projects”, WORLD ENERGY REVIEW ISSUE, 1995, Vol.13, No.1, P. 80

the speculative nature of a significant number of exchange transactions with oil derivatives leads to completely different pricing laws than in the ordinary commodity market, where the demand for real goods, their price and quality.[77]

The level and price dynamics of the modern oil market reflect a search for a balance of supply and demand, not of oil, but of derivative financial instruments.

This means that the price of oil is currently being formed in the derivatives market, and not in the real oil market, which complicates the pricing process for this strategically important product.

For instance, in Russian practice of domestic oil trading, several pricing methods are used, the analysis of which allows to identify areas for their improvement in order to establish a more reasonable oil price taking into account its quality indicators in the interests of oil companies and the state and to create methods for hedging losses from their adverse changes.

The methodology developed by the independent analytical agency LLC NAANS-MEDIA 2 contains the rules for independent determination of prices for Russian oil for the domestic and foreign markets and is based on regulatory and legislative acts of the Russian Federation and definitions used in the world practice of Incoterms - 2010.[78]

According to the NAANS-MEDIA methodology, when justifying prices for oil trade in the Russian Federation, the following are used:

- price indices of comparable foreign markets;
- OTC transaction price indices;
- stock price indices.

In calculating domestic market prices, the benchmark for oil companies is the comparability of profitability of export and domestic supplies. Price indices of comparable world markets are determined by price formulas from export face value.

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[77] Malthouse Press, “Refining of Petroleum and Processing of Gas”, 2003, P. 392

[78] Sage Publications Ltd., “Kazakhstan: Oil Reserves Could Exceed Oil Reserves of Former USSR Review of Current Projects”, WORLD ENERGY REVIEW ISSUE, 1995, Vol.13, No.1, P. 80

The oil price index on the basis of “oil metering units (OUN) of producers” is determined by the reverse counting method, based on world market prices, excluding value added tax (VAT) according to the following formula[79]:

$$Cp = Pn - Tn - Epn,$$

where,

Cp - oil price index;

Pn - the price of marker oil based on sales of the established center in the global markets for crude oil; determined according to the specification attached to the method, based on the average quotation of the Brent index, formed on the ICE exchange;

Tn - the cost of delivering oil from "OUN producers" to FOB sea port of oil export;

EPn - oil export duty rate.

The oil price index is calculated by the formula[79]:

$$Cpn = Cp \times Nn$$

where,

Nn - coefficient taking into account the VAT rate in accordance with tax legislation.

The oil price index on the basis of “OOK consignees” including VAT is determined as follows[79]:

$$Tsgn = (Tsn + Tnn \pm K) \times Nn,$$

where,

Cp - oil price index on the basis of "OUN of producers" without VAT;

TPN - the cost of delivering oil from the “OO of producers” to the “OO of the consignee” without VAT;

K - coefficient that takes into account the differences in the physical, technical and consumer properties of oil sold on the Russian domestic market and the marker grade of oil;

Nn - coefficient taking into account the VAT rate in accordance with tax legislation.

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[79] Alexandrova E.N., Shevchenko I.V., “Faktory ekonomicheskogo rosta v rossii: sostoyanie i perspektivy”, Research paper, June, 2003, P. 8

[79] ibid, P.5

[79] ibid, P.6

A very important role for the performance of the oil company is played by the price spread - differential (D), which is defined as the difference between the price on the spot market and the export equivalent by the formula[80]:

D = Cpn – Cs;

where,

Tspn - oil price index on the basis of "OUN of producers" including VAT;

Cs - the price of oil on the basis of "OUN of producers" including VAT, which was formed based on the results of real transactions on the spot market and / or exchange. The differential takes into account such factors as: qualitative indicators of oil, the balance of supply and demand of oil in domestic markets, the parameters of the state energy policy.

The mentioned above counting methods are created to justify the base price of a ton of oil by calculating its value based on market prices of petroleum products obtained during its processing. In this case, it is very important to justify the consideration of a number of factors, such as light yield, market prices of petroleum products, the cost of transporting oil and the cost of its processing.

The yield of oil products is determined by the oil quality parameters of each specific field. Accounting for the output on an individual basis, depending on the place of further processing, provides a more reasonable calculation of the "fair" oil price.

The Organization of Petroleum Exporting Countries (OPEC) has its own benchmark, the so-called basket, which is a weighted average indicator of selling prices for the following seven grades of oil: Saharan Blend (Algeria), Minas (Indonesia), Bonny Light (Nigeria), Arab Light (Saudi Arabia), Dubai (United Arab Emirates), Tia Juana (Venezuela) and Isthmus (Mexico).[81]

Less demand and, therefore, lower prices are for heavy grades of crude oil, from which a large amount of heavy fuel oil is obtained during processing. The so-called light grades of oil are in greatest demand: a large amount of gasoline and high-quality products for the chemical industry can be made from them.

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[80] Alexandrova E.N., Shevchenko I.V., "Faktory ekonomicheskogo rosta v rossii: sostoyanie i perspektivy", Research paper, June, 2003, PP. 5

[81] The official website of the OPEC organization, https://www.opec.org/opec_web/en/, accessed on April-May, 2020

All western financial and analytical institutions associate the rapid growth of the country's economy precisely with good dynamics in oil prices. From year to year they hold conferences where the central theme always becomes the need for diversification due to the unstable cost of hydrocarbons. [83]

As was mentioned earlier, the economic growth in Kazakhstan closely depend on the oil and gas export volume. The author would like to show the relation between macroeconomic factors and the global oil price in the Table 9.

Table 3 – The world oil prices for the last 30 year in the frame of the Kazakhstan's economy

	Crude oil global price, USD	Oil production, mln tonnes per year	Foreign trade turnover, USD mln	Economy growth, GDP (%)	Foreign direct investment inflow, USD mln	State budget revenues, KZT mln
1991	20,04	26,6		-11		
1992	19,32	25,8		-5,30		
1993	17,01	23		-9,20	1271	7 103
1994	15,86	20,03		-12,60	660	91 825
1995	17,02	20,06	9 056,90	-8,20	984	219 395
1996	20,64	23	10 152,10	0,50	1 674	242 961
1997	19,11	25,8	10 797,80	1,70	2 107	405 341
1998	12,76	25,9	9 648,00	-1,90	1 233	379 310
1999	17,9	30,1	9 526,70	2,70	1 852	392 951
2000	28,66	35,3	13 852,20	9,80	2 782	587 039
2001	24,44	40,1	15 085,10	14	4 557	733 660
2002	24,97	48,2	16 254,30	9,80	4 106	807 852
2003	28,85	52,4	21 335,40	9,30	4 625	807 845
2004	38,3	60,6	32 877,50	9,60	8 317	1 004 566
2005	24,43	62,6	45 201,20	9,70	6 619	2 098 532
2006	65,39	66,1	61 927,20	10,70	10 624	2 338 034
2007	72,7	68,4	80 511,70	8,90	18 452	2 887 874
2008	97,64	72	109 072,50	3,30	19 760	4 034 411
2009	61,86	78	71 604,40	1,20	19 017	3 505 345
2010	79,64	79,2	91 397,50	7,30	19 059	4 299 132
2011	110,94	80	121 247,70	7,50	26 467	5 370 826
2012	112	79,2	132 807,20	5	28 935	5 813 003,40
2013	108,9	81,8	133 506,00	6	24 137	6 382 352,90
2014	99	73,2	123 900	4,10	23 725	3 660 000
2015	51,2	79,3	75 900	1,20	11 400	3 320 000

[83] Fehd S. Carolyn, "Productivity in the petroleum pipelines industry", Vol.94, No.4, April, 1991, PP.47

	Crude oil global price, USD	Oil production, mln tonnes per year	Foreign trade turnover, USD mln	Economy growth, GDP (%)	Foreign direct investment inflow, USD mln	State budget revenues, KZT mln
2016	41,9	77	61 900	1,10		4 280 000
2017	50,85	86,2	77 600	2,50	21 000	4 790 000
2018	69,8	90,3	93 500	4,1	24 300	2 600 000
2019	63,59	90,4	86 700	4,5	25 000	3 100 000

Source: The table was created by the author on the basis of the data from World Bank data website, https://data.worldbank.org/country/kazakhstan

As it's visible from the Table 3, since 1993, Kazakhstan has confidently attracted foreign investment and increased oil production.

Since that year, their volume has increased from 1.2 billion to 226.9 billion dollars in 2013, and oil production from 23 million tons to 81.8 million tons by the end of 2013.

However, during independence, in the world economy there were several periods of a significant reduction in the price of oil, which markedly affected on its position.

The first period lasted from 1991 to 1994. Then the price per barrel fell from $ 20.04 to $ 15.86. However, oil began to decline back in the early 80s due to global overproduction.

This period, like the second one, in 1996-1998, when the cost fell from $ 20.64 to 12.76, was largely due to an excess of hydrocarbons.

The fourth period of decline was quite short-term - in 2008, from $ 97.64 by 2009, the price per barrel fell to 61.86. This was due to the global economic crisis. On July 11, 2008, the price of WTI crude oil reached a historical record of $ 147.27 per barrel, after which a crushing collapse began, which lasted until December 2008 and ended at a price of $ 36. Otherwise, it's visible that almost all economic areas sometimes grew even despite the decrease in oil prices.

But by looking at it as a whole, obviously visible that economic indicators decreased in proportion to that few period of decline in oil prices.

From 2008 to 2013, the price of oil increased exactly as did government revenues over the years. After 2013, prices began to decline until 2019. There are big risks that, following OPEC statements, prices will continue to decline in the next 5 years along with other economic indicators.

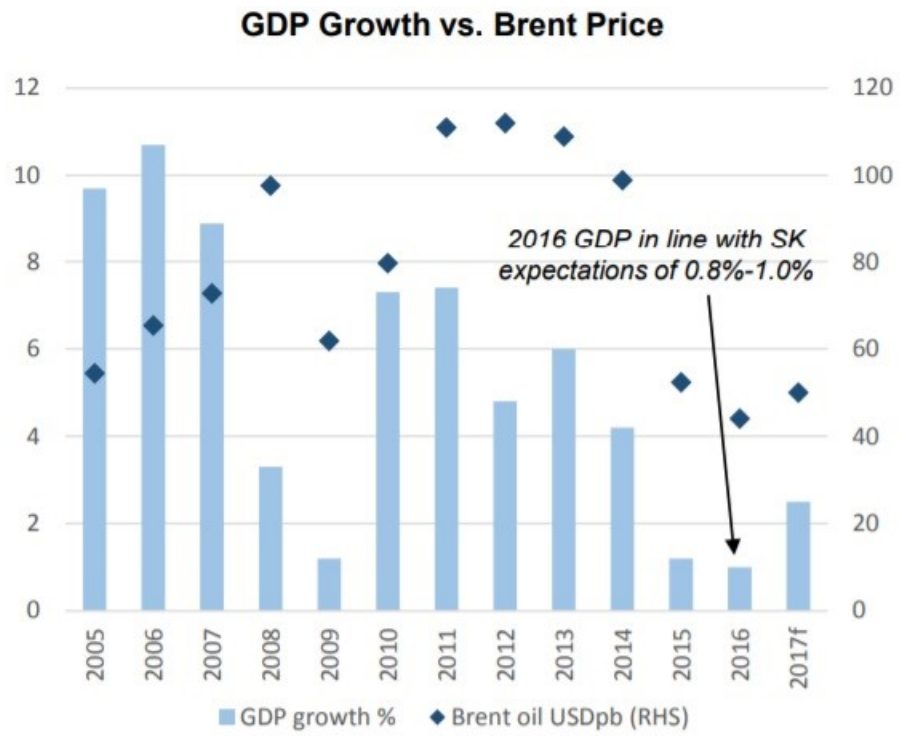
Table 4 – The socio-economic indicators of the Kazakhstan in the frame of world oil prices for the last 30 years

	Crude oil global price, USD	Average annual tenge exchange rate for dollar, KZT	Annual inflation, %	Average wage, KZT	The number of unemployed citizens, thousand people
1991	20,04	-	147,1	-	-
1992	19,32	-	2960,8	-	-
1993	17,01	5,255	2165	128	-
1994	15,86	35,64	1158,3	1 726	70,1
1995	17,02	60,95	60,3	4 786	139,6
1996	20,64	67,3	28,7	6 841	282,4
1997	19,11	75,44	11,2	8 541	257,5
1998	12,76	78,3	1,9	9 683	251,9
1999	17,9	119,52	17,8	11 864	251,4
2000	28,66	142,13	0,8	14 374	231,4
2001	24,44	146,74	6,4	17 303	216,1
2002	24,97	153,28	6,6	20 323	193,7
2003	28,85	149,58	6,8	23 128	142,8
2004	38,3	136,04	6,7	28 329	117,7
2005	24,43	132,88	7,5	34 060	94
2006	65,39	126,09	8,4	40 790	75,1
2007	72,7	122,55	18,8	52 479	54,7
2008	97,64	120,3	9,5	60 805	48,4
2009	61,86	147,5	6,2	67 333	53,4
2010	79,64	147,35	7,8	77 611	35,4
2011	110,94	146,62	7,4	90 028	36,6
2012	112	149,11	6	101 263	34,6
2013	108,9	152,13	4,8	109 141	468,3
2014	99	185	7,4	124 780	459,8
2015	51,2	188	6,6	126 500	457,6
2016	41,9	338,03	8,5	140 700	436,7
2017	55	331,22	7,1	163 725	439,3
2018	57,5	369,35	5,3	149 669	434,4
2019	66,13	378,6	5,4	168 489	442,1

Source: The table was made by the author based on the data from the official website of the National Economy Ministry of the Republic of Kazakhstan, Statistics Committee, https://stat.gov.kz/

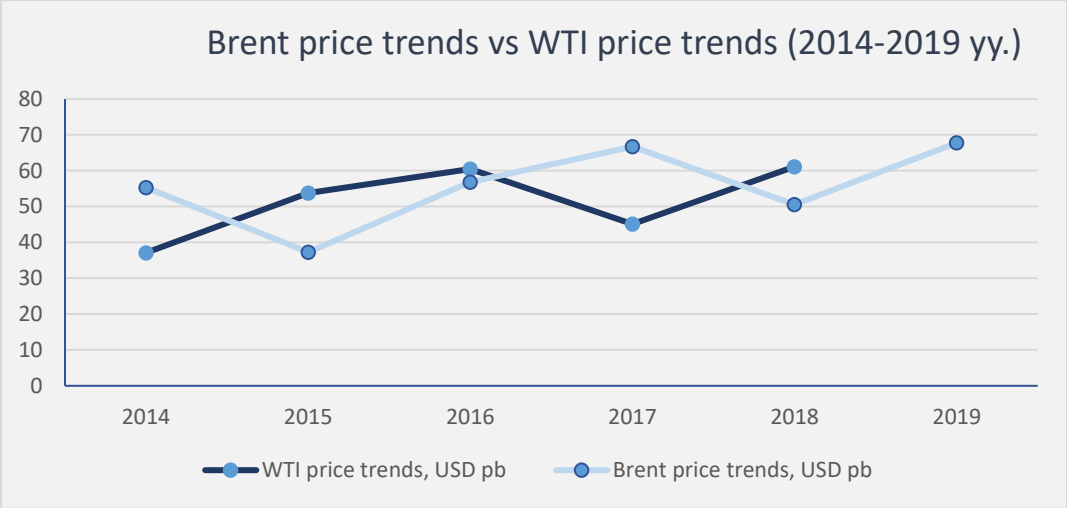
The Table 4 shows the different dynamics of socio-economic indicators. Following the decrease in the cost of hydrocarbons, the most changing indicator was the tenge exchange rate. However, it proved itself only in 2009, when the National Bank of Kazakhstan conducted the second devaluation in the history of independent Kazakhstan. Also the table shows us the relation of the U.S. Dollar price and the growth of the unemployed people while the average wage is slightly increasing year to year. Inflation remained the most immune to oil prices.

Table 5– Kazakhstan's GDP growth in comparison with Brent oil price



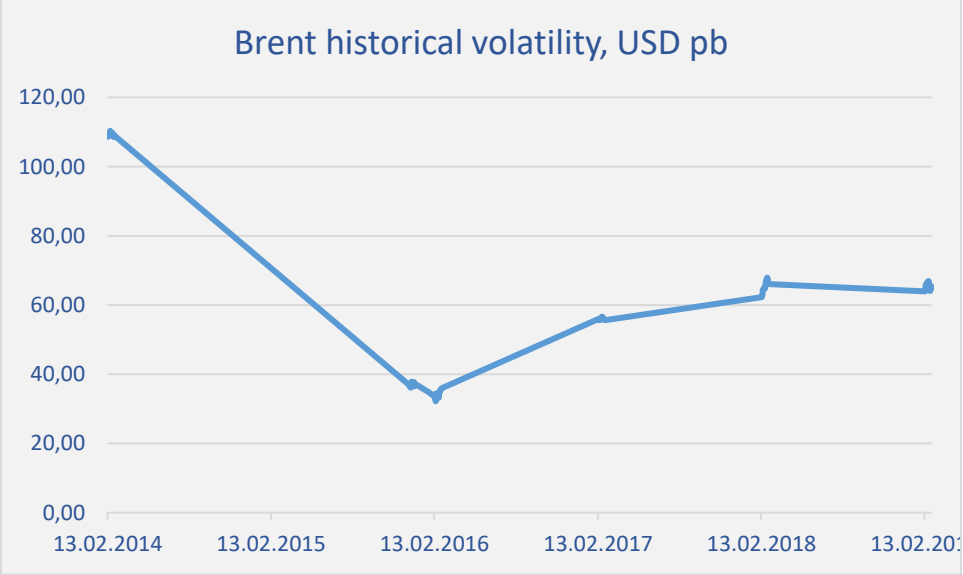
Sources: National Bank of Kazakhstan https://nationalbank.kz/?switch=english, the official website of the Sovereign Wealth Fund "Samruk-Kazyna" JCS, accessed on April-May, 2020, https://www.sk.kz/

Table 6 – The Brent oil price in comparison with WTI (West Texas Intermediate) price trends



Source: The table was created by the author on the basis of the data provided by https://www.macrotrends.net/

Table 7– The Brent oil price volatility



Source: The table was created by the author on the basis of the data provided by https://www.macrotrends.net/

For 23 years of independence, Kazakhstan's GDP grew from 85.9 billion tenge to 32.37 trillion. tenge, despite the fact that until 2004 the price of non-oil was at the level of up to 30 US dollars per the Brent barrel. The oil factor, as it's already known, plays a primary role in the Kazakhstan's economy. It generates 46% of the state budget revenue and makes up 60% of the total export of Kazakhstan. And taking into account all the indicators that were shown in the table it's visible how the number of unemployed people is still high, even though the average wage is increasing.

The time required for full and sustainable rebalancing of the global oil market always depend significantly on various market dynamics including OPEC strategy, capex cuts, demand for oil products and global growth. In the report of Samruk Kazyna national Fund were said: "We expect volatility in oil prices to remain high in coming years due to risks arising from OPEC actions, slower-than-expected oil demand growth as well as geopolitical factors."

In addition, the substantial concentration of hedge fund long positions has emerged as a source of price risk that cannot be ignored in the near term. Reduction of OPEC's output could be compensated by the potential increase in output from the US shale producers, if the current increase in global oil prices sustained in the longer-term. Therefore for the next upcoming, the oil producers and exporters of Kazakhstan expect oil price recovery to remain moderate, and their central scenario suggests oil price to average of USD50-52pb.

Concluding the chapter No.2 it worth to be noted that the Kazakhstan has made a great length to achieve the visible level on the global market. Starting with 9 056 mln foreign trade turnover and with the GDP with "minus" sign of it, the country becoming much stronger nowadays. For sure, there are indicators that has to be improved, but it takes time. Especially when we are looking at the socio-economic factors it's visible that the number of unemployed people should be decreased, but it also takes time. By the author's opinion, reading and analyzing mentioned above literature, the nation of the country has to make efforts to improve the living standards as well. The author, taking into account her own experience, is absolutely convinced that high-skilled labor force is the main force of the national economy robust growth.

CHAPTER 3. DATA ANALYSIS OF THE MULTINATIONAL COMPANIES IMPACT ON THE ECONOMIC ENVIRONMENT OF THE COUNTRY

3.1. Key growth drivers of the petroleum industry

The efficiency and growth of the functioning of the oil industry is a derivative of many factors.

The definition of the word "factor" is an essential circumstance in any phenomenon, process, initial component of something.

The multiplicity of factors affecting the efficiency of the oil and gas industry is cased by the exceptional place and position of the complex in the national economy structure, as well as the dynamism of changing operating environments and the implementation of economic activity in market conditions. [84]

Factors affecting the efficiency of the oil and gas sector can be divided into external factors and internal factors, or production factors.

The State regulation as a factor that has a significant impact on the efficiency of the oil and gas sector is a combination of centralized administrative influence on the activities of the oil sector of the economy and the market regulation mechanism through the formation of a regulatory framework. [85]

The world practice of state regulation of the oil and sector economy has accumulated a fairly wide range of instruments of both centralized administrative influence and the market regulation mechanism.

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[84] Aleshin A.N., “Faktory effektivnosti neftyannogo kompleksa”, Vestnik OGU, 2005, P.131

[85] Biryukova V. V., “Faktory ustoichivogo razvitiya neftyanoi kompanii”, Scientific journal “Naukovedenie”, Issue 5, September – October, 2014, P.7

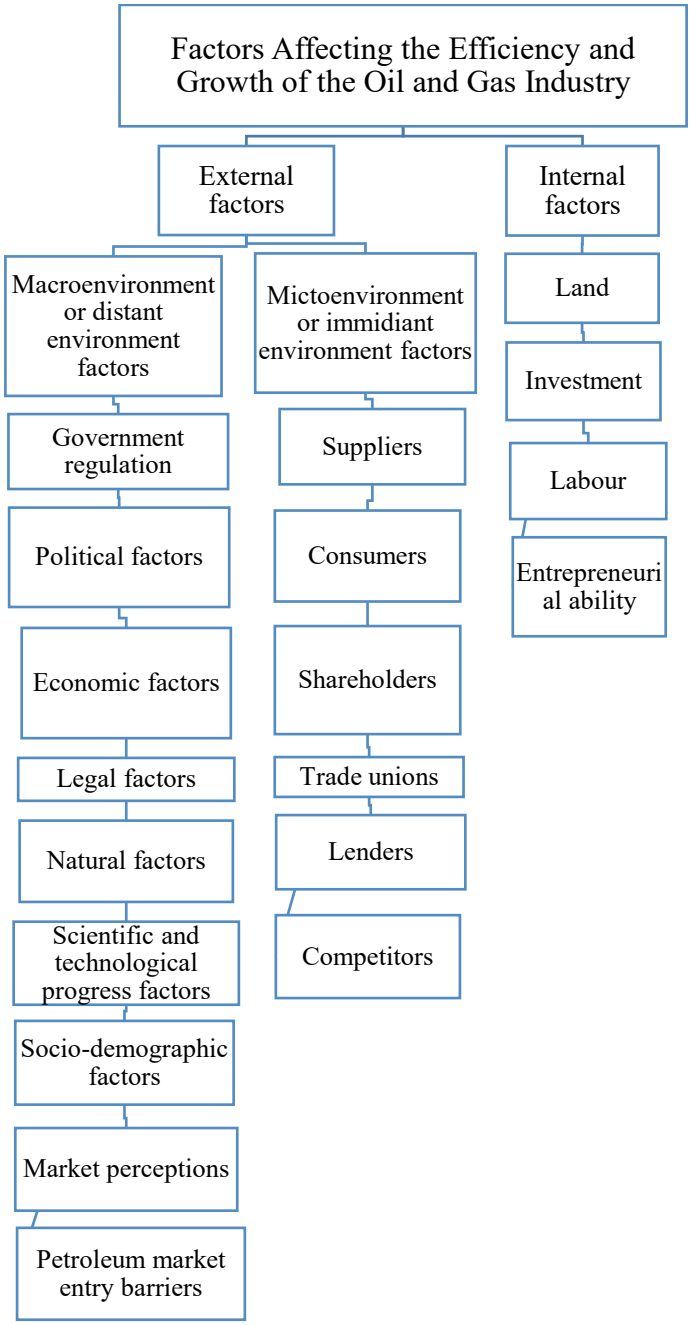

Figure 9 - Classification of the factors affecting on the efficiency and growth of the oil and gas industry

Source: The figure was created by the author, based on the research paper provided by Aleshin A.N., "Faktory effektivnosti neftyannogo kompleksa"

As was shown in the Figure 9, external factors are divided into factors of the macroenvironment, or the remote environment, and factors of the microenvironment, or the immediate environment. Macro environment factors include: state regulation, political, economic, legal, natural factors, factors of scientific and technological progress and socio-demographic environment, market conditions and entry barriers of the oil and gas industry market. Microenvironment factors include: suppliers, consumers, shareholders, unions, lenders, competitors. Internal factors, or production factors, include: land, capital, labor, entrepreneurial ability.

The tools of centralized administrative influence include[86]:

- regulation of subsurface processes and other types of production activities of oil and gas companies
- production costs regulation
- export of oil and oil products restriction
- direct regulation of oil production
- regulation of certain monopolized sectors of the oil and gas industry
- environmental standards establishment.

The following tools belong to the market regulation mechanism[86]:

- antitrust regulation of oil and gas market participants through state control of mergers and acquisitions in order to prevent monopolization of the oil and gas market sectors and the creation of healthy competition
- tax regulation
- export and import duties on oil and gas products
- state depreciation policy
- state participation in the ownership of oil companies
- State participation in the financing of individual projects.

In practice, there are plenty of challenges to pass on the industry development way.

There are economic and political factors that hamper the further development of the oil and gas industry in the CIS exporting countries.

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[86] Vinnokurov A.A., Koncepcija i kriterii ustojchivogo razvitiya v processe razrabotki strategii vertikalno-integrirovannyh neftyanyh kompanii", 2007, PP. 5

[86] ibid, P.7

They include the lack of export transport infrastructure (for example, for gas supplies from Azerbaijan to Southern Europe), difficulties in developing fields (gas in Azerbaijan, oil in Kazakhstan), political risks of project implementation (gas pipeline from Turkmenistan to South Asia via Afghanistan).[87]

In the countries importing energy resources within the CIS, Ukraine stands out, which over the past two years has more than tripled its purchases of Russian gas and implements an energy conservation policy, while Belarus maintains stable volumes of imports of Russian oil and gas and benefits from lower prices supplies. In Tajikistan and Kyrgyzstan, there is an oil and gas shortage, and energy prospects are associated with the further development of hydropower. Georgia plays the role of an oil and gas transit country and has a diversified structure of their supplies, while Armenia is completely dependent on hydrocarbon supplies from Russia and partly from Iran and plans to develop both directions in the future.[88]

The expansion of production over the past decades has significantly strengthened the country's position in the global hydrocarbon market. Kazakhstan in the long-term will continue to increase production. According to the annual report of KazMunayGas JSC, there are a number of strategic measures for the development and improvement of the oil and gas sector in Kazakhstan.

Kazakhstan has created a modern and diversified transportation and processing infrastructure oil and gas. As mentioned in the first chapter, the role of transporting oil and gas is one of the key in creating the final cost of the product.

One of the promising directions on the way to the development of the industry is the utilization of associated gas from oil fields. Today Kazakhstan has an inefficient use of non-renewable natural resources and large-scale environmental pollution. In addition, the use of associated gas to generate electricity or in technological processes may become an additional source of income for oil companies.

The obvious is the need for integrated development and use of communication systems and elements of the production and social infrastructure.

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[87] Raimondi P. P., “Central Asia Oil and Gas Industry – The External Powers’ Energy Interests in Kazakhstan, Turkmenistan and Uzbekistan”, Fondazione Eni Enrico Mattei (FEEM), 2019, P. 25

[88] Sage Publications Ltd., “Kazakhstan: Oil Reserves Could Exceed Oil Reserves of Former USSR Review of Current Projects”, WORLD ENERGY REVIEW ISSUE, 1995, Vol.13, No.1, P. 81

There are a number of engineering and mining enterprises are manufacturing some items of equipment and materials for oil and gas enterprises.

Most Kazakhstan service providing enterprises are in a difficult financial situation and their equipment lags behind modern requirements. And the Annual report of the national company JSC "KazMunayGas" affirm that group of its subsidiaries are already working on it.

All of the listed factors has to be developed well and strictly monitored to get a better results in the development process of the petroleum industry by the author's opinion. Through the reading information that was collected from different sources all over the world, the author clearly sees the key growth driver of the petroleum industry in Kazakhstan.

The author fully agrees with the words of the experienced economist Dombusch Rudiger "The education is the most important". By her opinion, the labor force is a key growth driver. All of the oil producers and exporters can purchase the most modern and expensive equipment to explore a new oilfields, create a new type of petroleum products management systems, find a better ways of transportation, to develop new ways of exploration and etc., but without well-educated, motivated and skilled workforce all of that makes no sense.

3.2. Cases of oil and gas production in the world

The countries of the world, having significant reserves of oil and gas minerals, have a strong impact on the global economy, as oil producers all over the world depend on regular supplies of hydrocarbons, without which the existence of a modern economy is impossible. The world oil refining and chemical production absorb truly enormous volumes of raw materials, and therefore the production of oil and gas in the world is enormous.[89]

The production of oil and natural gas for their subsequent export to many countries of the world brings the lion's share of budget revenues, in connection with which the oil and gas industry are the leading sectors of their economies. [90]

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[89] Aleshin A.N., "Faktory effektivnosti neftyannogo kompleksa", Vestnik OGU, 2005, P.135

[90] Slutz J., Energy & Environment, 'The study on global oil and gas supply and demand undertaken by the national petroleum council (USA)," Sage publications Ltd., vol. 19, No. 8, December 2008, P. 1125

The world produces about one hundred million barrels of “black gold” per day. The three largest oil powers are the Russian Federation, Saudi Arabia and the United States of America. By these three countries supplied 30 percent of all traded oil.[91]

The organization of oil exporting countries was founded at a conference in Baghdad on September 10-14, 1960 at the initiative of five developing oil producing countries: Iran, Iraq, Kuwait, Saudi Arabia and Venezuela.

The goal of OPEC is to coordinate activities and develop a common policy on oil production among the countries participating in the organization, maintaining stable oil prices, ensuring stable oil supplies to consumers, and obtaining a return on investment in the oil industry.

According to the data of March 2020, OPEC includes 13 countries: Algeria, Angola, Venezuela, Gabon, Iran, Iraq, Congo, Kuwait, Libya, United Arab Emirates, Nigeria, Saudi Arabia, Equatorial Guinea. The headquarter is located in Vienna. In addition to members of the Organization of Petroleum Exporting Countries (OPEC), OPEC + also includes Russia, Azerbaijan, Kazakhstan, Mexico, Malaysia and other countries.[92]

According to current estimates, 79.4% of the world's proven oil reserves are located in OPEC Member Countries, with the bulk of OPEC oil reserves in the Middle East, amounting to 64.5% of the OPEC total. Proven oil reserves of OPEC countries currently amount to 1,199.71 billion barrels.[93]

OPEC Member Countries have made significant additions to their oil reserves in recent years, for example, by adopting best practices in the industry, realizing intensive explorations and enhanced recoveries. As a result, OPEC's proven oil reserves currently stand at 1,189.80 billion barrels.

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[91] Frumkin H., Hess J. and Vindigni St., “Energy and Public Health: The Challenge of Peak Petroleum”, Public Health Reports, Sage publications Ltd., Vol. 124, No. 1 (JANUARY/FEBRUARY 2009), P.. 16

[92] The official website of the OPEC organization, https://www.opec.org/opec_web/en/index.htm

[93] ibid

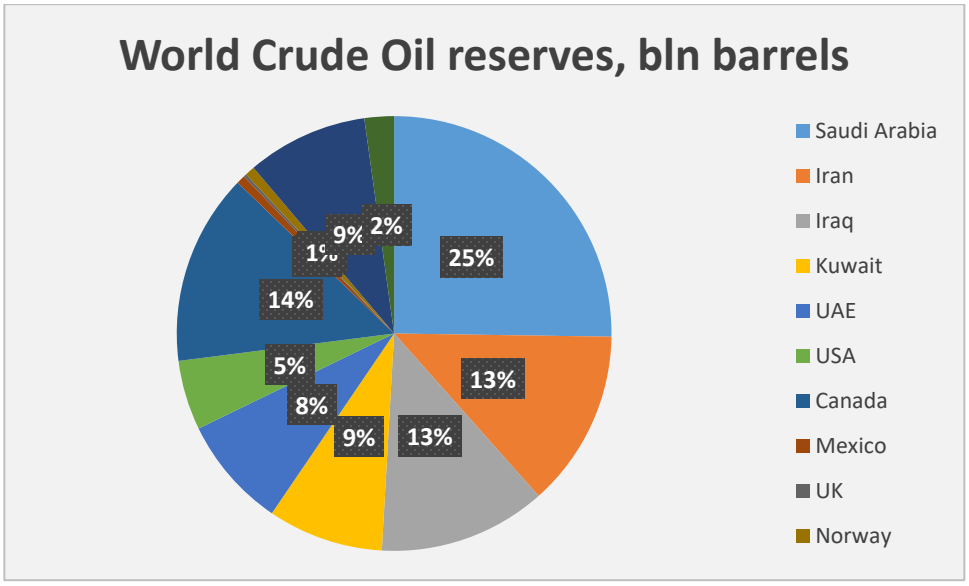


Figure 10 - World crude oil reserves, 2019

Source: The table was made by the author using the OPEC Annual Statistical Bulletin 2019

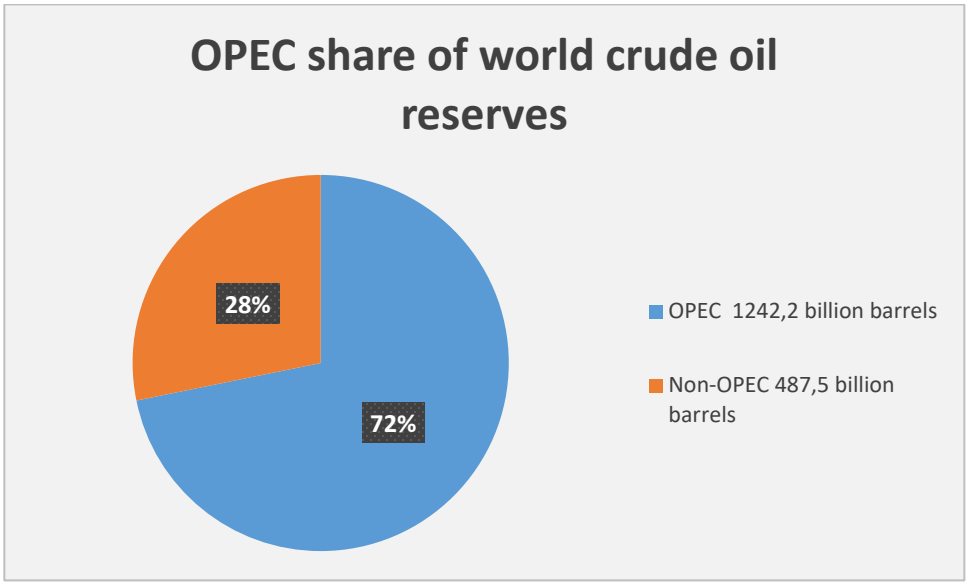


Figure 11 – OPEC share of world crude oil reserves, 2019

Source: The table was made by the author using the OPEC Annual Statistical Bulletin 2019

Table 8- Oil production in the world in 2018 according to OPEC

Country	Volume, liters/min.
USA	1 660 873
Saudi Arabia	1 324 900
Russia	1 192 410
Iraq	491 484
Iran	440 635
China	439 486
Canada	404 392
UAE	342 397
Kuwait	322 815
Brazil	277 728
Venezuela	251 395
Mexico	241 449
Nigeria	220 804
Angola	195 380
Norway	181 950
Rest of the world	912 703
Total in the world	8 901 341

Source: The table was created by the author using the OPEC organization website, https://www.opec.org/opec_web/en/data_graphs/330.htm

According to the results of the Tables 9 in 2017, world oil demand grew by 1.5 million barrels per day (mbd), and as show in the Table 15, in 2018 - by 1.3 mbd. In 2018, the average oil price was $ 72 per barrel; by September 2019, the average price was around $ 65. The cheapening of oil is a consequence of a decrease in demand for it as a result of the general deterioration of the macroeconomic climate and the aggravation of the trade conflict between the USA and China.

According to the International Energy Agency, for the first half of 2019, the growth rate of oil demand fell to 0.5 mbd per year. At the same time, restrictions on oil production agreed by the OPEC member countries do not yet contribute to a significant increase in its price. Despite the decline in oil production in Venezuela and Iran, the global hydrocarbon production is at a stable level, as the US has sharply increased production. In April 2020, global oil demand fell by a record 9.3 million barrels per day. [94]

[94] The official website of the International Energy Agency, https://www.iea.org/topics/energy-access

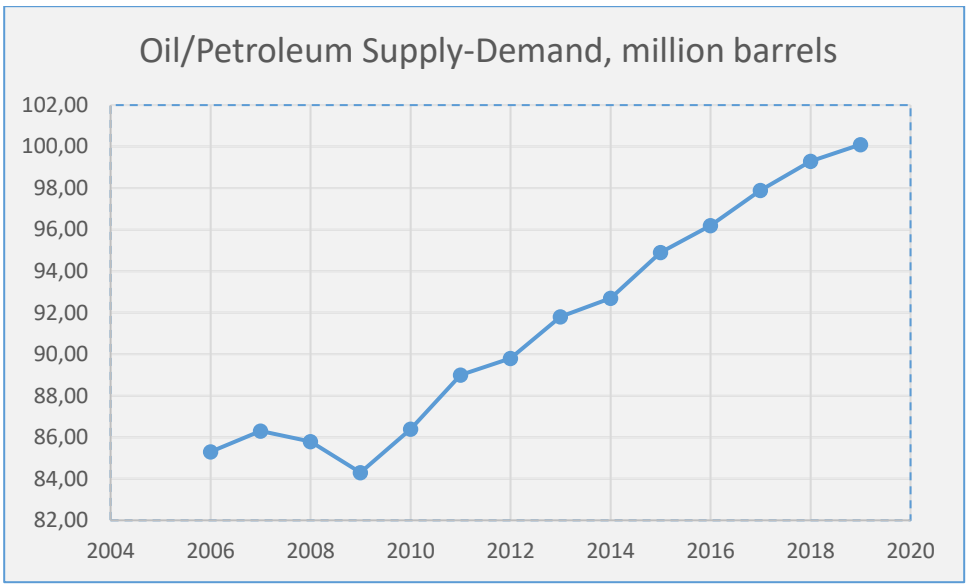


Table 9 – Oil/Petroleum Supply-Demand from the past till nowadays

Source: The table was created by the author using the data from OPEC official website, https://www.opec.org/opec_web/en/data_graphs/330.htm

As it is visible from the Table 9, unprecedented problems began against the backdrop of the coronavirus pandemic, which led to the economic crisis and a radical decrease in fuel demand. In April 2020, fuel demand fell by about 30% globally, and companies began to drastically cut spending by laying off thousands of workers and shutting down production to offset the world's surplus of oil.

Over the past couple of weeks, consumption has increased slightly, but an oversupply is expected to last months, if not years, the report said, which Baker Hughes released on May 8, 2020.

In March 2020, during the COVID-19 pandemic, oil production increased by inertia, but consumption collapsed sharply. On average, in April 2020, 1,514 installations for oil and gas production were operating worldwide, compared to 1964 a month earlier. At the same time, the April level is 626 less than the indicator for the same month of 2019.[95]

[95] World Bank data website, https://data.worldbank.org/country/kazakhstan

According to the results of April 2020, the number of drilling rigs in the Asia-Pacific region in April decreased by 40 (to 191, a minimum since September 2017),

in the Middle East - by 8 (up to 420), in Africa - by 5 (up to 103 units, the most the lowest level since November 2018), in Europe - by 11 (to 112, a minimum for a year), in Latin America - by 80 (to a historic low of 89).[96]

3.3. Oil and gas production and exploration companies perspectives in Kazakhstan

In the following subchapter the author would like to describe the activities of the 3 oil and gas exploration companies within the Kazakhstan and the ways of their influence to the economic environment of the country. There are: Chevron corporation, JSC "KazMunayGas" and Eni S.p.A.

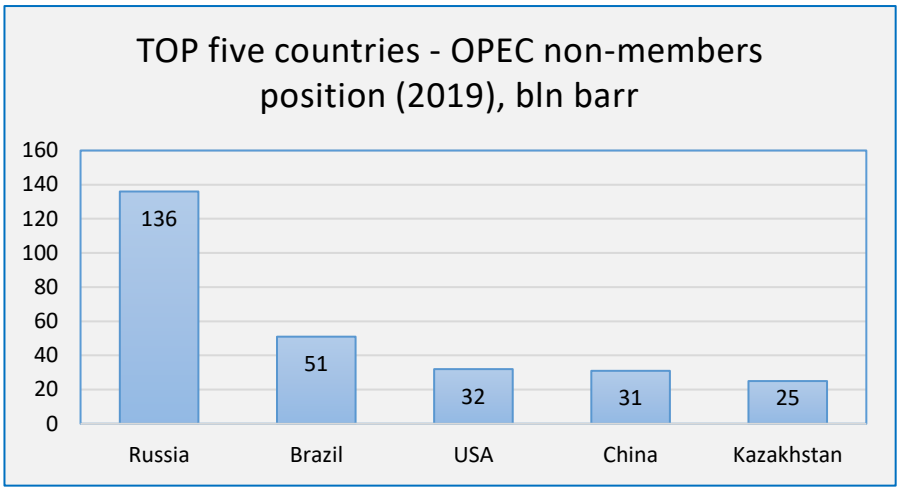
Kazakhstan is in the top ten of the global hydrocarbon reserves rating and one of the largest suppliers of crude oil in Central Asia. In terms of proven oil reserves, Kazakhstan has 3% of the world's oil reserves.

Oil and gas regions occupy 62% of the republic's area and have 172 oil fields, of which more than 80 are under development. Since1991,Kazakhstan more than tripled its oil output to 572 mln barrels (78mlntons) per year in2016, driven by Tengiz and Karachaganak.[97]

[96] The official website of the OPEC organization, https://www.opec.org/opec_web/en/index.htm

[97] The official website of the Sovereign Wealth Fund "Samruk-Kazyna" JCS, https://www.sk.kz/

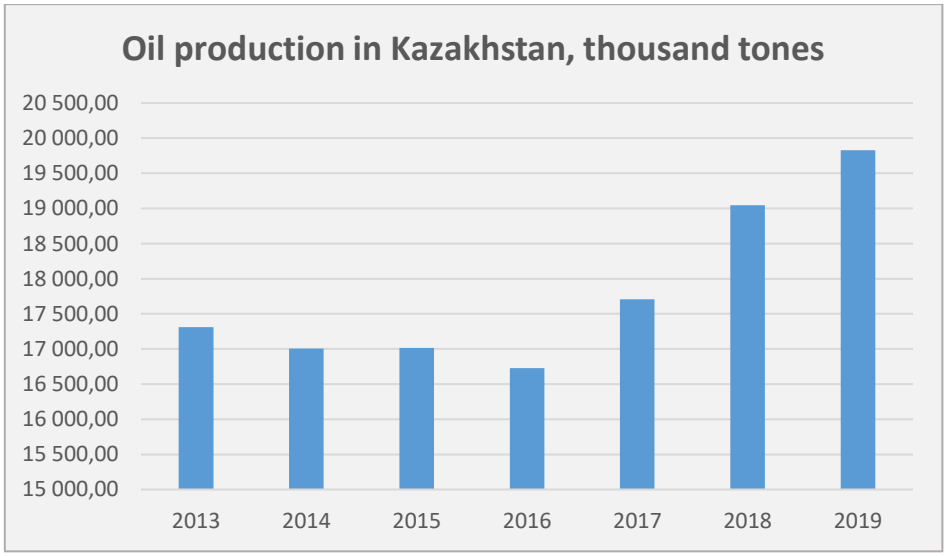
Table 10 – Position in the top five countries – OPEC non-members with traditional oil reserves available 2P oil reserves, billion barr. (2019)



Source: The table was made by the author, based on Annual Report of JSC "KazMunayGas" and IHS Markit official statistical source

According to data for 2019 and it's shown on the Table 10, oil reserves in Kazakhstan is equal to 25 billion tons. In terms of natural gas production, Kazakhstan ranks third in the CIS, behind the Russian Federation and Turkmenistan.

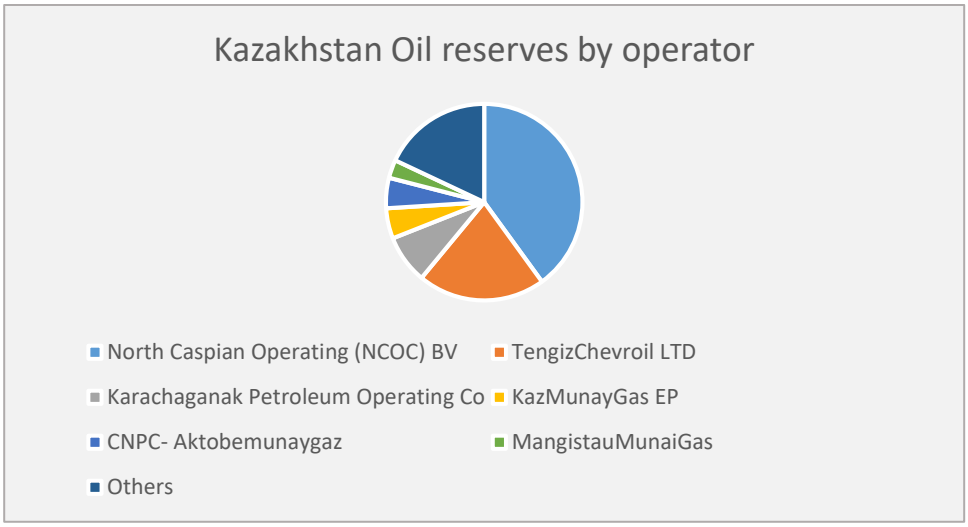
Table 11 – Oil production in Kazakhstan, thousand tones.



Source: The table was created by the author on the basis of Annual report of Samruk Kazyna

According to the Table 11 , oil production was lower in 2015-2016 in response to lower oil prices, natural decline in some mature fields and decrease of drilling activity given maintenance works at some fields.

Table 12 – Kazakhstan Oil reserves by operator



Source: The table was made by the author on basis of Annual Report of Samruk Kazyna

The Table 12 shows the list of the largest oil producing companies in Kazakhstan which includes: TengizChevroil LTD, JSC KazMunayGas, CNPC AktobeMunaiGas, Karachaganak Petroleum Operating Co, North Caspian Operating Co (NCOC) BV and etc. And each of them have a different share of the total number of reserves that is shown on the Table.

Table 13 – Kazakhstan Key Oil and Gas Projects

Tengiz		Karachaganak		Kashagan	
Chevron	50%	BG Group	29,30%	Shell	16,80%
ExxonMobil	25%	Eni SpA	29.3%	ExxonMobil	16,80%
NC KMG	20%	Chevron	18,00%	Eni SpA	16,80%
LUKArco	5%	Lukoil	13,50%	Samruk-Kazyna	8,40%
		NC KMG	10%	NC KMG	8,40%
				Total	16,80%
				Inpex	7,60%
				CNPC	8,30%
Recoverable oil reserves, bln bbls	6-9	Recoverable oil and condensate reserves, bln bbls	8-9	Recoverable oil reserves, bln bbls	9-13
		Natural gas reserves, tcm	1,35		

Source: The table was created by the author, based on Annual report of Samruk Kazyna

By Table 13, the author would like to show the biggest petroleum operation projects that exists in Kazakhstan nowadays. Also, the share of each company is given there as well.

Chevron Corporation.

Chevron Corporation is one of the largest energy corporations in the world and it is involved in almost every aspect of the oil and gas industry, from exploration and production to transportation, refining and retail marketing, as well as the production and sale of petrochemical products. For over 120 years, Chevron has been actively engaged in “delivering energy to people,” working in more than 90 countries around the world.

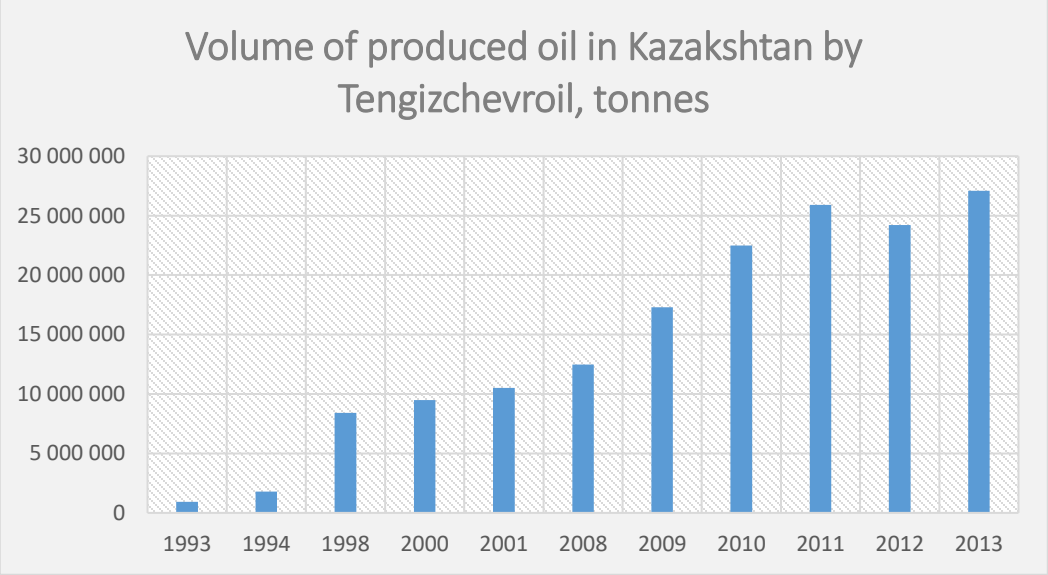
A special place among the partner countries of Chevron is Kazakhstan. On April 6, 1993, together with the Republic of Kazakhstan, the Chevron established the largest joint venture between a western company and the country of the former Soviet Union. As a result was launched the “Tengizchevroil”, a partnership was created in order to develop the Tengiz giant oilfield, the largest discovery in 30 years.

Since then, Chevron has made an additional investments in other sectors, among them the retail sale of gasoline and the petrochemicals production.[98]

The Tengiz oil field was discovered in 1979 and is one of the deepest and largest oil fields in the world.

In 1996, Chevron was the first who has started creating a world-class gas station network in Kazakhstan that meets the most stringent environmental requirements and satisfies the highest requirements of our customers. The first Chevron gas station, embodying the latest technological advances, including underground double-walled fiberglass containers, a vapor trap system and oil leakage control, appeared in Almaty in 1996. In 1998, similar gas stations were built in Astana and Atyrau. At each gas station, 16-25 employees work from among the citizens of Kazakhstan [99]

Table 14 – The volume of produced oil in Kazakhstan, by TengizChevroil since 1993



Source: The table was made by the author on the basis of data published by Tengizchevroil company http://www.tengizchevroil.com/

[98] Sage Publications Ltd., "Kazakhstan: Oil Reserves Could Exceed Oil Reserves of Former USSR Review of Current Projects", WORLD ENERGY REVIEW ISSUE, 1995, Vol.13, No.1, P. 82

[99] The official website of the OPEC organization, https://www.opec.org/opec_web/en/index.htm

As it visible from the Table 14, the volume of the producing oil by Tengizchevroil have a tendency to increase year by year. Currently, the owners of TCO are: Chevron - 50%, NK KazMunayGas JSC - 20%, ExxonMobil Kazakhstan Ventures Inc. - 25% and LukArco JV - 5%. TCO direct payments to Kazakhstan in January - June 2010 amounted to $ 4.6 billion.

Since 1993 until 06.2010 TCO direct financial payments to the country's budget amounted to $ 4034 billion. One of the key advantages of TCO is its technological equipment.

TCO is working to expand production under the “Future Expansion Project” using crude gas re-injection technology, which helps maintain the required pressure in the reservoir and will result in greater oil return. This technology is more environmentally friendly and allows you to extend the life of the field.

Tengiz Chevroil's revenue by 2017 was $ 10,482 billion. Operating profit is $ 3,567 billion. Net income, meanwhile, is $ 2,496 billion. According to non-official data, the company employs 3,400 workers, about 85% of whom are residents of Kazakhstan. One of the keys revealing the potential of the Tengiz field is the availability of transport routes from the Caspian region to the markets of Western and Eastern Europe. Chevron has always supported the idea of multiple export pipelines, in particular, this is demonstrated by our role in the development of the Caspian Pipeline Consortium.[100]

According to forecasts, recoverable oil reserves in the reservoir of the Tengiz field by April 2033 may range from 750 million to 1.1 billion tons (6-9 billion barrels. Chevron is proud to present its world-class brands in Kazakhstan. The introduction of these standards and technologies, as well as the creation of new jobs in the region, are an important contribution to the implementation of the import substitution program conducted by the leadership of Kazakhstan.[101]

Since coming to Kazakhstan, Chevron Corporation has been implementing a number of social projects in Kazakhstan.

Creation of service and social infrastructure, support of small business and entrepreneurship, construction and equipping of health and education facilities,

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[100] The official website of the TengizChevroil, http://www.tengizchevroil.com/

[101] The official website of the Chevron Corporation, https://www.chevron.com/

financing of programs to support veterans, children and people with disabilities - this is not a complete list of Chevron projects aimed at economic and social development Kazakhstan society.

Chevron also provides technical and sponsorship assistance to educational and social development facilities.

«The development of relations between Chevron and Kazakhstan over the past 27 years has brought positive and useful experience. Chevron and Kazakhstan will grow and develop together, continuing the history of trust, success and partnership to build the future», - was written by the analyst of the Business Journal “Invest-Kz” article.

JSC “KazMunayGas”

KazMunayGas Exploration Production JSC (KMG EP) is a subsidiary of KazMunayGas National Company JSC. KMG EP is one of the three leaders in terms of oil production in Kazakhstan.

The volume of production of the company, taking into account shares in Kazgermunai and CCEL (Karazhanbasmunai) in 2009 amounted to 11.5 million tons (232 thousand barrels per day). As of the end of 2009, the volume of proved and probable reserves of KMG EP amounted to 234 million tons (1.7 billion barrels); and taking into account the shares in affiliates of about 2.2 billion barrels. Common and preferred shares of the Company were listed on the Kazakhstan Stock Exchange, and global depositary receipts on the London Stock Exchange.[102]

During the IPO in September 2006 The company raised more than $ 2 billion. In December 2009 Standard & Poor's international agency assigned KMG EP a GAMMA-6 corporate governance rating, and in July 2010 affirmed a BB + credit rating.

[102] The official website of the JCS “KazMunayGas”, https://www.kmg.kz/

Table 15 – Key indicators of JSC "KazMunayGas" activities in Kazakhstan

	2017	2018	2019
OPERATIONAL INDICATORS			
Hydrocarbon reserves, mln tones	-	-	676
Oil and condensate production, thousand tones	23 362	23 606	23 618
Natural and associated gas production, mln m3	7 966	8 137	8 455
FINANCIAL INDICATORS			
Revenue, U.S. Dollar mln	14 701	20 255	17 915
Accrued capital investments, U.S. Dollar, mln	2 051	1 820	1 320
Investments on a cash basis, U.S. Dollar, mln	1 424	1 247	1 160
EBITDA, U.S. Dollar, mln	3 369	4 947	5 126
Net profit, U.S. Dollar, mln	1 611	2 010	3 026
SOCIAL INDICATORS			
Current number of employees	80 406	76 229	70 938

Source: The table was made by the author on the basis of the provided data in Annual Report of JSC "KazMunayGas" for 2019

The Table 15 shows us the key indicators of the JSC KazMunayGas activities within the country. Last year, KMG traditionally confirmed the status of one of the largest taxpayers in the country. The company paid about $ 4 billion in taxes and other obligatory payments to the country's budget.

Their strategy in the field of social policy is aimed at promoting the development of the regions. During the reporting period, the volume of social investments under KMG Group of Companies under subsoil use contracts amounted to 7.6 billion tenge. [103]

[103] Annual Report of national petroleum extraction compamy JSC "KazMunayGas" ,2018, P. 5

Over the years, KazMunayGas has implemented a number of major projects, making a significant contribution to the development of the oil and gas potential and energy security of Kazakhstan. Dry statistics figures say a lot about the achievements of the national company. Since its inception, oil production has almost doubled - from 13 million tons in 2002 to more than 23 million tons in 2017. Today, the national company is consistently among the leaders in oil and gas production in Kazakhstan.

KazMunayGas represents the state and owns a 20% stake in the Tengiz field development project, 8.44% in the Kashagan project and 10% in Karachaganak. KazMunayGas, through a subsidiary, Exploration Production JSC, conducts production at several existing fields, the largest of which are Uzen, Emba, Zhetybai. KMG EP also owns a stake in Kazgermunai JV LLP (50%), Karazhanbasmunai JSC (50%) and Petrokazakhstan Inc. (33%).[104]

KazMunayGas provides a significant part of the gross domestic product of the Republic of Kazakhstan. The production, processing and transportation of large volumes of oil and gas create the prerequisites for the development of many other industries - domestic energy, transport engineering, petrochemicals, telecommunications, light industry, transportation, construction of pipelines, roads and infrastructure, industry, services. Every year, KMG is increasing the share of Kazakhstani content in the procurement of goods, works and services, ensuring the loading of domestic capacities, the employment of labor collectives, and thereby raising the standard of living of the entire Kazakh people.

Eni S.p.A.

Eni S.p.A., Eni is the largest Italian oil and gas company. Headquarters - in Rome. The main production regions are Africa, Russia and Kazakhstan, the main sales market is Italy and other European countries. The company took 89th place in the Fortune Global 500 list for 2017 (in 2015 it was 65th place, in 2016 it took 132nd place).[105]

Eni is an integrated energy company with over 84,000 employees in 83 countries. Eni is engaged in the exploration and development of oil and gas fields, oil and natural gas production, as well as the supply, sale and transportation of natural gas, LNG, electricity,

[104] Annual Report of national petroleum extraction compamy JSC “KazMunayGas” ,2018, PP.6

[105] The official website of the Eni S.p.A., https://www.eni.com/

fuel and chemical products. At refineries and petrochemical plants, Eni processes crude oil and other petroleum feedstock to produce fuels, fuels and lubricants and chemical products sold through wholesalers or retailers and distributors.[106]

Moreover, Eni company carries out design, provides oilfield services and performs construction work on land and at sea, with a focus on the implementation of technologically advanced mega-projects located mainly in remote areas.

Eni's strategy, its resource allocation processes and the principles of conducting day-to-day operations are the foundation of a sustainable value system for all interested parties and are developed on the basis of respect for the countries in which the company operates and for people who work in Eni or work with her. A holistic approach to business management, support to the development of countries, high standards of operations, the use of innovations in the development of competitive solutions, the involvement of Eni employees and the development of skills and know-how, the integration of financial and non-financial issues in the plans and processes of the company - all this is a driving force in Eni's sustainable value creation process.[107]These factors help them make smart investment decisions, prevent risks and achieve strategic goals in the short, medium and long term. In 2015, Eni consolidated its presence in the Dow Jones Sustainability Indexes and the FTSE4Good Index in its June semi-annual review.[106]

Eni is one of the first international oil and gas companies that came to Kazakhstan at the beginning 90s. The company is now firmly established in energy sector of the republic, owning significant stakes in two of the country's largest projects: Eni is a co-operator of the Karachaganak field and a partner in a production sharing agreement for Northern Caspian (PSA SK).

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[106] Annual Report of Eni S.p.A., 2018, P. 2

[107] The official website of the Eni S.p.A., https://www.eni.com/

[106] ibid, P.4

Table 16 – Global key performance indicators of Eni

Key performance indicators			
	2017	**2018**	**2019**
Sales from operations (a), mln EUR	19 525	25 744	23 572
Operating profit (loss), mln EUR	7 651	10 214	7 417
Adjusted operating profit (loss), mln EUR	5 173	10 850	8 640
Adjusted net profit (loss), mln EUR	2 724	4 955	3 436
Capital expenditure, mln EUR	7 739	7 901	6 996
Profit per boe (b), USD boe	8,7	9,3	5,1
Hydrocarbon production,(c), kboe/d	1 816	1 851	1 871
Net proved hydrocarbon reserves, (mmboe)	6 990	7 153	7 268
Employees at year end, number	11 970	11 645	11 502
of which outside Italy	7 460	7 114	6 946
(a) - Before elimination of intragroup sales (b) Related to consolidated subsidiaries (c) Includes Eni's share of equity accounted entities			

Source: The table was created, based on the Annual Report of Eni S.p.A., 2019

As it is visible from the Table 16, Eni owns a 16.81% interest in PSA SK, which determines the conditions for exploration and development of the Kashagan field, discovered in the northern part of the contract area in 2000 on an undeveloped area of 4600 sq. km. Due to the scale, the North Caspian Operating Company New Venture (NCOC N.V.) - the only PSA Operator at present, will develop technical and environmental difficulties, the Kashagan field in several stages. Other discovered deposits on the site are Kalamkas, Aktoty and Kairan.

Within the gas treatment and expansion projects of the Karachaganak field (Eni's interest 29.25%), activities concerned: (i) the Karachaganak Debottlenecking project progressed;

(ii) project of the construction of fourth gas re-injection unit was sanctioned and activity started up during the year; and

(iii) the Front End Engineering Design of the Karachaganak Expansion Project has been completed. The planned activities include the installation of two additional gas re-injection facility. Eni continues its commitment to support local communities in the nearby area of the Karachaganak field.[108]

In particular, activities focused on:(i) professional training; and (ii) realization of kindergartens and schools, maintenance of bridges and roads, construction of sport centers. As of December 31, 2019, the aggregate costs incurred by Eni for the Karachaganak project capitalized in the financial statements amounted to $4.1 billion (€3.7 billion at the EUR/USD exchange rate of December 31, 2019). Cost incurred in the year were €267 million. As of December 31, 2019, Eni's proved reserves booked for the Karachaganak field amounted to 448 mmboe, slightly decreased from 2018, mainly due to changes of Brent price.[109]

Located on land in the West Kazakhstan region Karachaganak field was discovered in 1979 and is one of the largest gas condensate fields in the world. The Karachaganak Petroleum Consortium carries out production operations.

Operating "(KPO), where Eni and BJ are cooperators. In 2014, production at the Karachaganak field averaged 242 thousand barrels of liquid hydrocarbons and 909 million cubic meters. feet of natural gas per day.[110]

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[108] Annual Report of Eni S.p.A., 2018, P. 6

[109] The official website of the Eni S.p.A., https://www.eni.com/

[110] Annual Report of the National Fund JSC "Samruk Kazyna", 2017, P. 4

Eni always shows a responsible approach to development scientific and technological knowledge in educational institutions of the countries where the company operates. In 2012, Eni and the Nazarbayev University Research and Innovation System (NURIS), with the support of Eni Corporate University, reached an agreement on the establishment of the Eni Research Laboratory in Environmental Engineering.[111]

The project develops special educational programs that develop research and technical skills in the field of solar energy and the structure of materials.Today, investments in the development of social infrastructure of the West Kazakhstan region amounted to more than 275 million US dollars. In recent years, a large number of new schools, kindergartens, hospitals, as well as social and cultural buildings have been built. Hundreds of kilometers of roads have been built.

Social infrastructure development programs in Atyrau and Mangistau oblasts, where the Kashagan project production facilities are located, include the construction of schools, kindergartens, sports centers, roads, energy, gas and water supply systems and other infrastructure facilities in order to improve the welfare of the population. To date, the volume of investment in social projects has exceeded 440 million dollars. USA.

The Karachaganak project for the implementation period from 1997 to 2019 provided revenues of about 34.8 billion US dollars to the Kazakhstan's budget. The share of local content over the period of the project amounted to 7.44 billion US dollars. The project operator Karachaganak Petroleum Operating works with more than 4,800 Kazakhstani suppliers and manufacturers.[112]

As of December 31, 2019, the aggregate costs incurred by Eni for the Kashagan project capitalized in the financial statements amounted to $10 billion (€8.9 billion at the EUR/USD exchange rate of December 31, 2019). This capitalized amount included (i) $7.4 billion relating to expenditure incurred by Eni for the development of the oil field;
and (ii) $2.6 billion relating primarily to accrued finance charges and expenditures for the acquisition of interests in the Consortium from exiting partners upon exercise of pre-emption rights in previous years. Cost incurred in the year were €106 million. As of December 31, 2019, Eni's proved reserves booked for the Kashagan field amounted to 661 mmboe, increased from 2018. [113]

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[111] Annual Report of Eni S.p.A., 2018, P. 4

[112] The official website of the Eni S.p.A., https://www.eni.com/

[113] Annual Report of the National Fund JSC "Samruk Kazyna", 2017, P. 7

3.4. PESTLE analysis of the petroleum industry companies activities in Kazakhstan

As a part of the Research the PESTLE analysis was chosen. The main goal of the choosing following kind of analysis is to make out what is the value of the petroleum industry multinational corporations impact for the Kazakhstan's economy. The author would like to point out the key facts of each factor taking into account the 3 petroleum production and exploration companies which are doing their businesses within Kazakhstan as an example.

Political Factor

By the cooperation activities of Kazakhstan and "Chevron" have built a good relationships between USA and Kazakhstan. Through the cooperation in the petroleum sector, The U.S.-Kazakhstan Energy Partnership was created in 2001. The partnership within which was raised the level of the Strategic Energy Dialogue, including such areas as renewable energy, nuclear energy, ensuring energy security, including diversifying export routes. The world economic giant as U.S.A paid attention to the former USSR country due to it's huge oil and gas reserves. The cooperation with Chevron gave to Kazakhstan a kind of "advertisement" to the entire geopolitical world.[114]

The Eni company came to the republic in 1992, and they have developed strong long-term relations with Kazakhstan. Kazakhstan is among the top five countries in the Eni oil and gas portfolio. This position speaks for itself. Eni is a co-operator of the Karachaganak field and a partner in the Production Sharing Agreement for the Northern Caspian (PSA SK).[115] The Eni is the one of 1st foreign investors of the independent Kazakhstan. The Eni coming to the Kazakhstan has created a first successful geopolitical relationships with the European country as Italy.

The founder of KMG is the Government of the Republic of Kazakhstan represented by the Committee on State Property and Privatization of the Ministry of Finance of the Republic of Kazakhstan.[116] That means the national company under the direct management of the government of the Republic of Kazakhstan.

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[114] The official website of the TengizChevroil, http://www.tengizchevroil.com/

[115] The official website of the Eni S.p.A., https://www.eni.com/

[116] Annual Report of the National Fund JSC "Samruk Kazyna", 2017, P. 8

All kinds of negotiations with foreign shareholders of the national company are conducted under the direct management of state administration. This means that all actions taken by the JSC "KazMunayGas" are having exclusively strategic and important political nature for the whole country.Looking at the statistical data provided by the author in the Chapter 2nd and 3rd we can state with certainty that the business of national company "KazMunayGas" is the key driver of the political factor's development in Kazakhstan.

Economical Factor

From 1993 through 2018, TCO (TengizChevroil) has contributed over $135 billion to the Republic of Kazakhstan, including in purchases of Kazakhstani goods and services, profit distributions to TCO partner KazMunaiGas, taxes and royalties paid to the national government, tariffs and fees paid to state-owned companies, and employee salaries. In 2018, direct payments to the Republic of Kazakhstan totaled $10.1 billion. In 2002, the company purchased over $415 million in goods and services from domestic producers. In 2018, these expenses reached over $3.5 billion. TCO direct financial payments to the country's budget amounted to $ 4034 billion.
The number of the company employees is 3,400 workers, about 85% of whom are residents of Kazakhstan. Chevron is the first company who has started creating a world-class gas station network in Kazakhstan, each station has 16-25 employees.[117]The TengizChevroil (being a result of Chevron and Kazakhstan's cooperation) is the one of the biggest taxpayers in the country.

Taking under analysis the Eni, we can see that the aggregate costs incurred by Eni for the Kashagan project capitalized in the financial statements amounted to $10 billion (€8.9 billion at the EUR/USD exchange rate of December 31, 2019) to which were included[118]:

(a) $7.4 billion relating to expenditure incurred by Eni for the development of the oil field;

(b) $2.6 billion relating primarily to accrued finance charges and expenditures for the acquisition of interests in the Consortium

[117] The official website of the TengizChevroil, http://www.tengizchevroil.com/

[118] Annual Report of Eni S.p.A., 2018, P. 5

In 2018, the company paid about 87.2 billion tenge to the budget of the country against 59.7 billion tenge a year earlier.

In case of NC “KazMunayGas” the picture is the following- the company's net profit is US $ 3,026 million, which contributes to the country's GDP growth of 4.5%. KMG traditionally confirmed the status of one of the largest taxpayers in the country. The company paid about $ 4 billion in taxes and other obligatory payments to the country's budget.[119]The current number of employees - 70 938, and 90% from them are Kazakhstani people.The company paid 31.5 billion tenge to the country's budget.

Social Factor

Since 1997, Chevron has fully funded the work of a mobile clinic for the diagnosis and treatment of tuberculosis in Almaty and Atyrau regions. The company delivered medical equipment and medicines from the United States to regional AIDS centers, the Kazakh branch of the Research Institute of Cardiology and the children's department of the Kazakh Research Institute of Oncology and Radiology, and the Atyrau Regional Maternity Hospital. In June 2001, with the financial support of Chevron, the national Khabar Agency for the first time in Kazakhstan launched a pilot project for sign language translation of news releases. The project is designed for more than 55 thousand Kazakhstanis who have hearing impairment and now have the opportunity to regularly and quickly access national and international news. Also, Chevron provides technical and sponsorship assistance to educational and social development facilities. In particular, the company is the general sponsor of the Public Fund of Kazakhstan "Achievements of the Young" in applied economics for secondary students, the sponsor of the Kazakhstan Institute of Management, Economics and Forecasting (KIMEP) and the International Academy of Business, KazGUMYaMO them. Abylai Khan and others Since 1993, TCO has invested over $1.7 billion to fund social projects and programs in Atyrau region for the community and employees.[120]

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[119] Annual Report of national petroleum extraction compamy JSC “KazMunayGas” ,2018, P. 3

[120] The official website of the Chevron Corporation, https://www.chevron.com/

Moving on to the Eni, the author found out that in 2012, Eni and the Nazarbayev University Research and Innovation System (NURIS), with the support of Eni Corporate University, reached an agreement on the establishment of the Eni Research Laboratory for Environmental Engineering.

The following project develops special educational programs that develop research and technical skills in the field of solar energy and the structure of materials. Today, investments in the development of social infrastructure of the West Kazakhstan region amounted to more than 275 million US dollars. Built in recent years a large number of new schools, kindergartens, hospitals, as well as social and cultural buildings. Hundreds of kilometres of roads have been built.

Theoretically, the national petroleum production company is also doing well in the frame of social factors. KMG annually accepts for production practical and undergraduate practice of university students Kazakhstan. The main focus remains on compulsory programs and continuing education courses. In 2019, over 140 thousand people spent on training 6.5 billion tenge were paid. KMG Group of Companies has developed a standard form of objective contract, which establishes uniform principles circuits for the organization of remuneration, social support, working conditions, work and rest.[121] The number of employees of the KMG group of companies covered by collective agreements amounted to 58,710 people. In 2019, the KMG Group of Companies the amount of social investments under subsurface use contracts amounted to 7.6 billion tenge.

Technological Factors

Since 1993, technology has helped to the Chevron increase production in Kazakhstan by 27 times. The first Chevron gas station, embodying the latest technological advances, including underground double-walled fiberglass containers, a vapor trap system and oil leakage control, appeared in Almaty in 1996.[121] Afterwards, on August 29, 2001, the ceremony of laying the foundation of the first Chevron plant in Kazakhstan for the production of pipes from high density polyethylene was held in Atyrau. The new plant by the statistical data produced high-quality polyethylene pipes with a wide range of uses in water supply and sewage systems, gas distribution networks and irrigation. The TCO formalized Digital Transformation Roadmap.

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[121] Annual Report of national petroleum extraction compamy JSC “KazMunayGas” ,2018, P. 5

[121] ibid, P.6

The following roadmap consists of four focus areas: fatality prevention, base business excellence, maximizing cash from operations, and delivering FGP. The roadmap also defines key enabling capabilities divided into two categories: digital foundation and digital culture. The main advantage of the Chevron among other petroleum production companies is the high level of the technological performance, not only in Kazakhstan, but within the entire world.

The Eni, also develops rapidly in the technological area. The company has created GE Renewable Energy Unit. It is a $ 10 billion GE unit that combines the innovative spirit and the broadest range of renewable energy products and services. GE Renewable Energy implements projects for onshore and offshore wind energy, for hydropower, introduces innovative technologies in the field of blades, hybrid systems and concentrated solar energy.[122] Today, the total installed capacity of the company's equipment installed at renewable energy generating facilities exceeds 400 GW, helping the world become more technological and cleaner. And according to the official data, Eni is going to implement this kind of project in the Western part of Kazakhstan, in the city called – Aktobe as well.

The national company KMG is also always trying to move in the same time with mentioned above companies. The KMG implements the Digital smooth transformation. The program covers almost all sectors of the economy, including the oil and gas industry, for which it provides[123]:

• introduction of intelligent field technology in large mining companies in Kazakhstan;
• ensuring transparency of accounting for the production of marketable oil through the use of control metering devices;
• ensuring an uninterrupted supply of fuel within the country by equipping control systems, replacing equipment, and introducing an automated control system for maintenance and repair at oil refineries in Kazakhstan.

[122] Annual Report of Eni S.p.A., 2018, P. 5

[123] The official website of the JCS “KazMunayGas”, https://www.kmg.kz/

Environmental factors

Doing business in the petroleum industry is very important to keep the balance between the company activities and measures to minimize the damage to the environment caused by them. Protecting People and the Environment is a core value in the TCO Way. Since 2000, TCO has invested $3.1 billion on projects to minimize environmental impact at Tengiz. These investments had to help to achieve reductions in flaring and air emissions (since 2000), improve wastewater treatment and support an increase in water reuse.[124]

In 2014, an innovative environmental system by Eni was introduced in Kazakhstan. Last year, the integrated biodiversity management program in the Ural River Delta was also completed (Ural River Park Project (UPRU)).[125]

This project was the first example of public-private partnership in this area in the Caspian region. The program was implemented by Eni under the auspices of the Ministry of Environmental Protection and Water Resources of the Republic of Kazakhstan in order to protect the environment and ecosystem in the Caspian region. In June 2014, the project was officially recognized by UNESCO for inclusion in the "Man and the Biosphere" program.

In 2015, KMG supported the GGFR (Global Gas Flaring Reduction Partnership) World Bank initiative to completely stop the regular flaring of associated petroleum gas by 2030. As part of the implementation of the above initiative,[126]the KMG Emission Management Policy was approved in 2019. The policy, consisting of eight key principles, six of which are directly related to climate change, aims to completely stop regular flaring in Kazakhstan.

It's very obvious that the PESTLE analysis gives a very positive picture of the companies impact to the country's economy.

All of the companies are doing their businesses taking into account all the listed factors. That is the smartest strategic important way to prolong their existence in the Kazakhstan, and to use all the resources effectively by the author's opinion.

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[124] The official website of the TengizChevroil, http://www.tengizchevroil.com/

[125] The official website of the Eni S.p.A., https://www.eni.com/

[126] The official website of the JCS "KazMunayGas", https://www.kmg.kz/

The second part of the research is a survey, it was created and shared with the experts by the author. The number of the participants are 3. The number of questions is 11. It was created in 2 languages, the Russian language was added as translation for participants, as most of them do not speak English. The main goal of the collecting expert's opinion was to better understand the situation within the industry. In order to find out what are the key factors that impact on the national economy a several questions were from the participants asked. The most interesting from the answers provided by participants was the fact that they do not count 'Human Resources" as the one of the main factors of the country's economy which are under direct influence of the petroleum industry. The next interesting fact is that all of the participants did not know about Social Responsibility programs. Also the experts shared with their opinion about the rate of foreign labour force that are invited to the Kazakhstan. By their opinions, they have to be invited in order to teach and share with experience to the local staff.

The survey has showed the opinions of the specialists from the petroleum industry in Kazakhstan. As the author noted the weakest part of it is a not enough qualified labor. Also experts see the need in the technological development, but it was said that it is "costly business" means there question cannot be solved in the nearest future, they have to come to it very smoothly and lightly for the company's budgets and for the labor force skills, which will take a time as well.

And focusing on the results of the work that was made by the author, it can be argued that the number of positive impact factors of the petroleum industry companies on the national economy of Kazakhstan much higher than negative. Also, the negative factors were not mentioned in an official way, as they cannot be supported by the official sources. The analysis helped to us to compare a real situation in the country and the theoretical scenario of how it should be done. Of course, the real life differs from the numbers provided by the statistical data. We cannot be disagreed with the official sources data, but the difference can be highlighted. All of the answers provided by the experts can have a superficial level due to their personal interest to show everything in a proper way. Many of the questions of the research will always stay open, as it has to be analyzed further years as well.

The impact of the Oil and Gas MNCs is in 90% is positive. As it's visible from the previous chapters there are number of work places, average rate of wages, the developing infrastructure in the regions, technologies that are slowly increasing in the petroleum industry as whole in Kazakhstan.

CONCLUSION

In concluding the research work the key summarized takeaways can be given:

1. Since there are number of the national economy definition existing nowadays, the one general is that it is a complex process of the relationships between nation and local production enterprises by taking into account the meeting of society needs
2. The key indicator of the national economy is GNP, as it touches such areas as the annual volume of final goods and services created by citizens of a certain country within the national territory and beyond the country.
3. The literature review of many economists and scientists gave a general term of that the main economy growth factor is the well-educated labour force.
4. It's very obvious that the role of the location in the price creating process of the petroleum industry is one of the key as it directly influence to the transportation costs.
5. Despite the fact that Kazakhstan is independent country already for 29 years, commodity turnover between Russia and Kazakhstan are still on the top level. Russia and Kazakhstan cooperate with each other almost in the all economy sectors.
6. According to the official data the macroeconomic performance of Kazakhstan is getting stronger, but how it is in fact, in the real living level of the nation is another question to be discussed.
7. The oil price volatility depend also on such factors as the geopolitical situation, OPEC restrictions and the volume of the oil production within a country.
8. A key growth drivers of the petroleum industry is laying on the balance of external and internal factors by the author's opinion.
9. By looking at the current input of the petroleum MNCs in Kazakhstan, taking into account that the mentioned MNCs are largest country tax payers, their perspectives seems quite promising in the country.
10. Oil production in the world had a different rate from the beginning till nowadays. But the current situation with COVID-19 is sending a new challenges with unknown forecasts from the OPEC to all its members and non-members.

SUGGESTIONS

Addressed to the Ministry of the Energy of the Republic of Kazakhstan:

Since the one of the key growth driver is called technology development, many of national petroleum industry companies should to take a look at the local specialists and give them a wider opportunities to gain an experience from the international colleagues. This type of measure has a strategic management and economic performance improvement character. Skilled labor force from the Kazakhstani people will be motivated to stay inside of the country and that will improve all the economic factors in 5 -10 years forecasts. From this measure another one is coming out. Skilled labor is originates from the high quality education. That means the education system has to be developed better and to be under the direct governmental management with active participation of the Ministry of the Energy of the Kazakhstan. All of these measures could have a place in the international companies as well, as the Kazakhstan has a quite impressive number of shares in the biggest ones. And it gives a clear possibility to implement the idea in almost all of the companies involved in the Oil and Gas production and exploration of the Republic of Kazakhstan.

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ANNEX 1.

The survey was created by the author using the information from the official sources listed in the References. The number of participants is 3, as the one from them have not agreed by using his personal data, only 2 can be represented here:

The first participant is Rustem Usaliyev, he is the Director of the Social Policy and Economic Support Department LLP JV "KazGerMunay". The LLP "KazGerMunay" is a subsidiary of the national petroleum production company JSC "KazMunayGas".

The 2nd participant is Arman Almuratov, he is an Industrial Electrical Engineer in the KazAnalit LLP. The KazAnalit is a system integrator of industrial control systems in the oil and gas industry in Kazakshtan.

1. Do you consent that all the data of answers you have provided (including personal data - name and surname, the position) will be used in the Master thesis research developed by Assem Yeslambekova?

a) Yes, I agree

b) I agree, but please do not use my personal data

c) No, I do not agree

2. In case if you agree, please indicate your name, surname, company name and the current position

a) I do not agree with my personal data using

b) Other

_____

3. What are the main factors of the country's economy which are under direct influence of the petroleum industry in your opinion?

a) Human Resource

b) Natural Resources

c) Capital Formation

d) Technological Development

e) Social and Political Factors

f) All the listed factors

g) Other

_____

4. According to the annual report of petroleum industry companies the quantity of the employed staff is the following:

1)“KazMunaiGas” JSC - one of the largest employers in Kazakhstan, the current number of employed staff is equal to 91 121 people.

2) In one of the largest global corporations as Chevron corporation the number of employees = 49 thousand people. Please note, more than 45 thousand Kazakhstanis

(91% of the total number of corporation's employees) are involved in the TCO expansion project.

3) In the Italian company "Sichim S.p.A." currently employed are about 4 thousand people. Looking to the provided data of statistics how do you think, what is the number of foreign labor, non-residents of the Republic of Kazakhstan working in these companies?

a) 10%

b) 30%

c) 50%

d) Other

_____

5. What is the main reason of the existence and increasing of the mentioned above percentage of foreign labor invited for work to the Republic of Kazakhstan in your opinion?

a) Lack of required qualifications within the local staff

b) In any case, we need a foreign specialists to develop the petroleum industry in the Kazakshtan

c) The most of foreign specialists are invited to share with their knowledge and experience, as well as to teach the local staff

d) Other

_____

6. What do you think about the quality of education in the Kazakhstan taking into account only related to the oil and gas sector qualifications awarded by the local universities and institutions?

a) Poor

b) Medium

c) Above the medium, but not high

d) High

e) Other

7. According to the data of INA "KAZINFORM", the non-residents of the Republic of Kazakhstan which are working in the petroleum sector of the country will be replaced to the local staff. Should this measure take place mandatory in your opinion?

a) Yes, such kind of measures are mandatory needed

b) No, they will not help to the industry as whole

c) Other

_____

8. LLP Tengizchevroil was formed on April 6, 1993 on the basis of an agreement between the Republic of Kazakhstan and the American Chevron Corporation. As the result development of long-term political relationship between the two countries has began, they have had both: a positive and a negative character since 1993.

In your opinion, what character can they have nowadays, taking into account all the updated news, and what kind of character of political relationship they could have in the 5 years forecast?

a) Positive only

b) Negative can take a place

c) Both of them can take a place

d) Other

9. Looking at the reports of Chevron, Sicim, KazMunaiGas, we see an affirming situation in the fight against such kind of issues as waste management, the air protection, biodiversity conservation, the prevention of oil spills and ensuring readiness, etc. All this gives us a clear understanding of the active positions of the companies in the framework of Environmental Responsibility. But, discarding everything mentioned above, we also see statistics of the harm which inflict on local citizens of the regions where oil and gas companies activities have a place. The 24980.7 cases of sickness caused by petroleum companies activities per 100 thousand people are statistical data from monitoring researches from 2006 to 2017. Atyrau is the region in which the Kashagan offshore field (with more than 50% of oil and gas reserves in the Republic of Kazakhstan) is located. In your opinion and lloking back to your professional experience in the sector, is the progress of the Environmental Responsibility campaigns development visible?

a) I am not familiar with this kind of data and have no idea about current situation within the Environmental Responsibility framework

b) The development of these campaigns are always in the improvement process

c) Other

_____

10. The volatility of oil prices today depends not only on the geopolitical situation, but also on the creation and implementation of new technologies and facilitation of the processes. There is still no clear definition of what digitalization is - work (Artificial Intelligence), services (Cloudscomputing), or goods (IIOT). In this regard, the Oil Accounting Information System (ISUN) was developed and implemented. From the beginning of 2020, a decree was issued and it states that companies that did not equip their enterprises with control meters (KPU) would not be able to carry out their activities in Kazakhstan. How will this affect on the business development in the oil and gas sector, and is it necessary to develop technologies and implement them inside of enterprises in the future in your opinion?

a) There is no "YES"/"NO" type of answer could be given. I would kindly ask you to provide with a comments below

b) Other

_____

11. Is the Oil and Gas industry is the main leading factor of the Kazakhstan's economy in your opinion?

a) Yes, it is the main leading factor

b) No, others sectors have a key roles as well

c) Other

_____