Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Economics

Master's Thesis

The Analysis of Foreign Trade of Oil and Gas in Kazakhstan

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CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

DIPLOMA THESIS ASSIGNMENT

Bc. Aida Nazarova

Economics and Management

Thesis title

The Analysis of Foreign Trade of Oil and Gas in Kazakhstan

Objectives of thesis

The aim of the thesis is to conduct the analysis of foreign trade of oil and gas of Kazakhstan. The author will identify the most important factors that influence the country's exports of oil and gas. Consequently, the author wil analyse the development of exports of this sector over time.

Methodology

For the analysis, the author relies primarily on quantitative techniques and namely on the econometric analysis of time series data based on the time interval from 2000 to 2020 with data obtained from OEC, the World Bank, and the Bureau of National Statistics of Kazakhstan. To be more specific, the author constructs a linear regression, computes elasticities, and verifies the model according to a series of statistical and econometric tests. In addition to the econometric analysis, the author also implements a descriptive analysis to understand the main tendencies of variables related to the oil and gas sector of Kazakhstan.

The proposed extent of the thesis

60 – 80 Pages

Keywords

Kazakhstan, oil, gas, exports, econometric analysis, imports

Recommended information sources

Babak, V. (2006). The oil and gas sector in Kazakhstan. Central Asia and the Caucasus, (4), 41-55.

İpek, P. (2007). The role of oil and gas in Kazakhstan's foreign policy: Looking east or west?. Europe-Asia Studies, 59(7), 1179-1199.

Kaiser, M. J., & Pulsipher, A. G. (2007). A review of the oil and gas sector in Kazakhstan. Energy Policy, 35(2), 1300-1314

Expected date of thesis defence

2023/24 SS – PEF

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Electronic approval: 5. 9. 2023

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Electronic approval: 3. 11. 2023

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Prague on 09. 03. 2024

Declaration

I declare that I have worked on my diploma thesis titled "The Analysis of Foreign Trade of Oil and Gas in Kazakhstan" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the diploma thesis, I declare that the thesis does not break any copyrights.

In Prague on 31.03.2024 _____

Acknowledgement

The Analysis of Foreign Trade of Oil and Gas in Kazakhstan

Abstract

The thesis has the main objective of analysing the oil and gas sector of the Republic of Kazakhstan, which is often regarded as the main source of income for the country. As an additional goal, the thesis is also concerned with the identification of whether the case of the country can be classified as a case of the "Dutch disease" due to the country's dependence on the aforementioned sector.

For the analysis, the quantitative techniques that involve the calculation of correlation coefficients, linear regression estimation, utilization of descriptive statistics and analysis of time series data were mainly used.

Ultimately, it was identified that the country, despite being largely dependent on exports from the oil and gas sector, is not likely to fall under the description of a country suffering from the "Dutch disease". It was found that the contribution of oil is high to the country's exports is high, but the country is making an attempt to diversify its economy by decreasing the dependency on the oil and gas sector.

Keywords: Kazakhstan, oil, gas, exports, econometric analysis, imports

Analýza zahraničního obchodu s ropou a plynem v Kazachstánu

Abstrakt

Hlavním cílem práce je analýza ropného a plynárenského sektoru Republiky Kazachstán, který je často považován za hlavní zdroj příjmů pro zemi. Jako další cíl se práce zabývá také identifikací toho, zda lze případ země klasifikovat jako případ "holandské nemoci" kvůli závislosti země na výše uvedeném sektoru.

Pro analýzu autor využívá především kvantitativní techniky, které zahrnují výpočet korelačních koeficientů, lineární regresní odhad, využití deskriptivní statistiky a analýzu dat časových řad.

Nakonec bylo zjištěno, že země, přestože je do značné míry závislá na vývozu z ropného a plynárenského sektoru, pravděpodobně nespadá pod popis země trpící "nizozemskou chorobou". Bylo zjištěno, že příspěvek ropy je vysoký k reálnému HDP země, ale země se pokouší diverzifikovat svou ekonomiku snížením závislosti na ropném a plynárenském sektoru

Klíčová slova: Kazachstán, ropa, plyn, vývoz, ekonometrická analýza, dovoz

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List of abbreviations

BLUE	Best Linear Unbiased Estimator
GDP	Gross Domestic Product
OEC	Observatory of Economic Complexity
HS	Harmonized System

BG	Breusch-Godfrey
OLS	Ordinary Least Squares
RCA	Revealed Comparative Advantage
USD	United States Dollar
COV	Coefficient of Variation
MU	Metric Thermal Unit
CSTO	Collective Security Treaty Organization
UN	United Nations
EU	European Union
USA	United States
CIS	Commonwealth of Independent States
WTO	World Trade Organization
EAEU	Eurasian Economic Union
USSR	Union of Soviet Socialist Republics
FDI	Foreign Direct Investment
EPCA	Enhanced Partnership and Cooperation Agreement
SOE	State-Owned Enterprise
OPEC	Organization of the Petroleum Exporting Countries

1 Introduction

The Republic of Kazakhstan, located in Central Asia, is building a name for itself in the worldwide oil and gas market. Because of its vast oil and natural gas reserves, the nation is one of the top oil producers in the world. These deposits, which have also helped the economy, contributed to the nation's success. This diploma thesis will analyse the different ways in which oil and gas have an impact on the economy of Kazakhstan and will also examine the ways in which international trade is conducted within the oil and gas industry. Kazakhstan is the ninth-largest country in the world and is located in both Europe and Asia at the same time. It is the largest landlocked country in the world and has borders with Russia, China, Kyrgyzstan, and Turkmenistan. With a population of approximately 19 million people, it is also the most populous landlocked country. Because of the country's central location, trade routes are simpler to reach, which has been an essential factor in the country's rapid economic development.

As a result of the considerable oil and natural gas reserves it possesses, Kazakhstan is a significant player in the energy business on a worldwide scale. The Tengiz, Kashagan, and Karachaganak fields are significant contributions to the country's energy endowment, which is sometimes regarded as being among the biggest in the world. As a result of the richness of these reserves, a number of multinational oil and gas firms have established operations in the vicinity. The extraction of oil and gas in Kazakhstan has witnessed significant growth during the past several decades. As a result of the country's robust exploration and production industries, significant quantities of oil and gas have been extracted from the ground.

The oil and gas business in Kazakhstan is essential to the overall economy of the nation. This diploma thesis will analyse how much of a contribution the industry makes to the overall income and production of the country. The primary objective of this diploma thesis is to investigate Kazakhstan's oil and gas exports and to evaluate the effects that these commodities have had on the economic climate of the nation.

This graduation thesis has a significant amount of weight, both intellectually and professionally. Academically speaking, it is a contribution to the existing body of work on the oil and gas sector by conducting an analysis of the dynamics of international commerce

and the numerous effects that it has on the economy of Kazakhstan. Additionally, it aids in the comprehension of the challenges and opportunities presented by the production of oil and gas in nations with low per capita income. The findings of the study may be useful for a variety of audiences, including policymakers, industry stakeholders, and investors. Knowledge of the worldwide trade patterns of the country as well as the influence that oil and gas have on the economy may help enhance policy decisions, resource allocation, and long-term economic growth in Kazakhstan.

As a consequence of the investigation that was carried out for the purpose of this diploma thesis, fresh perspectives on the connection that exists between the global oil and gas trade and the economy of Kazakhstan ought to be made available. Through an examination of the oil and gas industry's exploration and production methods, export patterns, foreign direct investment, and social implications, this study intends to shed some light on the intricate relationship that exists between Kazakhstan's oil and gas business and the expansion of the country's economy.

2   Objectives and Methodology

2.1   Objectives

The thesis has the main objective of analysing the oil and gas sector of the Republic of Kazakhstan, which is often regarded as the main source of income for the country. As an additional goal, the thesis is also concerned with the identification of whether the case of the country can be classified as a case of the "Dutch disease" due to the country's dependence on the aforementioned sector.

Ultimately, it is possible to formulate a series of research questions that will help to reach the main goal of the thesis. These questions are:

1) What is the position of exports from the oil and gas industry in the hierarchy of the country's total exports?
2) Do oil-related variables significantly contribute to the country's GDP?
3) Does the country have the revealed comparative advantage in crude petroleum?
4) What is likely to be the development of the industry in the nearest future?
5) Who are the most important trading partners importing Kazakh oil and gas?

2.2   Methodology

In order to answer those questions, a series of quantitative methods as a basis for the diploma thesis is selected. Those techniques represent different domains of economic and statistical analysis and will be mentioned in further paragraphs of the thesis methodology. However, before taking a deeper look at methods, it is first essential to specify the sources of collecting data and codes of commodities to be analyzed (according to the harmonized system). The thesis uses the OEC database for extracting data related to trade, such as shares and annual values for groups of commodities. For the econometric and descriptive analyses, the data mainly The World Bank is used. The Bureau of National Statistics of Kazakhstan is also used for additional reference data. All data used and analyzed in the thesis is of a time-series nature mainly associated with the time frame of 23 years – from 2000 to 2022. Additionally, the thesis is essentially concerned with the analysis of two main representatives

of the oil and gas sector – HS2709 (crude petroleum or crude oil) and HS2711 (petroleum gas or natural gas).

In the thesis, one of the first analyses employed is the analysis of time series, which is mainly done with the help of scatterplots reflecting the development of variables in time. Selecting time series data for the analysis was crucial in order to understand how the situation was evolving around the industry, which can be helpful for the purpose of understanding if there is any structural change in the attitude of the Kazakh government towards the lucrative sector.

In addition to the time series analysis, the next kind of analysis that is implemented in the thesis is descriptive statistics, which is used for understanding the main insights related to datasets. In the analysis, the diploma thesis is concerned with the implementation of measures of central tendency (median, mean, mode, min and max), as well as measures of variation (standard deviation, coefficient of variation, range). Formulae for the majority of these measures are shown below:

$$\bar{\bar{X}} = \frac{\sum X_1,...X_n}{n} \tag{1}$$

$$\tilde{x} = \begin{cases} \frac{n+1}{2}, for\ odd\ n \\ \frac{\left(\frac{n}{2}\right)+\left(\frac{n}{2}+1\right)}{2}, for\ even\ n \end{cases} \tag{2}$$

$$Range = Max - Min \tag{3}$$

$$S = \sqrt{\frac{\sum(x_i-\bar{x})^2}{n-1}} \tag{4}$$

$$V = \frac{S}{\bar{x}} \tag{5}$$

The third kind of analysis used is the most complex one as it involves many different steps and techniques. For the purpose of quantifying the effect of individual variables on the country's GDP, as well as identifying their significance, it is essential to implement a linear

regression analysis. There are many different approaches to the estimation of parameters of exogenous variables, but the estimation relies on the OLS approach with the Gauss-Markov Theorem as the basis. The estimation is performed in Gretl, whose algorithm is based on the formula:

$$OLS = (X^T X)^{-1} X^T Y \qquad (6)$$

In addition to the original estimation, the thesis performs a series of verifications that will help to identify if the estimated model is subject to econometric and statistical problems, such as insignificance of the whole model, incorrect specification (verified with the help of Ramsey's RESET test), autocorrelation (verified with the help of the BG test), heteroscedasticity (verified with the help of the White's test), absence of normality (verified with the help of Jarque-Bera test), multicollinearity (verified with the help of correlation matrix with Pearson correlation coefficients).

$$r = \frac{\sum(x_i - \bar{x})(y - \bar{y})}{\sqrt{\sum(x_i - \bar{x})^2 \sum(y_i - \bar{y})^2}} \qquad (7)$$

Alongside the computation of Pearson correlation coefficients, t-ratios are calculated for the verification of the statistical significance of correlation coefficients. Those ratios are tested at the level of five per cent of significance and calculated as follows:

$$t = \frac{r_{xy}\sqrt{n-2}}{\sqrt{1 - r_{xy}^2}} \qquad (8)$$

At last, the diploma thesis implements the calculation of the RCA or Balassa index, which is used for the identification of the presence of a revealed comparative advantage. The index is calculated as follows:

$$RCA = \frac{Relative\ share\ of\ industry\ from\ the\ country's\ exports}{Relative\ share\ of\ industry\ from\ the\ world's\ exports} \qquad (9)$$

3 Literature Review

3.1 Foreign trade: overview of the current state of knowledge with regard to theories

Foreign trade is a complex and multifaceted phenomenon that has been studied by economists for centuries. Various theories have been developed to explain the patterns and benefits of international trade. Among these theories are absolute advantage, comparative advantage, the Heckscher-Ohlin (HO) theory, and the New Trade theory, which have played crucial roles in shaping our understanding of how countries engage in trade.

The concept of absolute advantage was introduced by the Scottish economist Adam Smith in his seminal work, "The Wealth of Nations" (1776). According to this theory, a country has an absolute advantage in the production of a good if it can produce that good using fewer resources than another country. In other words, a nation should specialize in producing goods in which it has an absolute advantage and trade with other nations for goods in which they have a similar advantage. For example, if a Country A can produce 10 units of cloth using fewer resources than Country B, while Country B can produce 10 units of wine using fewer resources than Country A, then it makes sense for Country A to specialize in cloth production and trade with Country B for wine. This way, both countries benefit from the efficiency gains achieved through specialization and trade (Schumacher, 2012).

David Ricardo expanded on this idea with his theory of comparative advantage in 1817. Comparative advantage argues that even if one country has an absolute advantage in producing all goods, there are still gains from specialization and trade. The key is to compare the opportunity costs of producing different goods between two countries. The country with the lower opportunity cost for a particular good should specialize in its production and trade with the other country. Using the example of cloth and wine again, if a Country A has a lower opportunity cost for producing cloth compared to a Country B, and Country B has a lower opportunity cost for producing wine, then it is mutually beneficial for them to specialize in their respective comparative advantages and trade with each other. This way, both countries can consume more of both goods than if they tried to produce everything domestically (Widodo, 2009).

The Heckscher-Ohlin (HO) theory, developed by Eli Heckscher and Bertil Ohlin in the early 20th century, takes a different approach by focusing on factor endowments. The theory suggests that countries will export goods that intensively use the factors of production they have in abundance and import goods that use the factors they lack. In other words, a country with abundant labor will specialize in and export labor-intensive goods, while a country with abundant capital will specialize in and export capital-intensive goods (Leamer, 1995).

However, critics argue that HO theory oversimplifies the complexities of the real world, as it assumes homogeneous factors of production and static comparative advantages. In reality, factors of production are diverse, and comparative advantages can change over time.

Other theories, such as the product life cycle theory and the new trade theory, have also contributed to the understanding of foreign trade. The product life cycle theory, developed by Raymond Vernon, suggests that a product goes through different stages in its life cycle, starting with innovation and ending with standardization. During the early stages, the innovating country has a comparative advantage, but as the product becomes standardized, production shifts to countries with lower production costs (Cao & Folan, 2012).

The New Trade theory, associated with economists like Paul Krugman, focuses on economies of scale and product differentiation. It argues that in industries with increasing returns to scale and differentiated products, a few firms may dominate the market, leading to intra-industry trade and specialization based on product diversity rather than factor endowments (Markusen & Venables, 1998).

In conclusion, the theories of absolute advantage, comparative advantage, and the Heckscher-Ohlin model have been pivotal in shaping our understanding of foreign trade. These theories provide different perspectives on the motivations behind international trade, from efficiency gains through specialization to factor endowments and distributional effects. While each theory has its strengths and limitations, collectively they contribute to a comprehensive framework for analyzing the dynamics of global trade and its impact on economic development.

3.2 Trade competitiveness: definition, essence and the role

Economic policies, such as trade policy, fiscal policies, and monetary policies, are the primary factors that determine a nation's level of competitiveness in international commerce. Countries with well-designed trade policies that foster openness, limit trade impediments and facilitate international collaboration frequently have a competitive edge in international business. Stability in the macro economy, low inflation, and a favourable atmosphere for business are all products of sound fiscal and monetary policy, and they all work together to make a nation more competitive in international trade (Farole et al., 2010).

The adoption of innovative technologies is directly responsible for the rise in commercial competitiveness. A competitive advantage may be gained in the international market by nations that place a high priority on innovation through the funding of research and development (R&D), the backing of startup businesses, and the development of new technologies. To keep up with the competition in international trade, one must have the ability to create and implement innovative technologies that not only raise production but also improve product quality and open the way for the development of whole new markets (Costantini & Mazzanti, 2012).

Human Capital: A Workforce That Is Both Highly Skilled and Well-Educated Is a Significant Factor in a Country's Ability to Compete in International Trade. Countries that invest extensively in educational possibilities, promote learning throughout one's life, and provide support for the expansion of human capital often perform well in international business. The availability of skilled labour increases a nation's potential to compete in international commerce because it increases productivity, encourages innovation, and enables enterprises to react rapidly to changing market conditions (Texeira, 2010).

Enhancements to the Worldwide Networks of Transportation, Communications, Energy, and Logistics Every one of these aspects has a role in determining a nation's capacity to compete in international business. When there is a solid foundation in place, there is a reduction in the costs of transportation and transactions, there is an ease in the flow of products and services, and the efficiency of the supply chain is boosted. The modern and

trustworthy infrastructure of a nation makes it easier for that nation to compete effectively in international commerce, join global value chains, and attract foreign investment (Francois, 2013).

The quality of a country's institutions, which includes its legal system, governance structure, regulatory framework, and levels of corruption, has a significant impact on the degree to which it is competitive in international trade. Strong institutions that ensure the protection of private property, enforce legal agreements, and promote equal opportunity and free market competition are beneficial to a nation's ability to compete successfully in international trade. In addition, successful public administration and governance procedures can result in the reduction or removal of bureaucratic red tape, an improvement in the ease with which business can be conducted, and an increase in the attraction of foreign investment (Méon & Sekkat, 2008).

Access to worldwide markets and the ability to diversify export destinations are two elements that might have an effect on a country's ability to compete effectively in international trade. When a nation has access to large markets, preferential trade agreements, and a varied export base, it is more able to manage the risks associated with overdependence on particular markets, absorb economic shocks, and expand market possibilities. It is also better able to handle the hazards associated with organizations in certain markets. Increased access to new markets is beneficial to both commercial growth and a company's ability to remain competitive (Levchenko, 2013).

3.3 Overview of the oil and gas industry

3.3.1 Essence of the industry

As production processes evolved and new machines were created, the world entered the search for a new source of energy that will help to run those new machines and ensure that the world will be able to undergo a new series of industrial revolutions. As a consequence of the search for a new alternative source of energy, the first ever documented modern sighting of oil happened in the 50s of the 19th century, when the oil started to be discovered largely with the help of new extracting machines in the United States, where the first industries were concentrated in Pennsylvania. However, it is essential to note that the

industry itself accounts for more than 2000 years of history since there are reports of the utilization of oil in ancient China, Greece and by other civilizations that called petroleum the "rock oil" (Craig et al., 2018).

However, as time progressed and the techniques of processing and refining oil also evolved, it allowed the extraction of production of other by-products from oil that will be briefly discussed in the next chapter. From the early 20ᵗʰ century, with the introduction of cars, planes and other machines of war, the importance of the oil industry started to rise significantly with the United States being ahead of other countries thanks to its rapid industrialization and west uninhabited territory, where it was significantly easier to extract oil (Lin, 2016).

Today, the industry accounts for the biggest share of international foreign trade and countries often find themselves in endless conflicts over the fight for this precious resource. On the other hand, modern technologies allowed engineers and companies to extract oil not just from the hard surface presumably situated in rural areas, but also from oceans and seas. As a matter of fact, new technologies help to locate vast reserves of oil in the seabed, which is then subject to the process called offshore drilling helping to extract the valuable resource. On the other hand, the whole essence of the industry is downright dangerous for the environment and surely enough, the transition to a sustainable economy suggests a slow shift from the utilization of fossil fuels towards the so-called green energy. In fact, supporters of the sustainable development theory often refer to offshore drilling as one of the worst practices that not just accelerate global warming but actually lead to natural disasters, such as the one that happened in 2010 and referred to as the Deepwater Horizon oil spill that killed millions of ocean wildlife species because of the uncontrollable spill of oil in the area that could not anyhow be controlled (Beyer et al., 2016).

3.3.2 Products derived from the industry

The oil and gas industry is an essential component of the economy of the entire world since it is both a substantial source of energy and a provider of a broad variety of products that are necessary for a number of different types of businesses. This article will investigate and analyse the many products that may be obtained from the oil and gas industry, focusing on the relevance of these goods and the uses they have in modern society. By gaining a grasp

of these items, one may obtain new perspectives on the significant role that this industry plays in both day-to-day lives and the economy as a whole.

- **Transportation fuels**

Fuels for automobiles and other types of vehicles are among the most important by-products of the oil and gas industry. The refining of crude oil results in the production of petrol, diesel fuel, and aviation fuel; these are the fuels that are used to power vehicles, trucks, trains, ships, and aircraft. The majority of passenger cars continue to use petrol as their primary fuel for their internal combustion engines due to the high energy density and efficiency of petrol. Diesel fuel, on the other hand, is utilised more frequently in heavy-duty trucks and industrial machines due to the increased amount of energy it contains and the efficiency it provides. Furthermore, aviation fuels are necessary for powering aircraft, which in turn enables worldwide air transportation, which in turn facilitates economic expansion and connectivity (Halanych et al., 2021).

- **Petrochemicals:**

The production of petrochemicals is yet another important category of goods originating from the oil and gas industry. The refining and processing of crude oil and natural gas are the processes that result in the production of these chemical compounds. Petrochemicals are used as the fundamental components in the production of a diverse array of goods, such as plastics, rubber, fibres, fertilisers, and medicines. Plastics, in particular, are ubiquitous in today's culture, since they can be found in a wide variety of products, including those that are used in the construction industry, electronics, medical equipment, and packaging materials. In addition, petrochemicals are an essential component in the manufacturing of synthetic fibres like polyester and nylon, both of which find widespread application in the textile and garment sectors (Meyers, 2019).

- **Lubricants and greases:**

The oil and gas industry is responsible for the production of several useful goods, including lubricants and greases. These compounds are put into equipment and engines to

lessen the amount of friction and wear that occurs between moving parts. Lubricants, such as motor oil, gearbox fluid, and hydraulic oil, are used to make sure that machinery runs smoothly, minimise heat, and extend its lifespan. Because of their increased viscosity, greases are frequently used in applications that need adhesion to surfaces. Some examples of these applications are wheel bearings in automobiles and industrial machinery. A significant reduction in both the effectiveness and dependability of machinery would result in the absence of lubricants and greases (Honary & Richter, 2011).

- **Natural gas**

Natural gas is an important by-product of the oil and gas industry, in addition to the fuels and petrochemicals that are produced by the industry. Natural gas is a fuel that may be used for a wide variety of purposes, including the creation of power and heat, as well as a feedstock for a number of other industrial procedures. Because of its reduced carbon emissions and higher energy efficiency compared to coal and oil, it is becoming an increasingly popular option. Power plants that run on natural gas are an essential component of the creation of electricity since they offer a dependable and cleaner source of energy. In addition, natural gas is utilised for heating and cooking in home and commercial settings, which decreases dependency on fuels that produce more pollution (Economides & Wood, 2009).

- **Other products**

In addition to the items stated above, the oil and gas industry is responsible for the production of a wide variety of additional important compounds. In regions where there is a lack of access to natural gas infrastructure, liquefied petroleum gas (LPG), which is used as a fuel for heating, cooking, and transportation, is one of the available alternatives. In addition, this industry is responsible for the production of asphalt and bitumen, both of which have a variety of uses, including those related to road building and waterproofing. Cosmetics, detergents, paints, and coatings are just some of the sectors that benefit from the use of speciality chemicals that are derived from the oil and gas industry. Last but not least, the industry contributes to the generation of electricity through the use of power plants that

are fuelled by oil and gas. These plants provide a dependable supply of energy during times of high demand for it (Waheed, 2015).

3.3.3 Major Players in trade and production of oil industry's derivatives

The biggest countries and obviously competitors of Kazakhstan were already discussed in one of the earlier chapters, but it is still relevant to briefly specify the world's leading producers and suppliers of oil to the international market. Thus, it would be sensible to start from the neighbour of Kazakhstan – the Russian Federation, which is often regarded as either the first or the second biggest supplier of oil to the international market. In fact, the ascension of the Russian Federation to the Olympus of oil trading happened not so long ago as for the United States. Before the 70s, the USSR was mainly concentrated on supplying oil to its partners from the Warsaw Pact and other communist economies thus establishing stronger ties and dependency on the Union itself. However, as the oil shocks happened in the 70s and the economies of the Western block were not any more confident in the cooperation with Arabic states, they decided to shift to their Eastern neighbour thus trading openly with the communist state. In fact, the case of the USSR is traditionally regarded as an example of a traditional Resource Curse – under the rapid inflow of revenues from oil, the country was reluctant to diversify its economy with economic reforms to become less dependent on oil. As a matter of fact, it is often considered that the dependency on oil eventually led to the fall of the USSR due to the fact that international prices have fallen in the late 80s leaving the country in a serious economic crisis and inability to impose the same level of control over its republics. Russia, in that regard, seems to be following in the footsteps of the USSR by being addicted to its "oil needle" once more and being reluctant to develop small businesses instead (Viktorovna et al., 2014).

Compared to the Russian Federation, Gulf countries – notably Saudi Arabia, United Arab Emirates, Qatar, Kuwait and others are in fact learning from the mistakes of the USSR and despite being the world's leaders in the production of oil and oil reserves, those countries constantly attempt to diversify their economies and find an alternative source of revenue. For the region, it is possible to say that they have to some extent succeeded as it recently became a tourism and business hub. Overall, it is essential to note that the OPEC (Organization of the Petroleum Exporting Countries) which was mainly founded by those countries probably remains the world's most influential and powerful cartel. Ultimately, it

is essential to specify that OPEC is not represented solely by Arabic countries, but also by African states (Nigeria, Libya and others) and Venezuela (Ratti & Vespignani, 2015).

Compared to the majority of OPEC countries, Iran faces a slightly different development which is largely influenced by countless sanctions that the country has been facing for the last 44 years. Compared to other Gulf countries, neither the country want nor it can anyhow become a financial centre or centre of tourism due to its complicated economic situation and theocratic autocracy. In addition to that, it is suggested that the country's SOEs focused on the production of oil are something that prevents the country from innovating its economy and performing a structural transformation resulting in higher productivity (Cordesman, 2007).

Finally, it is essential to briefly mention that despite the image of a highly innovative and service-oriented economy, the United States still remains one of the world's biggest producers of oil. Yet, the country is still keen on buying oil overseas and until 2022, one of the largest partners in that domain for the USA was Russia. However, even despite its tendency to buy oil overseas, the country is still regarded as one of the world's biggest producers of oil. The same applies to the other emerging power in the international arena – China (Chen et al., 2020).

3.4 Dutch Disease and natural resource curse: role of the discourse for modern oil-producing economies

Dutch disease and the natural resource curse are both phenomena that describe why countries highly abundant in a given natural resource are not always successful and how it can result in an opposite effect where the discovery of a natural resource and concentration of the entire economy around it can result in a lack of economic development and growth (Torvik, 2001).

Starting with the Dutch disease, the term was initially described in "The Economist" journal in 1977 and it was used for the description of the effect that the discovery of the Gronengen natural gas field in 1959 had on the Dutch economy. In fact, the mechanism of Dutch disease is pretty simple and straightforward (Corden, 1984).

1. A country discovers a particular natural resource and starts to extract the resource and export it to other countries.
2. An increase in exports and an increased interest from international partners in the resource results in a strong appreciation of the domestic currency.
3. The appreciation of the domestic currency leads to a drop in revenues for other sectors and industries since they lose their competitiveness. Notably, agriculture seems to be suffering the most from the Dutch disease.
4. As a consequence of this, other sectors start to deteriorate, factors of production move towards the resource-based industry, the unemployment increases.
5. Focusing on just one industry makes the country extremely vulnerable to market shocks also known as the "boom and bust" cycles (Fardmanesh, 1991).

In recent economic history, there are many cases of Dutch disease. According to scholars and scientists, apart from the Netherlands, which actually gave the name to the phenomenon, the following countries have at some point suffered from the aforementioned problem: USSR and Russia (from 1970 until the present day), Nigeria (from the 90s until the present day), Azerbaijan (from the 90s until the present day), Iran (from the 80s until the present day), Indonesia (in the 70s), Venezuela (from the 00s until the present day) and Canada (in the early 2000s and in 2014-2015) (Dvoskin & Feldman, 2022).

Contrary to the Dutch disease, the Resource Curse is a larger term used for the description of all misfortunes of countries having a high abundance of natural resources but being unable to fully gain from them. Traditionally, the following are consequences of the Resource curse:

1. Vulnerability to "boom and bust" as a result of tying economies to the production of a given resource.
2. Finite nature of the sector. Due to the fact that there is always a limit to the extraction of natural resources, one day they will be gone and economies, once not reinvesting revenues from the sector, will find themselves with nothing.

3. Low-level of technologies. Industries associated with natural resources do not traditionally employ high levels of technology thus decreasing the degree of innovation for countries (Ross, 2015).

However, not every case of abundance of natural resources in history resulted in the country's inability to properly manage those resources. Undeniably, the outstanding policy of Norway and the introduction of their National Investment Fund is a perfect manual on how to avoid being trapped in the "paradox of plenty".

3.5 Kazakhstan: current state of knowledge about the country's economy, trade and imprint on the international arena

3.5.1 Sectors of the national economy and the specialization

The very first chapter of the diploma thesis is dedicated to the overview of studies about the current state of the Kazakh economy, whereas the first sub-chapter is dedicated fully to the structure of Kazakh GDP. To begin with, it is essential to start by specifying that the Gross Domestic Product is regarded as one of the main indicators shedding light on the performance of individual economies. Despite the fact that the indicator itself might be outdated and is often criticized for its lack of emphasis on the actual development, as Grishin et al. (2019) specified it, the indicator is still useful for understanding the structures of individual economies and their specializations. After all, the GDP is in fact a universal measure that helps economists to see what accounts for the biggest share of the value added in an economy (Van Den Bergh, 2009).

Kazakhstan, according to the classification of international organizations, such as the UN, is classified as an upper-middle-income country. To be more specific, the country has been labelled as a country in transition – the shared history under the rule of the Soviet Union has definitely taken a toll on the country, so it is still considered that the country is on its final steps to finish the transition. Therefore, it is vital to understand that Kazakhstan faces a situation similar to other former Soviet republics, which prompts the country to stand out from the classification of developing countries (Karasayev et al., 2019).

Developing countries are often classified by the lack of human capital and a huge lack of capital represented by factories, production, etc. For the case of Kazakhstan and other former Soviet countries, it is not applicable since the long history under Soviet rule not actually left only a trail of negative consequences and bitter memories, but also left a huge number of companies and productions, which had been state-owned in the past but had fallen in private hands during the first wave of the privatization in the 90s. Clearly, scholars coincide in the suggestion that the history of Soviet rule in Kazakhstan has indeed left one of the most positive effects for Kazakhstan among the post-Soviet countries. On the other hand, it is pretty apparent that Kazakh former state-owned enterprises and other enterprises that had been built during the Soviet reign are subject to depreciation or amortization, which is noted to be one of the biggest problems for the countries of the former Soviet Union, such as Russia, Armenia and Uzbekistan, which suffer from the problem the most (Mandel, 2012).

In fact, the concentration of numerous production sites in Kazakhstan contributed in a significant way to the current structure of the Kazakh economy. This contribution resulted in a relatively high share of the industrial sector in the total GDP of the country. Nevertheless, it is first vital to present the structure of Kazakh GDP as of 2021.

As it becomes pretty apparent and some readers might find it rather surprising, the country's most important sector according to its relative share is in fact the tertiary sector or the sector of service. The surprising nature of the finding is definitely explained by the picture that the country has, whereas countries actively exporting oil are usually regarded as countries of just one sector, where other sectors suffer in a serious way. Effectively, according to various studies, Kazakhstan has a rather healthy structure of the economy, where the share of agriculture is kept to a minimum, but it is still present, which is crucial for ensuring food security and self-sufficiency in the most important products, such as wheat, maize, dairy, etc. On the other hand, it becomes pretty apparent that lately, the country started to increase the share of agriculture in the total economy, which is expected to be tied to a series of reforms that are believed to help the country to enter the path of sustainable development and partially ease the grip that the oil and gas sector has on the country's economy (Zhunussova & Dulambayeva, 2019).

Yet, the situation with the secondary or industrial sector is pretty straightforward – Kazakhstan is a country significantly dependent on industry, where the oil and gas sector has the highest importance. In fact, despite the image of an oil-exporting country, the situation of Kazakhstan is nowhere near the situation of other major exporters of oil. According to some studies, considering Kazakhstan as one of the world's biggest exporters of oil and gas is definitely not correct since the country's abundance in the commodity cannot anyhow be compared to Gulf countries, the USA and its nearest neighbour – the Russian Federation (Jumadilova, 2012).

In fact, scholars suggest that the presence of the Russian Federation and its supposed political influence over Kazakhstan are aspects that partially limit Kazakhstan to just specific levels of oil production that will not anyhow influence the situation in the region and not impose any competition on Russia. On the other hand, it is vital to specify that the most important sector for the country remains to be the tertiary one, which is mainly focused on the domestic population, which has a number of around 19 million people. Apart from being aimed at satisfying the needs and desires of the domestic population, Kazakhstan is regarded as the most prosperous economy of the Central Asian region, so the country is also focused on supplying neighbouring countries, such as Kyrgyzstan and Uzbekistan with high-quality services, such as accounting, retailing, etc. Relatively good relations with the West and other key players of the international economy, such as Turkey, Iran and Russia helped the country to become a bridge between competing parties (Assylbekova et al., 2021).

Overall, the country is classified as one of the most prosperous and stable ones even despite a major conflict that happened in 2022 and involved the entry of CSTO peacemakers to the country. The country has a series of developed industries, and the country is aimed at foreign trade with its closest neighbours from the Central Asian region, whilst also trading and gaining from its foreign trade operations with Russia, Turkey and the European Union. All in all, scholars believe that the country is still mainly oriented toward the former republics of the Soviet Union due to common language (Russian is an official language in Kazakhstan), shared religion (all Central Asian countries are in their majority Muslim) and similar economies (Pannier, 2022). Figure 1 presents the map of the post-Soviet space.

Figure 1, post-Soviet world

Source: The Guardian, 2014

3.5.2 Participation in international organizations and trading blocks in the region and the world

In modern economic theory, the countries' participation in different international treaties, organizations and trading blocs is regarded as one of the main driving forces behind positive economic cycles. This arises from the fact that countries participating in similar organizations, especially the regional ones, are traditionally keen on trading with each other more actively and with fewer barriers involved, which inevitably results in higher welfare

for inhabitants of each of the concerned countries. Of course, the stated above is a neo-liberal approach to trade with active liberalization and subsequent economic prosperity arising from it. Given the popularity of the paradigm and the global movement towards lower barriers for trade, it is essential to take an insight into the participation of the country in international organizations and major trade agreements (Chorev, 2005).

For sure, it is essential to start by saying that first of all, Kazakhstan gained its independence on the 16th of December 1991 becoming the very last republic to leave the Soviet Union, even after the territory that was soon to become the Russian Federation. Following the dissolution and gaining independence, the country first made its effort to join one of the most important international organizations – the United Nations, which happened in March 1992. The step of joining the UN sent a powerful signal to the rest of the world that an independent Kazakhstan emerges in the international arena and it is ready to negotiate with other major players of the economy. The step of joining the United Nations is considered to be one of the most important steps and catalysers of the globalization process, which was incredibly important for a country that had never existed before under the given name (Zhanbulatova et al., 2017).

In fact, despite the country's effort to participate in the world economy and cooperate with Western partners on equal terms, it is vital to stress that Kazakhstan did not forget about the cooperation with the former republics of the Soviet Union. Despite the absence of Kazakhstan's former president – Nursultan Nazarbaev during the process of signing the Belovezha Accords, which laid the founding stone for the creation of the Commonwealth of Independent States, Kazakhstan alongside other former republics of the USSR was genuinely interested in participating in a newly established economic area under the condition of equal rights for all participating members. As a consequence of efforts made by Kazakhstan's president, all countries signed the Alma-Ata Protocol, which contained founding declarations and principles of the Commonwealth of Independent States, and was signed by all former Soviet republics with the exception of Baltic states and Georgia, which initially were not at all willing to participate. Until today, Kazakhstan remains a member of the CIS (Puffer & McCarthy, 2018).

However, the creation of the CIS was not the only organization that was created for the purpose of establishing a higher degree of integration between the former Soviet states. Kazakhstan also became a part of the EAEU or The Eurasian Economic Union limited barriers for trade and free flow of goods, services and labour to a minimum between participating former Soviet republics. Therefore, it is essential to note that during the very first years of its independence, Kazakhstan mainly aimed at cooperation with the former eastern block rather than burning all bridges and trying to join the western block as the Baltic states decided to. In fact, the Eurasian Economic Union is not regarded as one of history's most outstanding and well-functioning blocks due to asymmetry and the prevailing role of Russia but it allows the country to enjoy benefits from a higher degree of liberalization that helps the private sector to freely conduct trade with Russia, which is definitely one of the world's most resource abundant countries (Vinokurov, 2017).

Yet, participation in the Eurasian Economic Space and CIS is not the only treaty, in which Kazakhstan participates alongside its former Soviet neighbors. CSTO or the Collective Security Treaty Organization is another organization, which Kazakhstan decided to join in 1992 in order to strengthen ties with the Russian Federation even more and also to protect its sound from potential issues in the future. In fact, in 30 years Kazakhstan became the first-ever republic to officially call for a peacekeeping mission that was supposed to help to stop the ongoing coup d'état in the country (Cooley, 2022). In fact, there are quite many different agreements that had been signed between the former Soviet republics and their entire overview is presented in Figure 2.

Figure 2, the overview of treaties between the former USSR republics
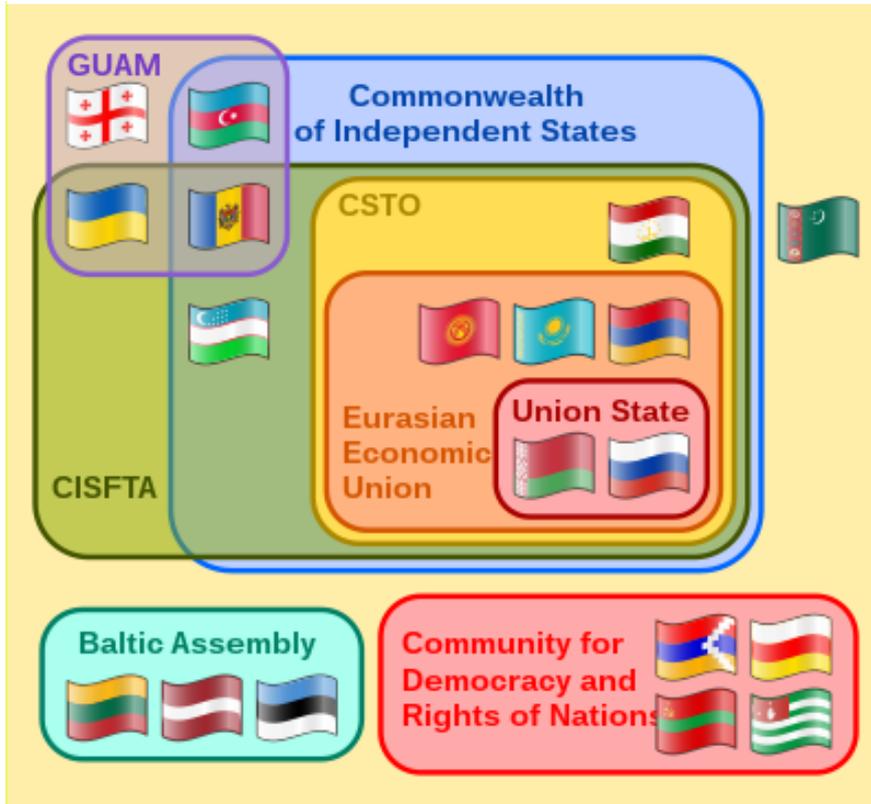
Source: Media Investment Insider, 2020

At last, it is essential to mention two very important events that took place quite recently and that are associated with foreign trade. The first event is joining the WTO which happened in 2015 with Kazakhstan becoming the 162nd member of the international organization whose main goal lies in the liberalization of trade. In fact, the reason behind joining the WTO is expected to be pretty straightforward – Kazakhstan wanted to explore international markets and not be fully focused on trade with the former Soviet republics, so the WTO offered the country an ideal platform for negotiating new agreements and finding new partners. Scholars believe that this event marked another crucial milestone of Kazakhstan's globalization that is expected to bring countless series of benefits to the country by increasing its trading potential (Amirbekova et al., 2017).

Another important treaty signed by Kazakhstan was the treaty between the Central Asian Republic and the European Union, which entered into full force in March 2020, and it increased the degree of cooperation between the two in 29 areas – notably in economy, education, and trade and investment. The agreement under the acronym EPCA (Enhanced

Partnership and Cooperation Agreement) became the very first agreement between the EU and a Central Asian republic marking a huge success in Kazakh diplomacy and politics. In fact, the reason behind establishing the agreement is pretty apparent – the EU accounts for almost 40% of Kazakhstan's foreign trade while also being the biggest foreign investor contributing to more than 50% of the country's total inflow of FDI. In exchange for better access and lower tariffs for Kazakhstan, Kazakhstan also opens its doors to European partners by creating a legal basis for the cooperation, harmonizing its services and products and offering preferential access to the Kazakh market, which is expected to become an alternative to the Russian Federation, which has always been a troubled partner for the EU (Kembayev, 2021).

3.5.3 Domestic strategy of economic development and growth

The domestic economic strategy of Kazakhstan is characterised by a mixed approach that blends features of a market economy with involvement by the state. This hybrid approach is known as the mixed approach. The administration has worked towards the implementation of a variety of policies that aim to foster economic growth, diversity, and stability across the nation. This answer will attempt to give a more in-depth examination of Kazakhstan's strategy by taking into account the many different aspects and approaches that have been utilised (Peck, 2004).

In point of fact, Kazakhstan has executed important economic changes in order to liberalise and modernise its economy. These reforms have been undertaken in recent years. The goal of these measures has been to improve the climate for doing business and to draw in more investment from overseas. The government has made steps to streamline rules, cut back on bureaucracy, and increase transparency in an effort to create an environment that is more conducive to investment. These kinds of initiatives have shown to be essential in luring both local and foreign investors, boosting entrepreneurial activity, and promoting overall economic expansion (Junisbai & Junisbai, 2005).

Consequently, Kazakhstan has made the diversification of its economy a top priority in an effort to lessen its reliance on revenue from oil and gas exports. The nation's goal is to build an economy that is more robust and sustainable by diversifying its economic base beyond the extractive sectors. The expansion of industries such as agriculture,

manufacturing, information technology, and tourism are all components of this approach to strategic planning. In order to lend assistance to the process of diversification, the government has set up free trade zones and special economic zones, both of which provide financial incentives and other advantages to commercial enterprises. These zones work as platforms for attracting investment, boosting innovation, and encouraging enterprises that are focused on exporting goods and services (Kaiser & Pulsipher, 2007).

In the same vein, Kazakhstan's economic strategy has placed a significant emphasis on the expansion of the country's physical infrastructure. The government has made significant investments in the infrastructure of the nation's transport networks, energy sector, and digital connection. These activities are geared towards fostering economic integration, improving regional and international commerce, and enhancing logistical capabilities. In order to position itself as a transport and logistics centre in Central Asia, Kazakhstan is working to establish a comprehensive infrastructural framework. This will help to facilitate trade flows and attract foreign direct investment (Bayadilova et al., 2020).

In addition to this, Kazakhstan has been an active participant in several projects aimed at regional and worldwide economic integration. The Eurasian Economic Union (EAEU), whose goals include the establishment of a common market and the promotion of increased economic cooperation among its member nations, counts this nation as one of its members. Kazakhstan benefits from its participation by gaining access to a wider market, reduced tariffs, and a framework for more closely coordinating its regulatory policies. In addition, Kazakhstan has been working towards establishing trade agreements and partnerships with a variety of nations in order to broaden its export markets and attract international investment. These agreements not only make international commerce easier, but also encourage the exchange of information and ideas, the transfer of technologies, and the formation of international partnerships (Konopelko, 2018).

4 Practical Part

4.1 Time Series Analysis

The first stage of the analysis involves the analysis of time series data. The analysis will generally help to understand the development of macroeconomic indicators in Kazakhstan over the course of 23 years. The dataset for the analysis is presented in Table 1.

Table 1, the dataset used in the analysis

Year	Exports, billion 2015 constant USD	Price of Oil, USD	Inflation, %	Unemployment, %	Exchange rate, tenge/USD	Gas Price per Metric Thermal Unit
2000	35.46	28.66	13.18	12.75	142.13	3.45
2001	34.82	24.46	8.35	10.43	146.74	3.87
2002	40.60	24.99	5.84	9.33	153.28	2.67
2003	43.65	28.85	6.44	8.78	149.58	3.49
2004	48.54	38.26	6.88	8.40	136.04	3.76
2005	48.73	54.57	7.58	8.13	132.88	5.92
2006	52.05	65.16	8.72	7.79	126.09	8.21
2007	56.78	72.44	10.85	7.26	122.55	8.14
2008	57.29	96.94	17.14	6.63	120.30	13.14
2009	50.48	61.74	7.32	6.55	147.50	8.86
2010	52.04	79.61	7.40	5.77	147.36	8.22
2011	52.25	111.26	8.42	5.39	146.62	10.60
2012	54.76	111.57	5.10	5.29	149.11	11.98
2013	56.24	108.56	5.85	5.20	152.13	11.19
2014	54.83	98.97	6.71	5.06	179.19	10.46
2015	52.58	53.03	6.67	4.93	221.73	7.31
2016	50.22	45.13	14.55	4.96	342.16	4.35
2017	54.23	54.71	7.44	4.90	326.00	5.74
2018	59.44	71.34	6.02	4.85	344.71	7.92
2019	60.63	64.28	5.25	4.80	382.75	4.45
2020	53.78	41.96	6.77	4.89	412.95	3.18
2021	55.01	70.86	8.04	5.16	425.91	15.91
2022	60.62	100.93	14.96	5.01	460.17	37.52

Source: The World Bank, 2023

The first step would be analyzing the development of the exports variable of Kazakhstan in order to understand the situation with the country's overall production. As it already becomes obvious by looking at the table, the value of the indicator was constantly rising. Nevertheless, it is essential to continue first to the scatterplot indicating the development of the variable in time, which can be found in Figure 3.

Figure 3, exports (billions of 2015 USD) between 2000 and 2022
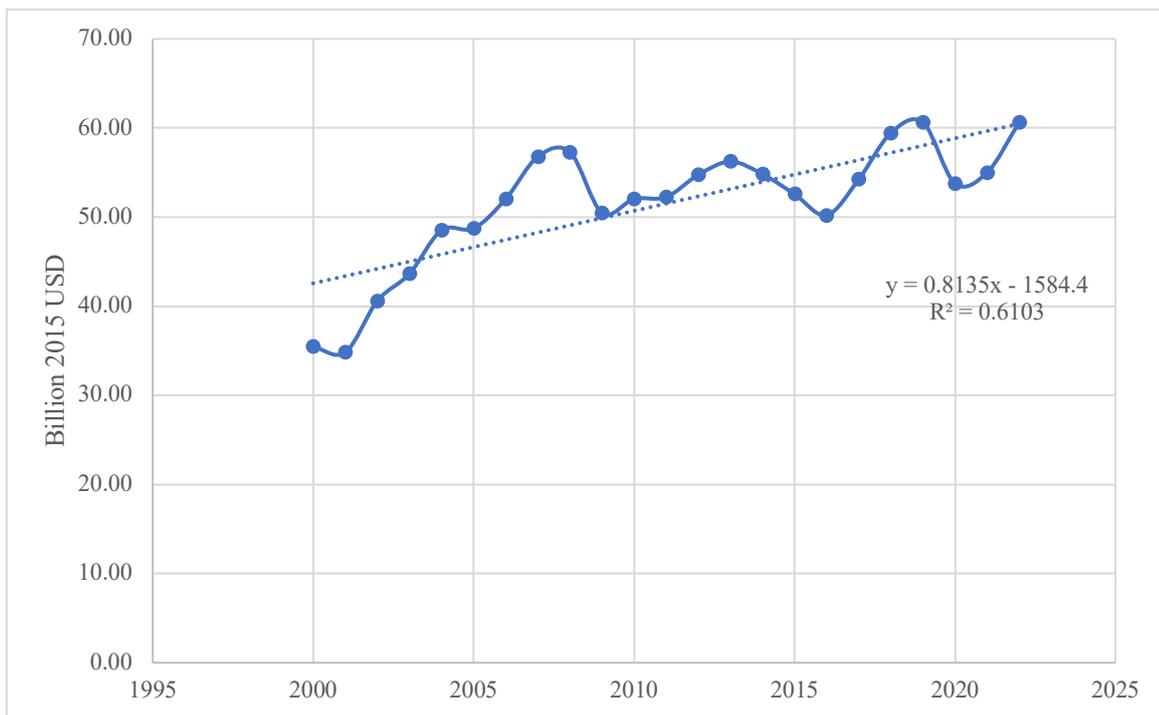
Source: own elaboration based on The World Bank, 2023

As it becomes pretty apparent at first glance, the country's value of the exports expressed in billions of 2015 constant USD has been rising. According to the linear trend, the annual increment in the value of the exports is equal to 0.8135 billion USD, which is a great result suggesting that the country adopted a really good pace of exports development. The results of the trend can be used for analysis and further forecasting due to its outstanding quality ($R^2 = 0.61$). At the same time, it is essential to comment on periods, where the country's exports actually dropped, and the development was slightly halted. Surely enough, there are just three years when there was a noticeable drop in the exports – 2008, 2016, and 2020. For the first year, it is pretty apparent that the reason behind the phenomenon is the Great Recession that inflicted serious damage to the world economy. The second one is explained by the change that was made by the Republic of Kazakhstan and a shift from a fixed

exchange rate regime to the floating one. As for the year 2020, the main reason behind the drop is the pandemic of coronavirus. Thus, summing up the development of the country's GDP, it becomes pretty apparent that there were only two cases that halted the economic expansion of Kazakhstan, and they were of exogenous nature rather than occurring due to internal economic situation or decisions. Therefore, it is surely possible to come up with the conclusion that the country went through a very successful economic period.

One of the main questions that are asked in the diploma thesis is related to the role that the oil and gas sector plays in the country's economic expansion. Therefore, it is logical to observe the development of the international average price per barrel of oil, whose development in time can be found in Figure 4.

Figure 4, oil price (USD/barrel) between 2000 and 2022
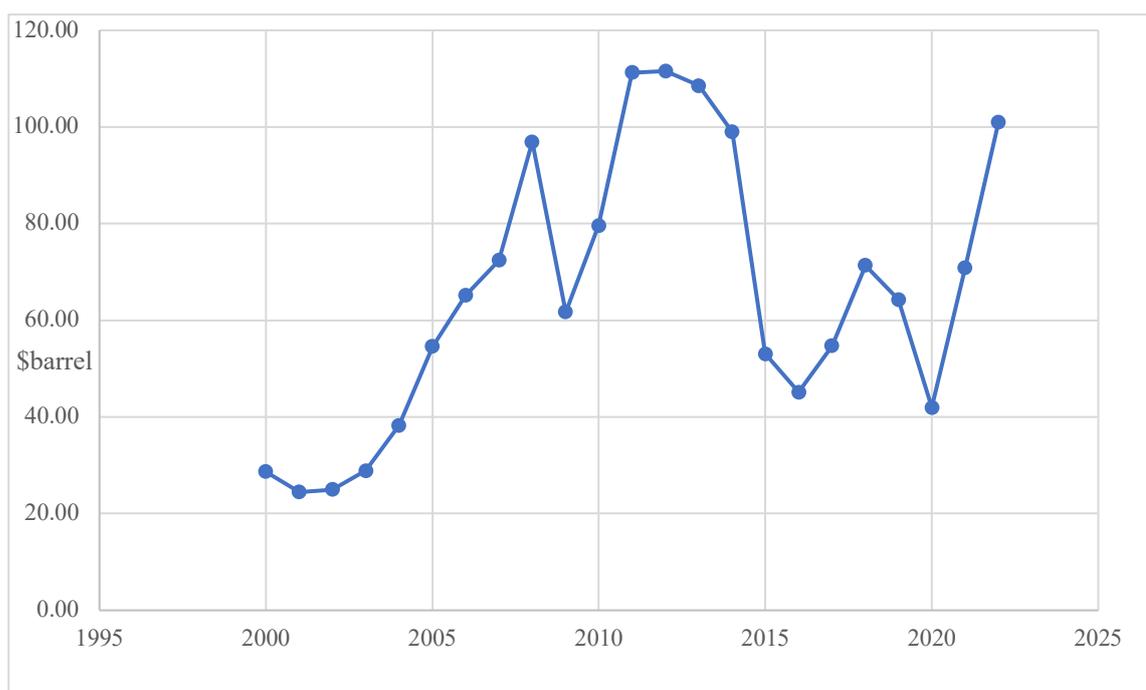
Source: own elaboration based on The World Bank, 2023

Evidently, there is a huge difference between the two scatterplots describing the exports and oil price. The development of the average international oil price is much more undefined in the sense that the indicator saw a lot of ups and downs over the course of the last 23 years resulting in the fact that finding a trend function that would fit into the graph will be rather complicated. At the same time, fitting a linear trend did not yield good results in terms of

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accuracy, so the graph is left without any trend. At the same time, it is interesting to note that the oil price was at its peak during the period between 2010-2014, which is supposed to have yielded a lot of cash for the Kazakh government. Additionally, the recent development of the oil price suggests that the country is expected to profit from the market situation even more. Nevertheless, it is essential to continue to one of the most important indicators of any national economy reflecting price stability – the inflation rate. Its development can be followed in Figure 5.

Source: own elaboration based on The World Bank, 2023

Figure 5, inflation (%) between 2000 and 2022
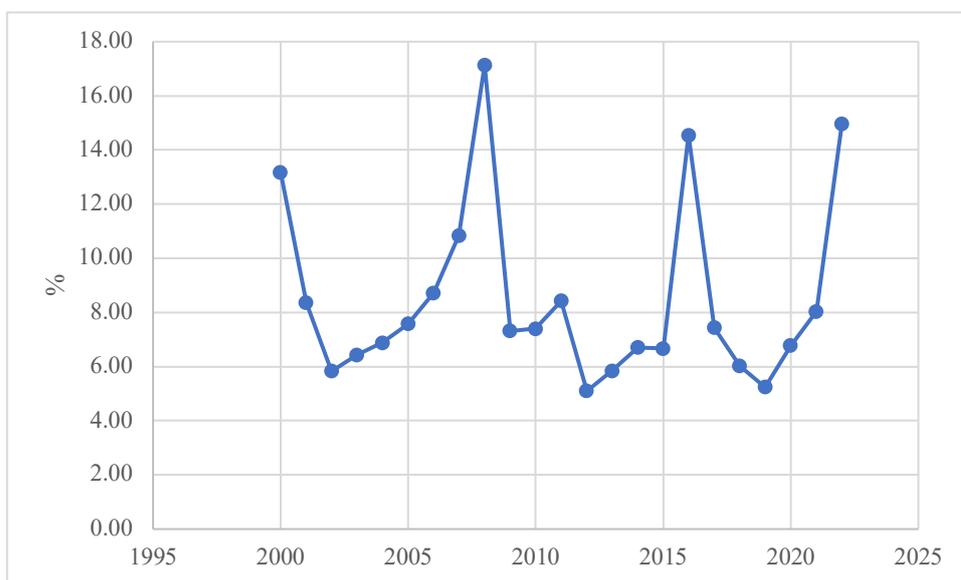
The very first aspect that comes to one's mind when looking at the development of inflation in time is the fact that the development of the indicator is not smooth at all, as there seem to be periods when inflation was rising abruptly in particular years. Additionally, it is possible to suggest that there might be even a specific seasonal pattern. Nevertheless, it is possible to say that the country's economy does not really seem to have a strong grip on the inflation rate and the inflation-targeting policy of the Kazakh Central Bank does not seem to be really effective due to the fact that for some years, the rate reached two-digit figures. Yet, this might definitely be related to potential fluctuations in the exchange rate of the country triggered by changes in the international price of oil. Nevertheless, it is vital to continue with one of the most important indicators of any economy – the unemployment rate. The development of the unemployment rate between 2000 and 2022 is presented in Figure 6.

Figure 6, unemployment (percentage points) between 2000 and 2022

$$y = 2E+35e^{-0.04x}$$
$$R^2 = 0.8653$$
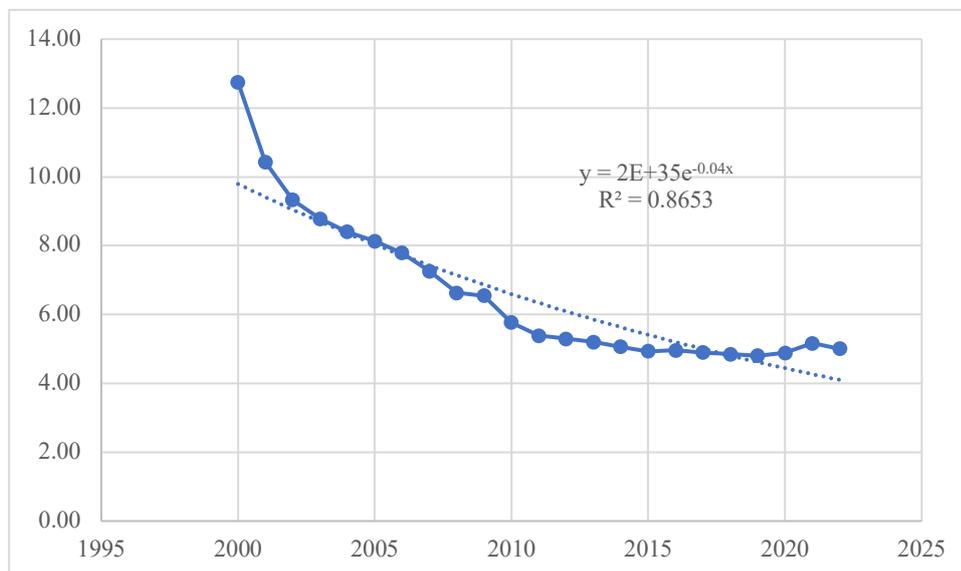
Source: own elaboration based on The World Bank, 2023

On the contrary, the situation with unemployment in Kazakhstan was seemingly improving with every single year as the line for the indicator is downward sloping. In addition to that, it is possible to conclude that it is not just downward sloping, but its development resembles more an exponential function rather than a linear one. According to the fitted trend of the exponential nature, it is possible to say that unemployment in Kazakhstan was decreasing annually by 0.04 per cent compared to the previous year. In fact, a successful employment program or policy of the country might be the main explanation behind the increase in the production observed in Figure 12. Nevertheless, the thesis continues with the third indicator, which is nonetheless less important than the previous ones – the official exchange rate. The variable's scatterplot is presented in Figure 7.

Figure 7, exchange rate (tenge/USD) between 2000 and 2022

$$y = 1E\text{-}50e^{0.0598x}$$
$$R^2 = 0.8487$$
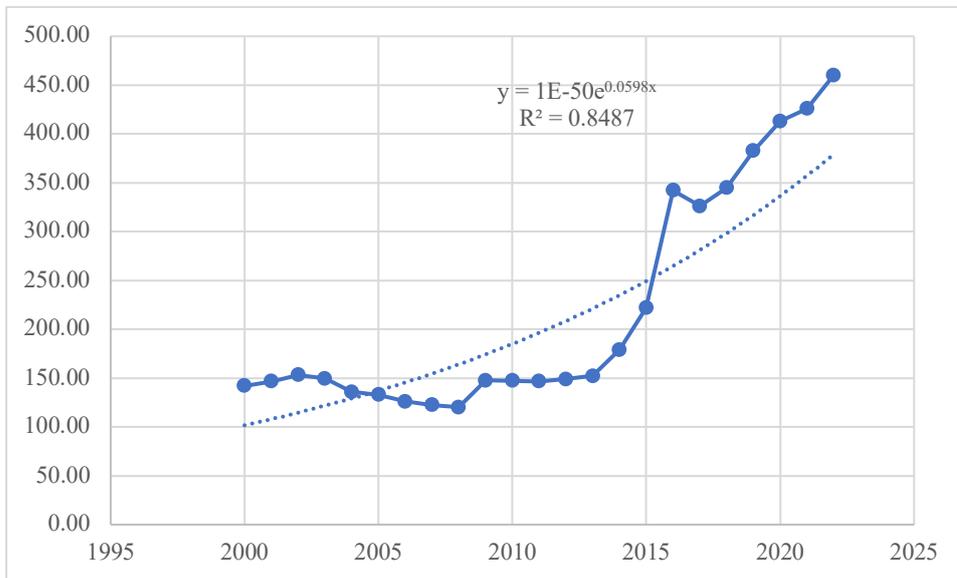
Source: own elaboration based on The World Bank, 2023

In fact, the development of the country's exchange rate surely resembles an exponential function but in the case of the exchange rate variable, it is actually dubious of whether this is a positive aspect or not, whilst for the unemployment rate it was pretty obvious what the answer would be. Yet, constant depreciation of the tenge, which is pretty visible in Figure 16 might have positive implications on the country's exports and competitiveness of the country. On the other hand, this depreciation definitely meant an increase in the overall price level due to the fact that importing was becoming much more costly. According to the fitted trend, it is possible to say that the country's national currency – tenge, was depreciating by 0.0598 per cent annually. The final variable that will be discussed is the price of gas on European markets (the main trading partner of Kazakhstan) per metric thermal unit. The development of the variable is presented in Figure 8.

Figure 8, price of natural gas (USD/mu) between 2000 and 2022
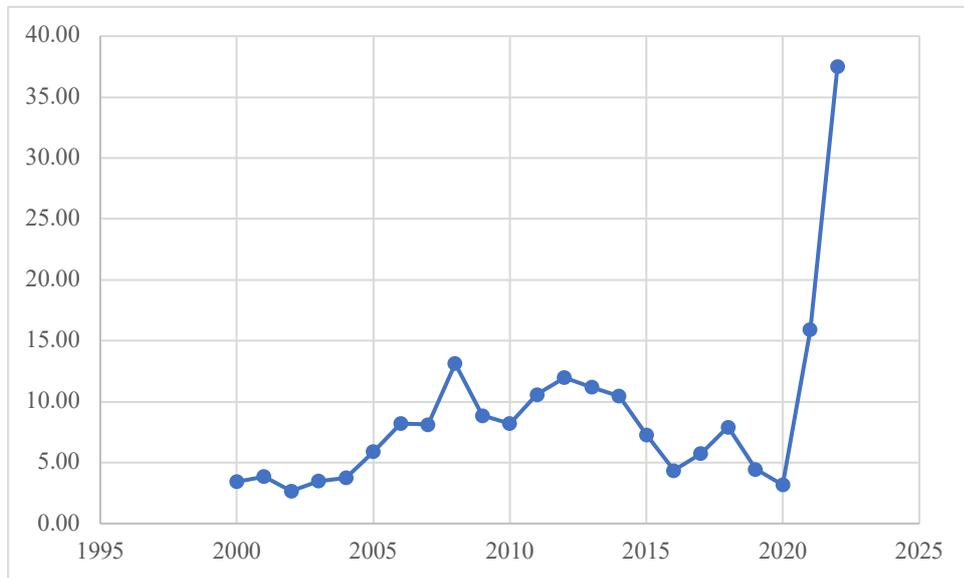
Source: own elaboration based on The World Bank, 2023

Undeniably, the situation that significantly changed the way how matters stood in the domain of gas was the war in Ukraine even despite the fact that the increase started slightly earlier in 2021. Given the exporting nature of the Kazakh economy, it is fair to suppose that this surge in the price of gas might influence the country's level of GDP in a positive way. Nevertheless, after analyzing all indicators' development in time, it is time to proceed to the descriptive analysis of each variable, which will be done in the next chapter.

4.2 Descriptive Analysis

The descriptive analysis involves the implementation of statistical measures briefly described in the methodology of the diploma thesis. The results are presented in Table 2.

Table 2, descriptive statistics

	Exports, billion 2015 constant USD	Price of Oil, USD	Inflation, %	Unemployment, %	Exchange rate, tenge/USD	Gas Price per Metric Thermal Unit
Mean	51.52	65.58	8.50	6.62	220.34	8.71
Median	52.58	64.28	7.40	5.39	149.58	7.92
Mode	-	-	-	-	-	-
St.Deviation	7.06	28.52	3.33	2.16	116.08	7.24
COV	13%	43%	39%	33%	53%	83%
Range	25.8	87.11	12.04	7.95	339.87	34.85
Min	34.82	24.46	5.10	4.80	120.30	2.67
Max	60.63	111.57	17.14	12.75	460.17	37.52

Source: own elaboration based on The World Bank, 2023

Starting with the exports variable, it is possible to say that the average value of the exports expressed in billion 2015 constant USD is equal to 51.52, which is fairly not a lot when considering the size of the country and also its population approaching the figure of 20 million people. At the same time, the variable was rapidly increasing, which is reflected on the variability of the variable (relatively high standard deviation and COV). Additionally, the variable has a range of 25.8, while the lowest value identified for the variable is 34.82 billion 2015 USD in 2000. In turn, the highest value was 60.63 billion 2015 USD, which was identified in 2022. It is fair to assume that in 2023, the value of the exports of the country will even be higher as its expansion is likely to continue even further.

When it comes to the price of oil, the average price per barrel in USD was 65.58 USD. On the other hand, this variable is subject to frequent fluctuations and high variability, which is seen in standard deviation, coefficient of variation and also range. The lowest price per barrel was 24.46 and it happened during the early years of the 21st century (2001-2002), whilst the most expensive oil was identified in 2011-2013 when its cost was well above 111 dollars per barrel.

For the inflation variable, the situation in Kazakhstan with this indicator does not seem to have been optimistic as the average value of inflation was 8.5 for the analyzed time interval. At the same time, the absolute maximum of inflation lately in Kazakhstan was 17.4

percentage points, which was observed in 2008 as it was a natural response of the Kazakh economy to the world financial crisis, i.e., the Great Recession. The minimum level of inflation was 5.1, which is still quite high when comparing it to levels of inflation in major developing countries, and this was observed in 2012 when the economy fully recovered from the Great Recession.

On the other hand, the situation with unemployment is rather positive since the average unemployment in Kazakhstan was 6.62 percentage points and it is an acceptable level given the transition nature of the country. The highest inflation was 12.75 percentage points and it was recorded at the beginning of the century when the economy was just making its first step toward becoming a market-based one. At the same time, the lowest unemployment is identified not long ago – in 2019, where it was equal to 4.8 percentage points. Overall, the dynamic of unemployment in Kazakhstan is optimistic and the country seems to keep as many people employed as it is possible.

In fact, the situation with the exchange rate is controversial since the domestic currency of Kazakhstan is highly volatile and this volatility is explained by rapid depreciation, which is not really good, and it might be one of the main reasons behind the country's inability to properly target inflation. The moment when tenge is the cheapest in its history happened in 2022 as a response to the war in Ukraine. Of course, Kazakhstan is not a part of the conflict, but the country was keen on actively cooperation with Russia, so it is quite common for the tenge to depreciate alongside the Russian ruble. The domestic currency has a range of 339.87 tenge, which is absolutely astonishing in a negative way. At last, the interpretation of descriptive statistics for the gas-associated variable is rather hard since it is essential to understand that this variable's development is mainly influenced not just by market and political processes, but also by weather-related factors.

4.3 Regression Analysis

To begin the regression analysis, it is always essential to start with the economic theory behind the projected model. For the linear regression, as has already been specified earlier, the thesis is concerned with the contribution of individual economic factors to the country's exports. Given that the main focus of the work is put at the oil and gas industry, variables associated with it are mainly considered for the model.

In the light of mentioned circumstances, it is essential to suppose that the international average price of oil has a strong effect on the economy of Kazakhstan. To be more specific, as the price of oil increases, the country's value of exports goes up, so the first variable is supposed to be the price per barrel of oil with the positive sign. Many other scholars and researchers included the variable when studying the exports of oil-exporting economies, such as Pan et al. (2018) and Oladosu et al. (2018). Obviously, when talking about export-oriented economies, the inclusion of a variable related to the exchange rate is inevitable. This very estimation is not an exception in that regard. Hence, the variable containing the official annual average exchange rate between the national domestic currency of Kazakhstan – tenge and USD, is included in the model; it is assumed that the sign of the variable will be positive as well, which is quite typical for an export-oriented economy. The variable was also included in studies of Siregar & Alhempi (2018) and Jilani & Asim (2010). The third factor that supposedly influences the exports of Kazakhstan is unemployment, which is often referred to as the most influential predictor of the exports since the very concept of the exports is based on the spending done by people. Without employment and job, the level of spending will be extremely low, so the variable is a must for the model – it was included by Ukker & Ulker (2019) and Ozel et al. (2013). For the final variable, it is not completely sure of whether there will be any significant contribution to the exports of Kazakhstan as the country has for a very long period of time managed to experience periods of economic expansion with the presence of inflation. The same applies to the last variable, which is the price of gas per metric thermal unit. Henceforth, it is ultimately possible to come up with the following economic model:

$$EX = f(POIL, EXRATE, UNEMP, INFL, PGAS)$$

After the formulation of an economic model, the next step is supposed to be the data collection, but it has already been done as the thesis strongly rlies on the dataset already used in the previous two chapters. Therefore, it is at last possible to continue to the formulation of an econometric model, which will be of the double-log form since it was the form quite often used by researchers, such as Benoit (2011) and Islam & Haque (2018), who believed that for developing economies and economies in transition, the exponential functional form

is a better fit for the export variable. Hence, it will have the following series of parameters in the equation:

$$EX_t = \beta_0 * POIL_t^{\beta_1} * EXRATE_t^{\beta_2} * UNEMP_t^{\beta_3} * INFL_t^{\beta_4} * PGAS_t^{\beta_5} + U_e$$

In order to estimate such a model with the help of the OLS, it is essential to perform a log transformation. In addition to the econometric model and the goal of simply estimating all parameters, the thesis also seeks another goal, which would be the creation of a model, which will not violate the original series of assumptions of the Gauss-Markov theorem and that will be BLUE. Below, the list of assumptions is indicated:

1) The model is correctly specified, and the selected functional form is the most appropriate.
2) There is no autocorrelation (serial correlation) of residuals.
3) There is no heteroscedasticity, i.e., the variance of residuals is constant at different values of X.
4) There is normality of residuals, i.e., the residuals are distributed according to the distribution having the characteristics of the normal one.
5) There is no multicollinearity or perfect collinearity.

The first stage of the estimation requires to study the presence of multicollinearity in the dataset, which can be done with the help of various different approaches, where the selected approach is the implementation of a correlation matrix. The correlation matrix from Gretl is shown in Figure 9.

Figure 9, the correlation matrix of the dataset


```
gretl: correlation matrix

Correlation Coefficients, using the observations 2000 - 2022
5% critical value (two-tailed) = 0.4132 for n = 23

  PriceofOilUSD    Inflationpp  Unemploymentpp Exchangeratete~
       1.0000          0.0867         -0.6153          0.0124 PriceofOilUSD
                       1.0000          0.1561          0.0761 Inflationpp
                                       1.0000         -0.5548 Unemploymentpp
                                                       1.0000 Exchangeratete~


  GasPriceperMet~
       0.6284 PriceofOilUSD
       0.4098 Inflationpp
      -0.3733 Unemploymentpp
       0.3768 Exchangeratete~
       1.0000 GasPriceperMet~
```

Source: own elaboration based on The World Bank, 2023

Due to the observed situation, where none of the correlation coefficients took the absolute value above 0.8, it is possible to suggest that there is no multicollinearity in the model, so the effect of each individual variable will be isolated, and standard errors will not significantly be distorted. The next step is the econometric estimation, the result of the original estimation is shown in Figure 10.

Figure 10, the main model

```
                  coefficient   std. error   t-ratio    p-value
  -----------------------------------------------------------------
  const              3.06760      0.612257     5.010     0.0001   ***
  l_PriceofOilUSD    0.224522     0.0776729    2.891     0.0102   **
  l_Inflationpp      0.00670147   0.0490667    0.1366    0.8930
  l_Unemploymentpp  -0.167325     0.121693    -1.375     0.1870
  l_Exchangeratete~  0.0609277    0.0489526    1.245     0.2302
  l_GasPriceperMet~ -0.0401994    0.0358249   -1.122     0.2774

  Mean dependent var   3.931834   S.D. dependent var    0.150975
  Sum squared resid    0.084976   S.E. of regression    0.070701
  R-squared            0.830541   Adjusted R-squared    0.780700
  F(5, 17)            18.46705    P-value(F)            2.46e-06
  Log-likelihood      31.77459    Akaike criterion    -51.54918
  Schwarz criterion  -44.73621    Hannan-Quinn        -49.83574
  rho                  0.605510   Durbin-Watson         0.681938

  Log-likelihood for Exportsbillion2015constant = -58.6576

  Excluding the constant, p-value was highest for variable 10 (l_Inflationpp)
```

Source: own elaboration based on The World Bank, 2023

Now, after estimating the model, it is essential to finally proceed to the interpretation of the parameters. The model with fitted parameters has the following structure:

$$EX_t = \exp{(3.06)} * PRICE_t^{0.22} * EXRATE_t^{0.06} * UNEMP^{-0.16} * INFL_t^{0.006} * PGAS_t^{-0.04} + U_e$$

- When the international price of oil increases by 1%, the exports of Kazakhstan increase by 0.22%, ceteris paribus.
- When the exchange rate of Kazakhstan depreciates by 1%, the exports of Kazakhstan increase by 0.06%, ceteris paribus.
- When the unemployment rate in Kazakhstan increases by 1%, the exports of Kazakhstan decrease by 0.16%, ceteris paribus.
- When the inflation rate in Kazakhstan increases by 1%, the exports increase by 0.006%, ceteris paribus.
- When the international price of gas in Kazakhstan increases by 1%, the exports drop by 0.04%, ceteris paribus.

In fact, the signs of variables do perfectly match what has been said earlier during the formulation of the model. Henceforth, it is possible to say that this model is good from an economic point of view. After all, getting the signs correctly, which would be fully aligned with the economic theory is the most important task of an econometrician. Following the economic interpretation, it is vital to comment on the fact that for the estimated model, the mean dependent variable is equal to the mean fitted dependent variable, so the model is estimated correctly from the mathematical point of view as well.

Now, it is essential to continue the verification of the statistical parameters of the model. Starting with the R square and its adjusted version, it is possible to say that the estimation managed to reach somewhat favorable results in terms of the model's quality and accuracy – the model explains 83% of the total variation in the dependent variable with the help of its independent components. When judging by the adjusted value of the indicator, the model correctly explains 78% of the variation in the dependent variable. Additionally, the model is significant at the confidence level of 95%, which is also a good sign, when judging by the result of the F test, for which the null about insignificance is rejected. For the series of t-tests, the results are presented in Table 3.

Table 3, t-tests

H_0: price of oil is not significant	H_0: exchange rate is not significant	H_0: unemployment is not significant	H_0: inflation is not significant	H_0: price of gas is not significant
H_a: price of oil is significant	H_a: exchange rate is significant	H_a: unemployment is significant	H_a: inflation is significant	H_a: price of gas is significant
$0.01 < 0.05$ Price of oil is significant.	$0.23 > 0.05$ Exchange rate is not significant.	$0.18 > 0.05$ Unemployment is not significant.	$0.89 > 0.05$ inflation is not significant.	$0.27 > 0.05$ Price of gas is not significant.

Source: own elaboration based on The World Bank, 2023

Based on the results of the t-tests, it is possible to highlight that the only significant predictor of the exports of Kazakhstan is the price of oil, whereas the remaining variables are categorized as non-significant. Finally, it is essential to comment that the model has a negative value for three information criteria – Akaike, Hannan-Quinn and Schwarz, which is also a good sign suggesting that the overall fit of the model is good. Finally, the thesis proceeds to the series of econometric tests, which will all be based on the output from Figure 11.

Figure 11, econometric tests

```
White's test for heteroskedasticity –
  Null hypothesis: heteroskedasticity not present
  Test statistic: LM = 22.1964
  with p-value = P(Chi-square(20) > 22.1964) = 0.329949

Test for normality of residual –
  Null hypothesis: error is normally distributed
  Test statistic: Chi-square(2) = 0.198212
  with p-value = 0.905647

LM test for autocorrelation up to order 1 –
  Null hypothesis: no autocorrelation
  Test statistic: LMF = 15.7665
  with p-value = P(F(1, 16) > 15.7665) = 0.0010976
```

Source: own elaboration based on The World Bank, 2023

Based on the test statistics and p-values of individual econometric tests, it is possible to say the following:

- There is an autocorrelation of the first order identified in the dataset since the null about its absence was rejected.
- There is no heteroscedasticity since the null about its absence was not rejected.
- Residuals are distributed normally since the null about the normal distribution was not rejected.

At the same time, it is essential to continue to the visual demonstration of the model's fit, which will be done with the help of a scatterplot demonstrating three equally important indicators – 95% confidence interval for fitted values, fitted point estimates and observed values of the exports of Kazakhstan. The scatterplot is presented in Figure 12.

Figure 12, forecasting using the model
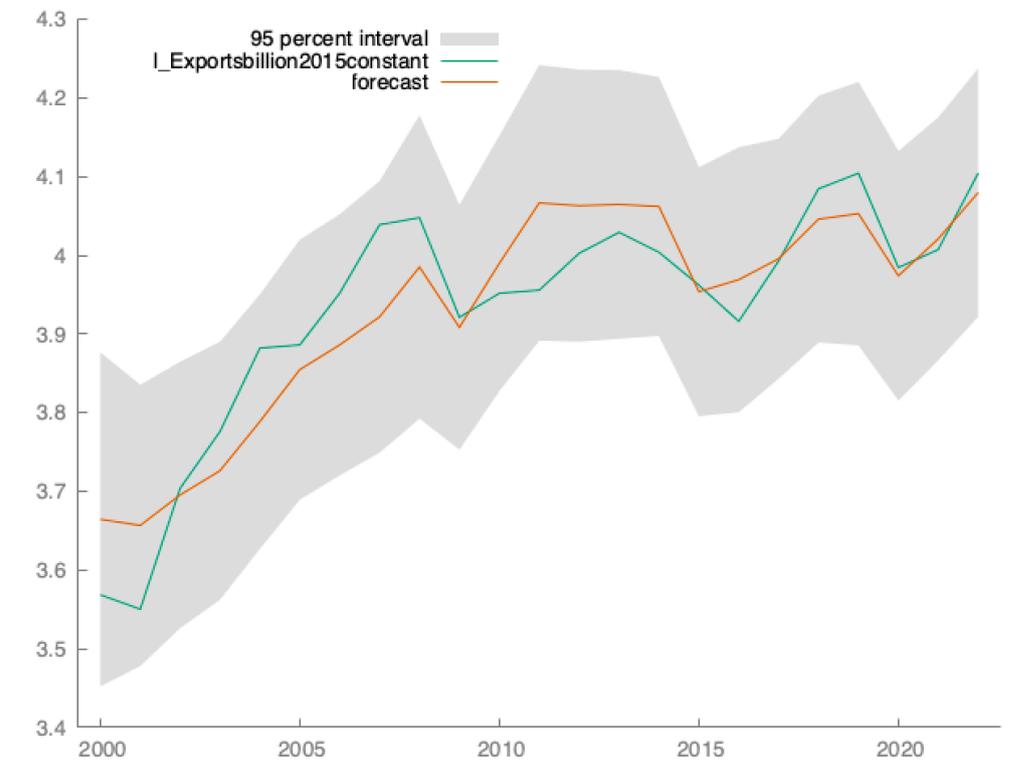
Source: own elaboration based on The World Bank, 2023

All in all, the results of the linear regression analysis will be discussed in tandem with other findings in the results and discussion chapter of the diploma thesis.

4.4 Structure of Trade

For the last 3 chapters, the focus of the diploma thesis is exclusively put on the foreign trade domain, where the first analysis is associated with the structure of the trade. The structure of trade analysis generally involves two different dimensions – the product structure of trade and the geographical structure of trade. For the first analysis, the thesis considers two commodities specified in the methodology of the work (crude petroleum and petroleum gas) and analyzes their relative share in the country's total exports between 2000 and 2021. The dataset with collected data is presented in Table 4.

Table 4, the dataset for product structure of trade analysis (2000-2021)

Year	Crude Petroleum		Petroleum Gas	
	Value, millions	Share, %	Value, millions	Share, %
2000	5350	52.9	12.9	0.13
2001	4710	46.2	132	1.29
2002	5840	50.2	332	2.85
2003	7120	48.9	396	2.72
2004	11400	52.9	807	3.75
2005	17900	59.2	1001	3.35
2006	24300	59.1	1005	2.55
2007	29300	56.6	1570	3.03
2008	42200	57.6	2080	2.84
2009	26400	58.7	1920	4.27
2010	36100	61.8	2150	3.68
2011	49800	58.9	4030	4.77
2012	47300	55.5	3970	4.67
2013	53900	64.6	3750	4.5
2014	50500	64.2	3440	4.38
2015	27300	56.7	2440	5.07
2016	19800	50.3	1840	4.68
2017	28400	53.7	2420	4.59
2018	38400	59.7	3100	4.86
2019	35900	57.8	3570	5.74
2020	25200	49.6	2640	5.19
2021	21600	40.2	1800	3.35

Source: OEC, 2023

Based on computed shares, it is possible to suggest that the share of crude petroleum in the total exports of Kazakhstan was definitely more than 50% on average over the course of the 22 years analyzed. This definitely means that the country's main specialization is trade and not just it is its main specialization, but the majority of the country's trade revenues are made solely with the help of the oil and gas sector. On one hand, this definitely means that the country has a very strong oil and gas sector, but on the other hand, this might be one of the biggest indicators of the Dutch disease so far, since the situation is pretty typical for countries suffering from the aforementioned problem. To be more precise, it is important to stress that in addition to crude petroleum, there are also other major commodities that are being exported, such as petroleum gas which alone contributes to around 4% per cent of the country's total exports. Yet, when it comes to the volume of crude oil exported overseas in

million dollars, it becomes apparent that the country had gone through its peak in 2013-2014 and slowly started to decrease its dependency on the sector starting from 2019. This is especially visible after looking in Figure 13 showing the scatterplot of the country's export revenues for the crude oil.

Figure 13, the scatterplot of crude oil revenues (2000-2021)

$$y = -268.98x^2 + 1E+06x - 1E+09$$
$$R^2 = 0.7056$$
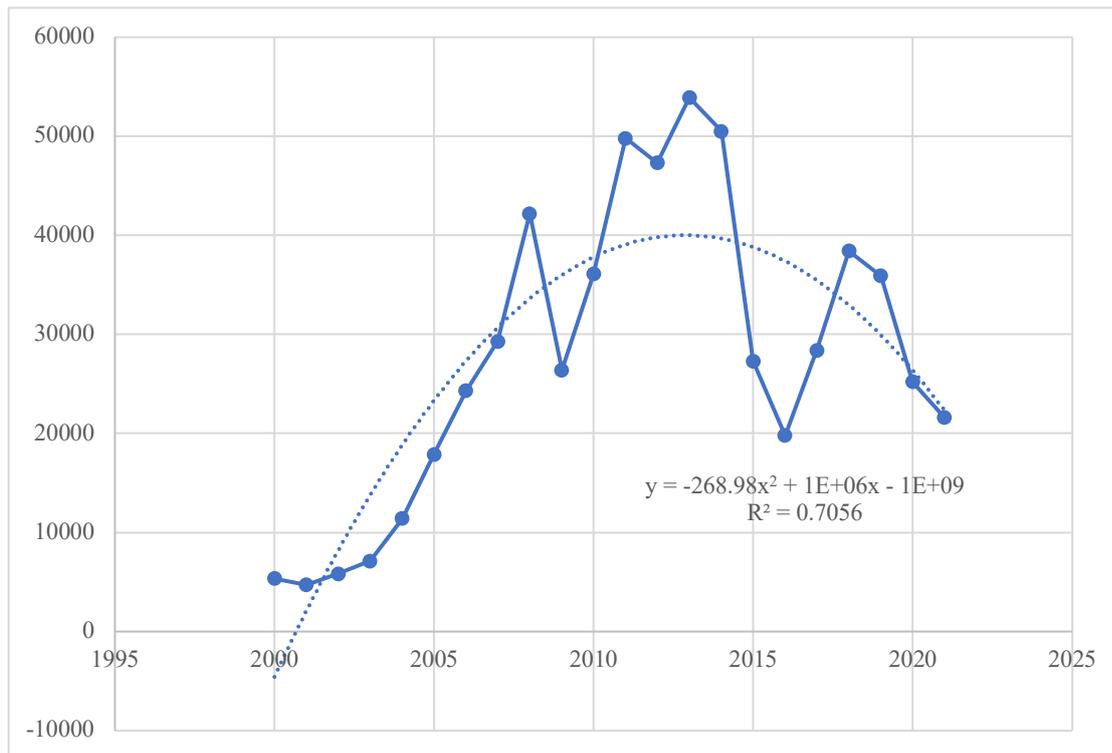
Source: own elaboration based on OEC, 2023

In addition to making a brief comment about the change in the approach to foreign trade that happened in 2019 by the Republic of Kazakhdtan, it is possible to conclude that the situation started to change slightly earlier since the fitted parabola became concave and passed its peak in 2012-2013. Overall, this potential change in the specialization might be explained not just by the change in the views of the government, but also by the external situation, which both prompted the country to seek other specializations and become less dependent on oil exports. On the other hand, it is also important to observe the development of petroleum gas in time, which is in turn indicated in Figure 14.

Figure 14, the scatterplot of petroleum gas revenues (2000-2021)

$$y = -16.025x^2 + 64578x - 7E+07$$
$$R^2 = 0.7454$$
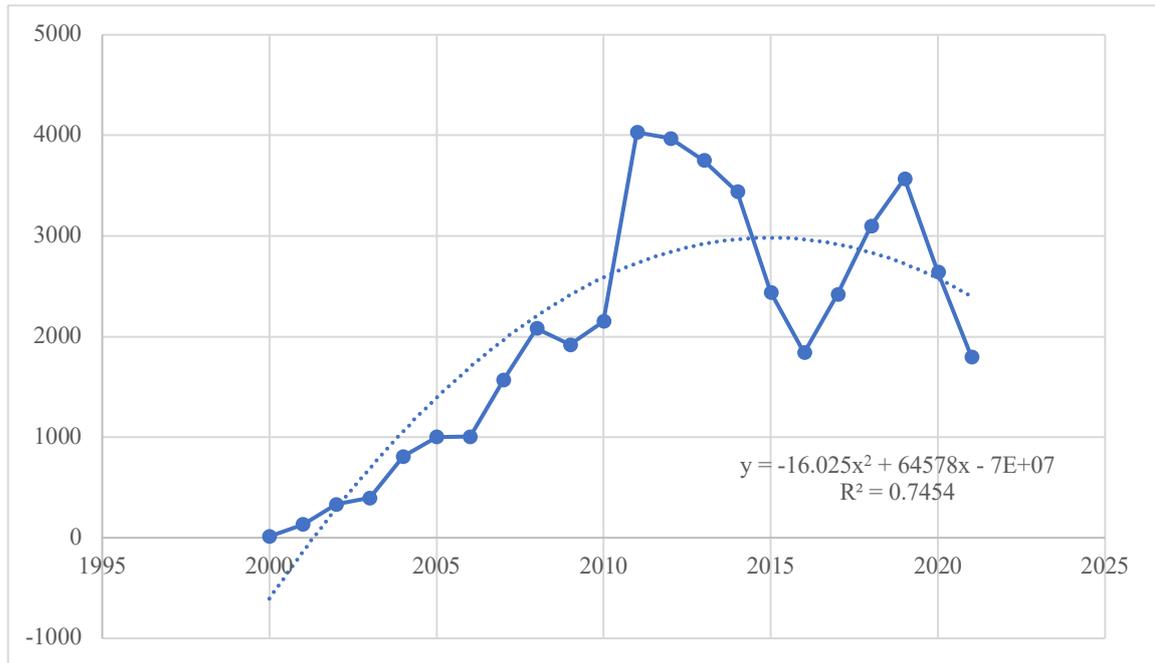
Source: own elaboration based on OEC, 2023

Surely enough, it is possible to suggest that a more or less identical dynamic Is identified for the volume of exports for petroleum gas. At the same time, this shift happened slightly later than for crude petroleum – the peak was overpassed in 2014-2015. Based on the intermediate results of the structure of trade analysis, it is possible to suggest that the country started to shift to alternative sources of international revenues in the mid-10s. The next step would be the analysis of the geographical structure of exports, where the biggest importer of Kazakh crude oil and gas will be identified for the same period of 22 years. The dataset for the petroleum oil commodity is presented in Table 5.

Table 5, the dataset for destinations of crude oil (2000-2021)

Year	Biggest Importer (Crude Petroleum)		
	Country	Value, billions	Share, %
2000	Bermuda	1.19	22.1
2001	Bermuda	1.22	25.9
2002	Bermuda	2.01	34.4
2003	Bermuda	2.19	30.8
2004	Switzerland	2.57	22.6
2005	Switzerland	5.23	29.2
2006	Switzerland	6.46	26.6
2007	Switzerland	7.17	24.5
2008	Italy	9.46	22.4
2009	Italy	6.4	24.3
2010	Italy	8.04	22.3
2011	Italy	12.7	25.6
2012	China	8.71	18.4
2013	Italy	14.1	26.2
2014	Italy	13.5	26.8
2015	Italy	7.89	28.9
2016	Italy	7.3	36.8
2017	Italy	8.45	29.8
2018	Italy	9.74	25.4
2019	Italy	8.2	22.8
2020	Italy	6.53	25.9
2021	Greece	4.34	20.1

Source: OEC, 2023

For sure, when looking at the biggest buyers of Kazakh crude petroleum in the two previous decades, it becomes evident that the country had slightly changed its main trading partners. During the first four years of the dataset – 2000-2003, the biggest buyer of Kazakh oil was the state of Bermuda, which is located fairly far away, and it would be more logical for this island territory to buy oil from the USA or Venezuela, which are located in the vicinity of the country. Yet, the fact that the territory was buying oil from Kazakhstan might suggest that the Central Asian state was able to supply the country at a relatively good cost so it made them overlook the distance between the two.

However, starting from 2004 until 2011, the biggest buyer of Kazakh oil was located in Europe, whereas during the first 4 years of the period it was Switzerland and then until 2011,

it was Italy. In fact, the further dynamic of the development of the variable suggests that the main trading partner in oil for Kazakhstan is Europe. The tendency changed in 2012 when the biggest buyer of Kazakh oil was China. Overall, the dynamic of the geographical structure of Kazakh crude petroleum exports suggests that the country is able to find international partners rather quickly and the cooperation with the country turns out to be fruitful for European partners since their tendencies do not seem to change over time. Therefore, this helps to suggest that Kazakhstan is a reliable partner for European buyers of crude petroleum. The next step is the analysis of the main buyers of Kazakh petroleum gas, which will be based on the dataset presented in Table 6.

Table 6, the dataset for destinations of petroleum gas (2000-2021)

Year	Biggest Importer (Petroleum Gas)		
	Country	Value, millions	Share, %
2000	Hungary	2.65	20.5
2001	Russia	71	54
2002	Russia	126	38
2003	Russia	110	27.8
2004	Azerbaijan	194	24.1
2005	Poland	318	31.3
2006	Ukraine	343	32.8
2007	Ukraine	537	34.3
2008	Ukraine	938	45.1
2009	Ukraine	803	41.8
2010	Turkey	636	29.6
2011	Ukraine	1580	39.2
2012	Ukraine	1270	32.1
2013	Ukraine	1330	35.5
2014	Ukraine	1400	40.7
2015	Ukraine	837	34.3
2016	Ukraine	506	27.5
2017	Ukraine	871	36
2018	China	1070	34.2
2019	China	1650	46.2
2020	China	1450	54.9
2021	China	1100	61.5

Source: OEC, 2023

In fact, the situation with the main buyers of Kazakh petroleum gas is slightly different as the main trading partner and destination of exports were changing more frequently. At the same time, it is possible to definitely suggest that the country most willing to buy gas from Kazakhstan was Ukraine, followed by China. As a matter of fact, the reason for Ukraine to rely on Kazakhstan in the gas domain is explained by the complicated nature of relationships between the Russian Federation and Ukraine, who were engaged in active trade in the domain of gas until approximately the year 2004, when the first problems occurred. Those problems resulted in Russia temporarily shutting down its supply of gas to Ukraine, which prompted the country to shift to the search for a more reliable and stable partner.

At the same time, the fact that Ukraine was overpassed by China does not mean that Ukraine stopped buying gas from Kazakhstan – the country remained the second-biggest buyer of Kazakh gas. In fact, what happened is that China saw a huge opportunity in diversifying its supply of gas and strengthen its ties with Kazakhstan, so the country rapidly started to buy more and more gas from Kazakhstan.

4.5 RCA Analysis

The next type of analysis that is used in the analytical part is the RCA analysis or the analysis of the Balassa index computed for the crude petroleum commodity. The formula of the index was specified in the methodology of the work, so the thesis continues with the implementation of the formula in the time period between 2015 and 2021, which is explained by the inability to extract data for the earlier period of time. The result of the calculation is shown in Table 7.

Table 7, Balassa index

Year	World Share	Kazakhstan Share	RCA
2015	4.34	56.7	13.06
2016	4.12	50.3	12.21
2017	4.82	53.7	11.14
2018	3.92	59.7	15.23
2019	5.44	57.8	10.63
2020	3.82	49.6	12.98
2021	4.52	40.2	8.89

Source: own elaboration based on OEC, 2023

Evidently, based on the result of the calculated RCA index, it is definitely possible to conclude that Kazakhstan has an outstanding revealed comparative advantage in crude petroleum since the index of Balassa index is well above 1 for every single year analyzed. At the same time, it is essential to note that the change in the approach to foreign trade by the government in 2019 and the attempted change in the specialization of the economy resulted in the gradual decrease of the value of the index. However, there is still plenty of evidence to suggest that the country has a comparative advantage in the commodity and can easily continue focusing on it. Whether it is preferred and sensible or not is surely another question, which will be discussed in the results and discussion part, but it still remains an opportunity for the Republic of Kazakhstan.

4.6 Correlation Analysis

The final part of the analysis is concerned with the identification of the most important factor influencing the country's value of exports. For this purpose, she is focused on the identification of correlation coefficients between some selected macroeconomic variables and the total volume of crude oil exports. In Table 8, computed correlation coefficients with their t-ratios for different pairs containing the exports variable are presented.

Table 8, correlation analysis

	Exports	
	r	t
Exchange Rate	0.031	0.14
Inflation	-0.118	-0.53
Unemployment	-0.734	-4.83
GDP	0.622	3.55

Source: own elaboration based on OEC, 2023 and The World Bank, 2023

Surely, it is possible to say that the indicator that seems to be correlated the most with the value of exports is unemployment, where the correlation is negative meaning that whenever unemployment increases, exports decrease or vice versa. This might suggest that the country has a big proportion of the population employed in the oil and gas industry. The next variable that is also correlated in a strong way with exports is the GDP with the positive correlation, meaning that whenever the GDP rises, exports also go up or vice versa. Both

discussed correlation coefficients are the only significant ones, whereas both exchange rate and inflation are insignificantly correlated with the value of exports of Kazakhstan. The thesis focuses on elaboration on the achieved results in the next chapter.

5 Results and Discussion

5.1 Specialization of the Economy

This chapter presents the summary of her results, which will be provided in accordance with the five research questions from the objectives of the diploma thesis. The first question of the thesis was about the position of exports from the oil and gas industry in the hierarchy of the country's total exports. In order to answer the question, it is essential to recall that it was identified that commodities from the oil and gas industry altogether made up more than 50% of the total exports for the majority of observed years. On the other hand, it was identified that there was a structural change in 2019 and onwards, where the share of oil and gas-related products dropped drastically but even despite this, they still count for almost 50% of the country's total revenues earned with the help of foreign trade. Of course, the observed situation leads to the suggestion that Kazakhstan is not just specialized in oil and gas, but it seems to be the main specialization of the country if not the only one. In fact, the findings of the thesis are quite similar to the findings of other authors, who believed that Kazakhstan's dependency on oil and gas can negatively influence its potential to grow, such as the publication of Aliev (2015). Additionally, other scholars, such as Ibadildin & Pisareva (2020) and Zhiltsov & Zonn (2019), also believe that with the political change that took place in 2019, the country will slowly shift more to a diversified specialization of the economy.

Continuing to the second question, it is possible to conclude, based on the results of the linear regression estimation, that oil-related variables significantly contribute to the country's exports. Notably, the price of oil has a significant statistical effect on the exports of Kazakhstan – for every 1% increase in the price per barrel, the country's exports increase by 0.22%. Of course, it would be fair to suggest that the exchange rate of the country is highly correlated with the price of oil and quickly responds to all fluctuations in the price of the commodity, but it was identified that the correlation between the two is low – just 0.0124, according to Figure 18. Therefore, it would be sensible not to consider that the country's exchange rate is anyhow driven by the oil industry but might still be subject to intervention or pegging it to the US dollar. Yet, even despite the observed situation with the exchange

rate, it is still possible to conclude that the oil and gas industry significantly contributes to the country's GDP. Other scholars believe so as well, such as Jumadilova (2012).

Of course, the fact that oil-related commodities account for more than 50% of the country's exports prompted to believe that Kazakhstan did always have a comparative advantage in crude petroleum. Yet, this statement is supported by the computed Balassa Index, which was well above 1 for every single year analyzed. Therefore, it is definitely vital to conclude that Kazakhstan does have a comparative advantage in crude petroleum. This diploma thesis is not alone suggesting the same, as this statement is also supported by the works of Ipek (2007) and Ziyadin et al. (2019).

With the fourth question about the future development of the industry in the nearest future answered in the recommendation sub-chapter, the thesis proceeds instead to the fifth question, which is concerned with the question about the most important trading partners of Kazakhstan in oil and gas. According to the structure of trade analysis, it was identified that Italy is the biggest trading partner of Kazakhstan in crude petroleum, while Ukraine is the biggest trading partner of Kazakhstan in petroleum gas. The conclusion suggest that the explanation behind such a high position of Ukraine in the trade of gas is quite straightforward – the country had to diversify its sources of gas due to an unstable relationship with the Russian Federation.

Undeniably, Kazakhstan is a perfect alternative to Russia due to its geographical position and abundance of oil and gas. According to Arynov (2022), the situations when former partners of Russia preferred Kazakhstan over the Russian Federation started to become more and more common, and the conclusion seems viable and in line with the thesis. In fact, Kazakhstan might bail out the European Union by quickly managing to substitute all oil and gas that had previously been bought in Russia until the decision to stop almost all cooperation with Russia was taken.

5.2   Dutch Disease – a Myth or Reality?

The situation with the question set in the name of the sub-chapter is definitely more complicated as the very essence of the Dutch disease phenomenon seems to be quite ambiguous. Of course, labelling every single oil and gas-abundant economy as a case of the

Dutch disease will not be correct at all, and it is suggested that the case of Kazakhstan cannot be classified as a case of the Dutch disease but rather a case of the resource curse.

To recall, one of the main "symptoms" of the Dutch disease is the gradual increase in the volume of exports of a natural resource-related industry, which is traditionally accompanied by a rapid appreciation of the domestic currency resulting in the drop of exports from other industries and rise in unemployment in the economy as a whole. Despite the presence of a period of appreciation at the beginning of the 21st century, it is surely not possible to say that the country faced serious problems with unemployment and the development of the exchange rate after 2008-2009 suggests an opposite situation as tenge was rapidly depreciating instead. Hence, it is believed that the country is suffering from the resource curse instead, which is a traditional result of corruption and ineffective allocation of resources. The same is suggested by Oskenbayev & Karimov (2013), who believed that the specialization of the country in oil does not really yield effective results as the revenue from the industry is not reallocated effectively and efficiently.

However, the recent development of the country and the shift towards a more open economy to foreign investors is a positive sign that might help the country to significantly diversify its sources of revenue and finally enter the path of sustainable development. Further comments on this will be provided in the next chapter.

5.3 Recommendations

Before proceeding to recommendations for the country and policy-makers, it is first essential to answer the fourth research question about the development of the industry in the nearest future. Of course, based on the gradual decrease of the relative share of oil and gas exports from the total exports, it is possible to suggest that the government made a step towards a more diversified economy. Yet, it is fair to believe that the current international circumstances will not let the country concentrate on other industries and sources of revenue.

Due to the fact that the main trading partner in oil and gas of the European Union and Europe as a whole after the oil shocks became the USSR, which was soon replaced by the Russian Federation, the Union found itself in a very unpleasant situation, when they had to decide to continue to cooperate with Russia or stand united with Ukraine. As recent history

shows, the Union took the second option, so they had to find new suppliers of oil and gas, where Kazakhstan was at the top of the list among Azerbaijan and the United States.

Cooperation with Kazakhstan in the domain of oil and gas seems to be the safest bet due to a rather totalitarian regime in Azerbaijan and reluctance to become even more dependent on the USA. Because of this, it is likely that the country will not decrease its production of oil, but that Kazakhstan will ultimately produce even more oil than before because it is essential to strengthening its relationship with the European Union by providing a helping hand in one of Europe's darkest hours.

Therefore, the main recommendation of the thesis will be to seize the opportunity but focus on a better allocation of resources and support of projects that are expected to bring more and more investors to the country. It is expected that the current regional situation offers a perfect moment to do so since many European companies who left Russia will seek to find new markets like the Russian one, where Kazakhstan seems to be a perfect match.

On the other hand, the question of Russia whether to cooperate with it or not will remain open in the foreseeable future. Why? In fact, there is no way for the country to just shut all cooperation with the country since the economic, cultural and even political ties are incredibly strong between the two – this especially becomes even more apparent after realizing that they share almost 12,000 kilometres of common border and both use Russian as the main language of communication.

Alternatively, cooperation with Russia can negatively influence the prospects of becoming a hub for international investors thus triggering an economic expansion not based on oil and gas. All in all, the main recommendation of the thesis with regard to potential cooperation with Russia would definitely be adequate cooperation, which will ensure that no international sanctions are being broken so that Kazakhstan will still be a friendly side for both countries – just in the same way as Turkey.

6 Conclusion

The thesis had an objective to describe the situation with the oil and gas industry in relation to Kazakhstan's foreign trade and the country's economy, represented by the exports. After the implementation of a series of quantitative techniques, it was possible to answer five research questions stated in the goals and objectives of the work. In addition to answering those questions, it was possible to answer the question of whether Kazakhstan can be categorized as another case of a country suffering from the "Dutch disease" and formulate recommendations for the country in the economic domain.

1. ***What is the position of exports from the oil and gas industry in the hierarchy of the country's total exports?***

It was identified that commodities from the oil and gas sector account for more than 50% of the country's exports being the most important group of commodities and making up the majority of the country's income from foreign trade operations. As of 2022, there is an obvious tendency of decreasing this share thus diversifying the economy by searching for alternative specializations.

2. ***Do oil-related variables significantly contribute to the country's exports?***

According to the result of the linear regression estimation, it was identified that the price of oil is a significant regressor for the exports of Kazakhstan. According to the empirical analysis, it was identified that for every 1% increase in the price of oil, the country's exports increase by 0.22%. In fact, this is not a perfectly elastic relationship, but the contribution was categorized as strong, according to the result of the hypothesis testing.

3. ***Does the country have the revealed comparative advantage in crude petroleum?***

It was identified that the country possesses a strong comparative advantage in crude petroleum (HS2709) between 2015 and 2021. Effectively, the Balassa index for later years from the analyzed time period started to descend, but it is still likely that the country will continue to have a strong position in the oil trade compared to the rest of the world.

4. What is likely to be the development of the industry in the nearest future?

According to the literature review and empirical analysis conducted in the thesis, it is possible to conclude that it is highly likely that the country will focus on diversification of the economy and increasing the effectiveness of allocation of revenues from the industry. Due to the political change and the change in the overall vector of the country's development, it is likely that the country will be able to achieve a long-term economic development.

5. Who are the most important trading partners importing Kazakh oil and gas?

According to the structure of trade analysis, it was found that the biggest trading partner and buyer of Kazakh crude petroleum is Italy, followed by Switzerland. However, China started to take a particular interest in Kazakh commodities, so it might be quite likely that the situation will change soon. When it comes to the petroleum gas, it is found that the biggest trading partner and buyer of Kazakh gas is Ukraine, but the tendency is shifting towards China.

All in all, it is recommended for the country to continue the series of reforms and transformation that will help the country to diversify its economy. Additionally, it is concluded that the country is not likely to be suffering from the "Dutch disease" but on the other hand, the country is suffering from the Resource curse mainly due to high degree of corruption and kleptocracy during the presidency of the former president which prevented the country from efficiently reallocating resources.

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