

Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Economics



Bachelor Thesis

Economic Analysis of Azerbaijani Economy

Rashad Ahmadov

© 2020 CULS Prague

CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

BACHELOR THESIS ASSIGNMENT

Rashad Ahmadov

Economics and Management

Economics and Management

Thesis title

Economic Analysis of the Azerbaijani Economy

Objectives of thesis

The main aim of this thesis is to analyze the Azerbaijani Economy and the influence of the Oil Market on it. By investigating the Oil market, global tendencies, and economies of neighbouring countries, the extent of sustainability of the economy of Azerbaijan will be revealed. The main target is to indicate relationship between global oil prices and crucial economic fields of the country, such as GDP and inflation, and to imply whether economic growth and exports of oil are intertwined.

Methodology

In the first part, the theoretical overview is used to depict key insights and background of the topic. In the theoretical overview, the main circumstances and consequences of those events are highlighted in chronological order.

The other method used is linear regression, using the Null Hypothesis method. Via this method, firstly, the relationship between GDP and crude oil prices is investigated; Secondly, the relationship between the inflation rate and crude oil prices; And thirdly, the relationship between GDP of the main economic partner, Georgia, and exports of oil. The data is gathered from the World Bank, Statista, Federal Reserve Bank, and InflationData.com. The data is handled via the SAS Enterprise Guide.

The proposed extent of the thesis

40-60

Keywords

Economic Analysis, Economy of Azerbaijan, Crude Oil, GDP, Inflation, Regression Analysis

Recommended information sources

- Burnham, K. P.; Anderson, D. R. (2002), Model Selection and Multimodel Inference: A Practical Information-Theoretic Approach, Springer-Verlag, ISBN 978-0-387-95364-9
- Lehmann, E. L. (2011). Fisher, Neyman, and the creation of classical statistics. New York: Springer. ISBN 978-1441994998
- MIR-BABAYEV, M. (2009). Kratkaya Istoriya Azerbaydjanskoy Nefti, Baku, Azerneshr, ISBN 4502020000
- PASHAYEV, A. and RASULOV, A. (2018). Politika Prosvesheniya. Milli Arxid Idaresi, Baku. ISBN 978-9952-8142-7-9
- QULIEV, C. (2008). Azerbaycan Tarixi, Baku, Elm, ISBN 978-9952-448-44-03

Expected date of thesis defence

2019/20 SS – FEM

The Bachelor Thesis Supervisor

Ing. Karel Malec, Ph.D.

Supervising department

Department of Economics

Electronic approval: 2. 3. 2020

prof. Ing. Miroslav Svatoš, CSc.

Head of department

Electronic approval: 3. 3. 2020

Ing. Martin Pelikán, Ph.D.

Dean

Prague on 09. 03. 2020

Declaration

I declare that I have worked on my bachelor thesis titled "Economic Analysis of Azerbaijani Economy" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the bachelor thesis, I declare that the thesis does not break copyrights of any their person.

In Prague on March 21, 2020

Acknowledgement

I would like to thank the supervisor of my thesis – prof. Ing. Karel Malec, Ph.D. et Ph.D., for his advices and support during my work of this thesis.

Economic Analysis of Azerbaijani Economy

Abstract

The main aim of the thesis is to analyze, by means of theoretical approach, economic conditions of Azerbaijan and its most important sources of income. After finding out the most crucial fields of the Economy, the dependency between them and other branches of Economy, such as Inflation and GDP, has to be identified. In order to do that, the Null Hypothesis will be used. The Null Hypothesis will be implemented via the SAS Enterprise Guide.

Based on results revealed from the analysis, main characteristics of the Economy will be pointed out.

Once the main points are highlighted, they will be compared with data in the literature review, in results and discussions, if there will be discrepancy between them.

After being compared, the conclusion will be made.

Keywords: Economic Analysis, Economy of Azerbaijan, Crude Oil, GDP, Inflation, Regression Analysis

Ekonomická analýza Azerbájdžanské ekonomiky

Abstrakt

Hlavním cílem práce je pomocí teoretického přístupu analyzovat ekonomické podmínky Ázerbájdžánu a jeho nejdůležitějších zdrojů příjmů. Po zjištění nejdůležitějších oblastí hospodářství je třeba určit závislost mezi nimi a ostatními odvětvími hospodářství, jako je inflace a HDP. Za tímto účelem bude použita hypotéza Null. Hypotéza Null bude implementována prostřednictvím SAS Enterprise Guide.

Na základě výsledků odhalených z analýzy bude zdůrazněna hlavní charakteristika ekonomiky.

Jakmile jsou hlavní body zvýrazněny, budou porovnány s údaji v literární rešerši, ve výsledcích a diskusích, pokud mezi nimi bude rozpor.

Po porovnání bude učiněn závěr.

Klíčová slova: Ekonomická analýza, ekonomika Ázerbájdžánu, ropa, HDP, inflace, regresní analýza

Table of content

1 Introduction	10
2 Objectives and Methodology	11
2.1 Objectives.....	11
2.2 Methodology	11
3 Literature Review	13
3.1 Azerbaijani Economy before the XX century	13
3.2 XX century, rotation of the regimes	14
3.3 Soviet Age	17
This chapter narrates about the period from 1991 to nowadays.	19
3.4 Independent Period.....	19
4 Practical Part	28
4.1 Impact of Oil Prices on GDP.....	28
4.2 Impact of Oil Prices on Inflation Rate	30
4.3 Impact of Oil exports from Azerbaijan on Georgian GDP	33
5 Results and Discussion	37
6 Conclusion	38
7 References	40
8 Appendix	42

List of pictures

List...

List of tables

Table 4.1 Impact of Oil Prices on GDP	29
Table 4.2 Impact of Oil Prices on Inflation Rate	32
Table 4.3 Oil exports and Georgian GDP (2000-2018).....	34
Table 4.4 Impact of Oil Exports from Azerbaijan on Georgian GDP	35

List of abbreviations

List...

List of figures

Figure 3.1 Production of Crude Oil (1918-1920)	16
Figure 3.2 Comparison of Oil and Non-Oil Investments (2004-2008).....	20
Figure 3.3 Production of Crude Oil (1995-2019)	21

Figure 3.4 Gas Production (1990-2018)	21
Figure 3.5 Crude Oil Prices (1946-2019)	22
Figure 3.6 GDP Growth in Azerbaijan (1990-2018)	23
Figure 3.7 Comparison of Currency with Neighboring Countries	24
Figure 3.8 Comparison of Currency with Main Economic Partners	25
Figure 3.9 AZN against USD.....	26
Figure 3.10 Inflation Rate and Crude Oil Prices.....	27
Figure 4.1 GDP and Oil Prices (1990-2018)	28
Figure 4.2 Inflation rate and Oil Prices (1996-2018).....	31

1 Introduction

Nowadays, most of the countries within the world have embraced the market economy. So did Azerbaijan. However, from recent events, it seems that the government suffers dramatic strokes due to the changes in the global market.

The Azerbaijan Republic is a small country on the outskirts of Europe and Asia. Despite having only 100 years of sovereignty, this country has suffered dramatical changes in governmental regimes throughout the time. Thus, there were significant changes in economic policies: Azerbaijan has tried market economy, central planning/planned economy, and now the sound economic system is state capitalism.

Crude oil, as long as natural gas, accounts for most of the exports of the country. Therefore, it touches upon every single branch of the economy. Significant changes in the prices might paralyze various ramifications of the economy.

It can be claimed that oil is both a curse and a blessing for Azerbaijan. It helped to restore the economy after the collapse of the Soviet Union but strongly tied the entire field economy to exports of it. Strong dependence on exports made the government neglect diversification. Moreover, as it can be seen now, after the age of economic blossom, drawbacks start to appear.

Fluctuations in oil Market caused inflation, devaluation of the currency, a dramatic decrease in GDP growth rate, all of them.

To understand the topic, it is necessary to pass through the entire history of the Azerbaijani economy, in order to identify the impact of the oil industry on other branches of the economy.

2 Objectives and Methodology

This chapter is about objectives of the thesis.

2.1 Objectives

The main objective of this thesis is to prove dependency between crucial economic fields, GDP and inflation rate, and the oil industry.

In order to achieve this goal, it is necessary to resolve the following tasks:

- Theoretically to pass through the historical spectrum of the Azerbaijani Economy,
- To contrast significant events in the Oil Market with macroeconomic situation in Azerbaijan,
 - To reveal statistical significance, using quantitative approach and deductive method, between GDP and Oil Prices, Inflation Rate and Oil Prices, and GDP of neighbouring Georgia, whose economy is strongly tied to Azerbaijan, with Oil Exports from Azerbaijan,
 - To make a conclusion from the practical part and make a potential prediction

In this thesis, the main focus is on Azerbaijan and the Global Oil Market. In some cases, neighbouring countries will be touched as well.

This chapter is about methods used in this thesis.

2.2 Methodology

The first and second clauses will be solved by the means of basic literature review and qualitative approach.

The third objective will be achieved by using The Null Hypothesis, in order to reveal statistical significance, using SAS Enterprise Guide.

Before entering the data to the application, the dependent and independent variables are about to be identified. The dependent variable is the one that changes under the impact of independent one.

Then, the Hypothesis itself has to be set up:

$$H_0: B=0$$

$$H_1: B \neq 0$$

$H_0: B=0$ signifies that there is no significant statistical relationship between the variables, whereas $H_1: B \neq 0$ means that there is a significant statistical relationship between variables. (K. P. Burnham and D. R. Anderson, 2002)

Once the application is run, specific elements of the results should be taken into consideration: such as α and R^2 .

R^2 stands for the change in the dependent variable caused by independent variable, α is confidence level, or probability of rejecting H_0 when it is true,

Based on the results, the conclusion is made, whether there is a dependency between variables or not.

Once the third point is solved, the final one, the fourth, will be made theoretically, based on the practical part.

The data is mainly taken from The International Monetary Fund, World Bank, Ministry of Economy of Azerbaijan, Trading Economics and others.

3 Literature Review

In this chapter, prerequisites of the Azerbaijani economy will be described, covering mainly period till the XX century.

3.1 Azerbaijani Economy before the XX century

Azerbaijan has been known to be a land opulent with oil for centuries, starting from the middle ages. Moreover, there were always proper conditions for this region to be developed in terms of economy, as most of its cities were located on the Silk Road. The presence of merchants throughout Asia and Europe highly influenced the prosperity of the region. Although the region was rich with natural resources, its development was quite slow, compared to the rest of Europe. Before being occupied by the Russian Empire in the XIX century, the region was strongly oriented on the agrarian economy. Moreover, except having a backward economy, Azerbaijan also suffered from invasions of external enemies, especially Persian and Ottoman Empires. Almost nothing was produced there. The switch of the government brought to significant changes in the economic environment. Firstly, and most importantly, industrialization took place. There were many plants and railroads erected at that period of time. Secondly, the literacy level of the local population increased dramatically, as before, in the Persian Empire, the extent of education was very primitive, mostly religious. Finally, mainly due to an industrial extension, there were connections appearing among Azerbaijan and other parts of the enormous Russian Empire. Compared to the Persian Empire, Russia offered more opportunities to Azerbaijan; Despite having harsh governmental regulations, there were many European investors attracted by the region. Probably the most renown among them is Nobel brothers.

The middle of the XIX century might be considered an economic boom for Azerbaijan. A slight liberalization in Russia led to the renting of the oil fields. This brought to intensive well-drilling. By 1874, there was an entity called “Baku Oil Society” established. The new environment started attracting more capitalists not only within the Russian Empire but also from all over Europe. It is essential to point out that the first-ever well was also constructed in Baku, by Russian scientists. By the beginning of the XX century, 50% of the world’s production of oil was made in Azerbaijan.

New, auspicious conditions were quite favourable for capitalists. Economic-friendly environment brought to the rise of oil magnates. The most outstanding one was an entity of the Nobel brothers “Branobel”, one of the largest oil companies of that age. (A. Matveychuk, 2006)

This chapter covers the XX century, until the installation of the Soviet Regime.

3.2 XX century, rotation of the regimes

Despite tremendous advantages, new obstacles were appearing. As the new war, World War I, broke out, “economic miracle” of the region also came to decay. Most of the magnates contracted their oil production and drilling operations. Besides having a dramatic decrease in oil production, there was a formidable decline in the agricultural sector. Location of Azerbaijan was not advantageous, as there were constant collisions between Russian and Turkish armies. That was one of the reasons. The other root of notable changes in the market were grievances of the so-called proletariat. As industry became one of the most essential means of the economy in the Empire, there was a considerable increase in the number of workers in plants. Skyrocketing of the industry brought to a growth in the number of populists, playing on the dissatisfaction of proletariat. Most of them were accusing capitalists in exploitation and other suppressions of human rights. Finally, all of these events led to a revolution in the Empire.

Meanwhile, Azerbaijan also suffered significant changes. It is hard to describe any economic changes, as the region was mainly involved in perpetual wars with neighbours. Until 1918, Baku, the central industrial city of the Caucasus region, was controlled by communists, followed by the British army. However, both regimes were concentrated on keeping the authority, rather than prospering the region. All in all, in 1918, the Turkish and mobilized Azerbaijani armies took control over entire Azerbaijan. However, as it was mentioned before, it is difficult to say about any economic enhancements, as there were still wars ongoing. However, it is important to highlight that the Azerbaijani government attempted to restore the market economy. In spite of their attempts, they did not manage to attract previous investors. “Its economic platform was supposed to afford equal opportunities for the development of proprietary pluralism - the state property, private, personal, stock ownership, municipal property and other forms of property.” (A. Huseynli, 2018)

Substantial importance in Azerbaijani economy at that period of time, in accordance with the valid government, was setting bilateral international relations. Georgia played a crucial role in terms of diplomacy and economy regarding the Azerbaijan Democratic Republic. According to G.İsmayılova, the agreement signed between these two countries, on 26.12.1918, played a huge role for that age: “it was allowed to buy and sell the high demand products within the needs of these republics without customs duties, as well as petroleum, mazut, kerosene and oils were permitted to be exported to a certain extent for the needs of the Georgian population and the railway.” (G.İsmayılova, 2018)

Even though the Azerbaijani economy was oil-oriented, agrarian sector played an enormous role in daily life as well. Although Azerbaijan had a large agrarian sector, it still was forced to import approximately 112m tones of grain in order to satisfy domestic demand fully. As Azerbaijan was not fully capable of being involved in the new market conditions, Barter system, or exchange of some goods for the other ones, was quite common. Azerbaijan usually offered oil in exchange for consumption goods. Main partners were the USA, Italy and France. In exchange for trains, military equipment, and automobile, Azerbaijan was offering mainly oil, wool and textiles. (G. Zeynalova, 2014)

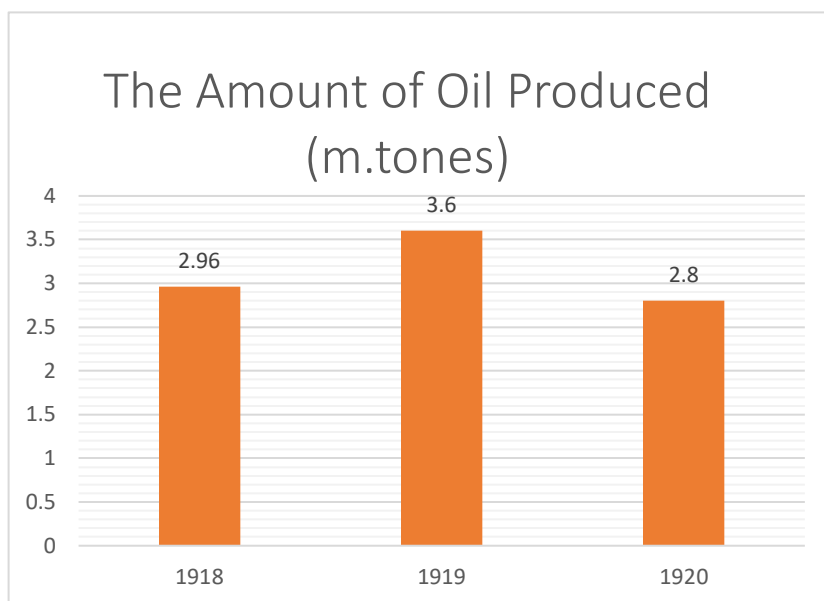
The intentions of the Azerbaijan Democratic Republic nowadays might be perceived as social-democratic: to install a minimum wage, to provide equal rights for every citizen, to be ensured that every single citizen can meet regular needs. And most importantly, in 1920, the government reviewed a new ordinance: the government was intended to give lands to the citizens. (A. Pashayev and A. Rasulov, 2018) However, due to the followed occupation, the law was not implemented. All in all, the primary purpose was to establish a welfare state. Nowadays, the ideology of the ruling party might be considered social democracy.

Obviously, at the climax period of World War I, there were no proper conditions for developing healthcare and education. However, Azerbaijan Democratic Republic attempted to expand in these spheres as well. There were three universities established during the 23-month period of time, Baku State University, Azerbaijan State Oil and Industry University, and Baku Academy of Music. All of them being public. In terms of healthcare, there was a certain spurt as well. “The state budget allocated enough funds for the opening

of new hospitals, preparation of doctors and other medical staff, prevention of infectious diseases, and provision of population with medicines.” (Y. Mahmudov, 2016).

There is almost no data about the budget. However, it is known that the budget accounted for 665m manats, most of which were either obtained by exporting oil and gathering income taxes, which was 30%. For sure, a substantial part of any independent country is the national currency. National currency in Azerbaijan, Manat, was founded in 1919. Before 1919, Azerbaijan was still using rubles. In 1919, the National Bank was founded as well. Simultaneously, credit banks were being founded. The rate of manat was relatively low to other European currencies: \$1 was circa 280 manats. So, the budget was approximately \$2.375.000. Taking into account inflation rate over time, the amount makes up \$34.472.758,91. The other means of budget income were tariffs and excise duties, especially on wine, tobacco and oil. Most of the government money, roughly 84% was spent on paying salaries. Interestingly, only 30m was spent on education, whereas 80m on military needs. (G. Zeynalova, 2014)

Figure 3.1 Production of Crude Oil (1918-1920)



Source: G.Zeynalova, 2014

The location of the ADR on the shores of the Caspian Sea also created additional opportunities. The operation of the main Baku Trade Port was restored on 30.11.1918, after the liberation of Baku on 14.09.1918 from communists and the British army. Thus, there were newer economic relations created among the former Russian cities and Baku via vessels.

Sooner, Baku-Batumi and Baku-Ceyhan oil pipelines were also repaired. As it was mentioned, the oil industry always played a crucial role in the Azerbaijani economy.

Until 1919, the leading importer of Azerbaijani oil was Russia. However, once the Revolution expanded throughout the Empire, it was not possible to continue trading between each other. Due to this, the export of oil in 1919 accounted for 600k tones only. The only remaining variant was Europe. That is the reason why the restoration of the Baku-Batumi pipeline was so vital for Azerbaijan. Through that pipeline, Azerbaijan managed to transport 3m. Tones of oil. This opened up new opportunities to develop social and economic conditions in the country. (G. Zeynalova, 2014)

The Azerbaijan Democratic Republic existed for less than two years, before being occupied by the communist army on 09.1920. It is a bit complicated to measure their achievements, as there was progress neither in social, nor economic conditions. The main part of the budget was spent on wars with neighbouring Armenia. In 1920, the ADR capitulated to the Soviet army. Immediately, there was a new regime established, Azerbaijan Soviet Socialist Republic, which existed for 71 years.

This chapter is about the economy during the USSR,

3.3 Soviet Age

After the decay of the free, democratic country, there was a new era coming. Azerbaijan, along with some other nations, became a victim of the communist occupation. The time period of 1920-1939 might be considered an age of becoming a new economic policy. Complete replacement of the “elites” and economic structure was implemented. During World War II, Baku played a crucial role in the Soviet Union, as most of the Soviet oil was produced here. Even E.Churchill said: “If the oil is a queen, Baku is her throne.” However, that quote is no longer actual, as there are more prominent producers of oil nowadays.

The postwar period was followed by a slight economic rise due to peaceful circumstances. Year by year, Azerbaijani industry was increasing gradually. By 1950, the Azerbaijan Soviet Socialist Republic produced 39% as many manufactured goods as in 1940. During the time period of 1941-1970, there were 146 large industrial objects built in the ASSR.

During the Soviet reign, the plants and factories were erased throughout entire Azerbaijan, not only in Baku. Moreover, the government was intended to diversify the economy of the republic, by developing sectors such as heavy industry, chemistry, energetics, oil refining, petrochemistry, ferrous and non-ferrous metallurgy, marine and electrical engineering. (C. Quliyev, 2008)

This period also associates with the founding of the new industrial cities: Sumqayit, Mingachevir, Shirvan and Dashkesan. Until '50-'60s of the XX, the burden of satisfying the oil needs of the entire Soviet Union was on Azerbaijan. Thus, the oil industry developed dramatically in the ASSR. The government maintained local oil and natural gas industries. However, once new sources of oil were founded in Siberia, the interest to the Azerbaijani oil decreased.

The new environment also had an impact on the demographic concept of the country. Once maintenance of the state was not as generous as before, the contributions from the budget were directed to a few regions only, especially Baku and Sumqayit. This brought to the fact that 63% of the population of the entire republic was concentrated in 4 cities out of 60.

By '70-'80s of the XX century, the Azerbaijani economic potential increased dramatically. Despite the fact the population of the ASSR accounted for only 2,5% of the entire population of the USSR, Azerbaijan took one of the leading positions among other 15 republics in terms of industry: 100% of conditioners, 70% of oil equipment, 11,7% of silk materials, 10,5% of electric welding equipment, 9,6% of cotton, 7,8% of rubber soda, more than one third of the wine and wine production, 5,7% of refrigerators. Besides this, raw materials from Azerbaijan were transferred to other republics, especially Ukraine and Russia, for processing in local factories. The other example of the economic environment in the ASSR at that period of time: as economic system in the USSR was central planning, the distribution of the funds was made by the government; during the '80s Azerbaijan donated two bil. Rubles more to the union budget, than it received from it. Basically, Azerbaijan was so-called “donor republic.” Unfortunately for Azerbaijan and Azerbaijanis, they had no power to determine their future. The soviet government predetermined everything. So, Azerbaijan was forced to support other, less developed republics, materially.

This chapter narrates about the period from 1991 to nowadays.

3.4 Independent Period

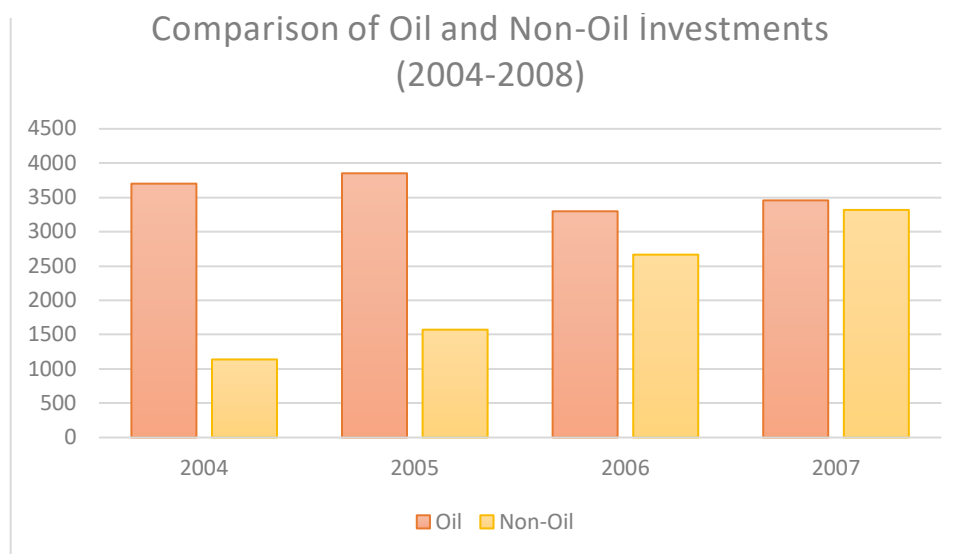
After gaining independence in 1991 from the Soviet Union, the Azerbaijani government was intended to embrace Market values. The country, rich in hydrocarbon resources and tempered by many years of experience in the field of oil production and refining, had an excellent potential to develop in market environment. Except for having industrial capabilities, Azerbaijan had very favourable climatic conditions to develop the agrarian sector of the economy.

In the 1990s, the main economic reforms, major regulatory and legislative acts were implemented that shaped layout of the Azerbaijani Economy. There was a smooth transfer from central planning to the market economy. The role of government was significantly lowered: the system of government orders, quotas and licensing were completely eliminated, processes in foreign trade and price activities were simplified, a legal basis was established to attract foreign investors. (S. Yaqubov, 2012)

In accordance with Azerbaijan State Statistics Committee, in 1995, there were more than 10 thousand small enterprises, roughly 80 thousand individual commercial structures, more than 100 commercial banks, 3.5 thousand cooperatives, 850 farms.

At this period of time, most foreign investors were primarily attracted by the Azerbaijani oil industry. This provoked a signing of the Contract of the Century in 1994. The contract was especially concentrated on oil mining and oil discoveries in the Azeri-Chirag-Gunashli field. The contract itself was signed between 8 following countries: Azerbaijan, Turkey, USA, Japan, UK, Norway, Russia, and Saudi Arabia). The Contract of the Century allowed the signing of other 26 contracts involving 41 oil companies from 19 countries. According to the clauses of these contracts, work is still underway to explore and drill new deposits, putting into practice oil and gas production. It is also important to point out that the oil and gas production under these contracts is still increasing from year to year. (M. Mir-Babayev, 2009)

Figure 3.2 Comparison of Oil and Non-Oil Investments (2004-2008)

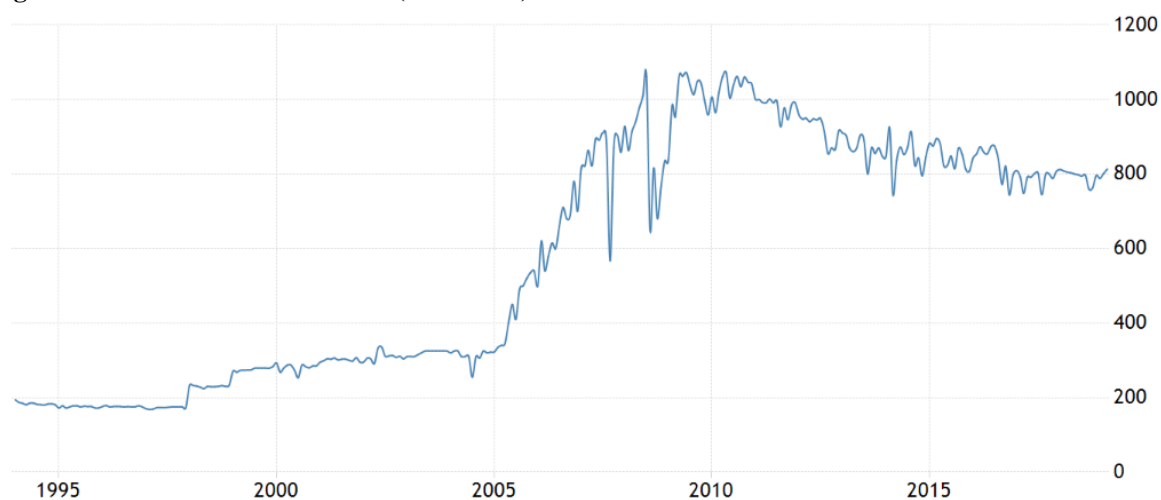


Source: State Statistics Committee, 2008

As per information from the State Statistics Committee of Azerbaijan, For the time period of 2004-2007 most of investments were made to the oil sphere. The ratio can be seen from the figure above. Even though the rate became more or less equal in 2007, it was not an indicator of growing interest in other fields of economy; it was caused by a huge decrease of prices in the oil market.

Currently, the oil and gas sector are still the basis of the Azerbaijani Economy. There is a line chart, showing the progress of production of crude oil in Azerbaijan at the time period of 1995-2019. The numbers are measured in BBL/D/1K- thousand barrels per day. As we can see from the chart below, generally speaking, there is an upward trend in terms of crude oil production in Azerbaijan. It seems that until 2004, oil production was relatively stable. Starting from 2004, we can witness wild fluctuations: firstly, the production of oil skyrocketed until 2007, followed by a sharp decrease in 2008. Then, significant fluctuations followed until 2011. Starting from 2011, there was a slight decrease up to 2016. Starting from 2016, there is relative stability in oil production.

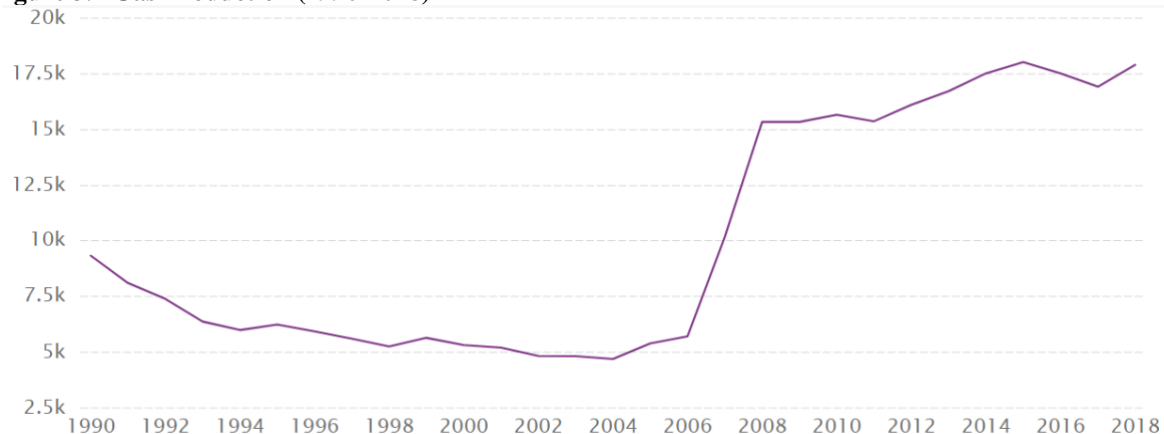
Figure 3.3 Production of Crude Oil (1995-2019)



Source: tradingeconomics.com, 2019

In accordance with the table No.3.3, representing gas production, which is reflected in Cub m mn, it can be seen that there was a steady decrease from 1990 to 2005. At the period of 2006-2008, there can be observed a dramatic increase, followed by a stable, insignificant increase till the end of the period. Compared to oil production, gas production might be considered more consistent and stable.

Figure 3.4 Gas Production (1990-2018)



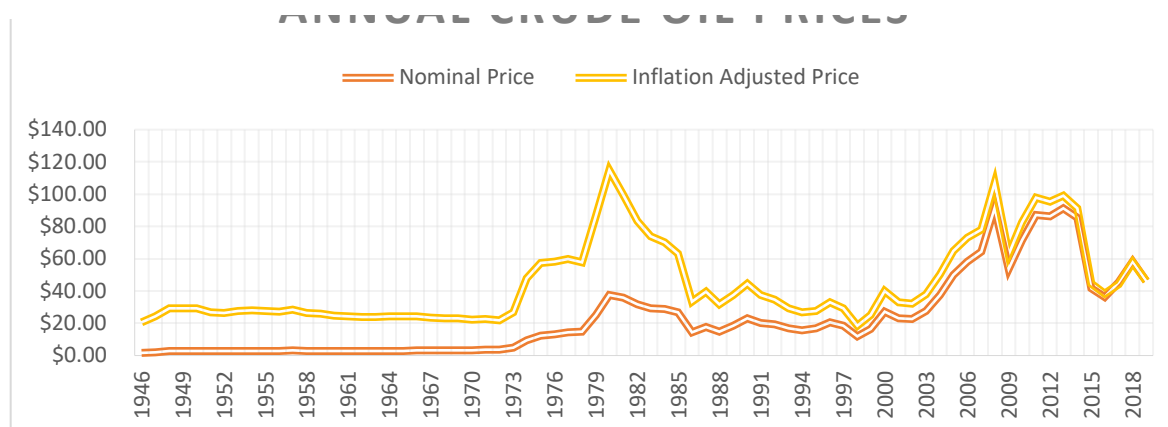
Source: OPEC, 2018

It is important to highlight that, for instance, in 2010, only 16.7% out of all produced oil in the country was mined by the governmental company- State Oil Company of Azerbaijan. The rest was produced by consortium "Azeri-Chirag-Guneshli" within the framework of oil contracts. While, in the same year, 27.4% of natural gas produced was produced by State Oil Company of Azerbaijan. In 2010, Azerbaijan exported its goods to 22 countries: 86.5% of all

goods consisted of raw materials, whereas only 6% were petroleum products. (M. Mir-Babayev, 2009)

As it is visible, Azerbaijan strongly depends on exports of raw materials- especially crude oil and natural gas. Thus, any change in the price of these products causes positively or negatively on Azerbaijan Economy. Significant increase in oil prices in 2006-2008, as a result of agreement of reduction of oil production between OPEC countries, Azerbaijan Economy started to “blossom.” A massive inflow of money from the sale of crude oil made Azerbaijan one of the leaders in the GDP growth rate.

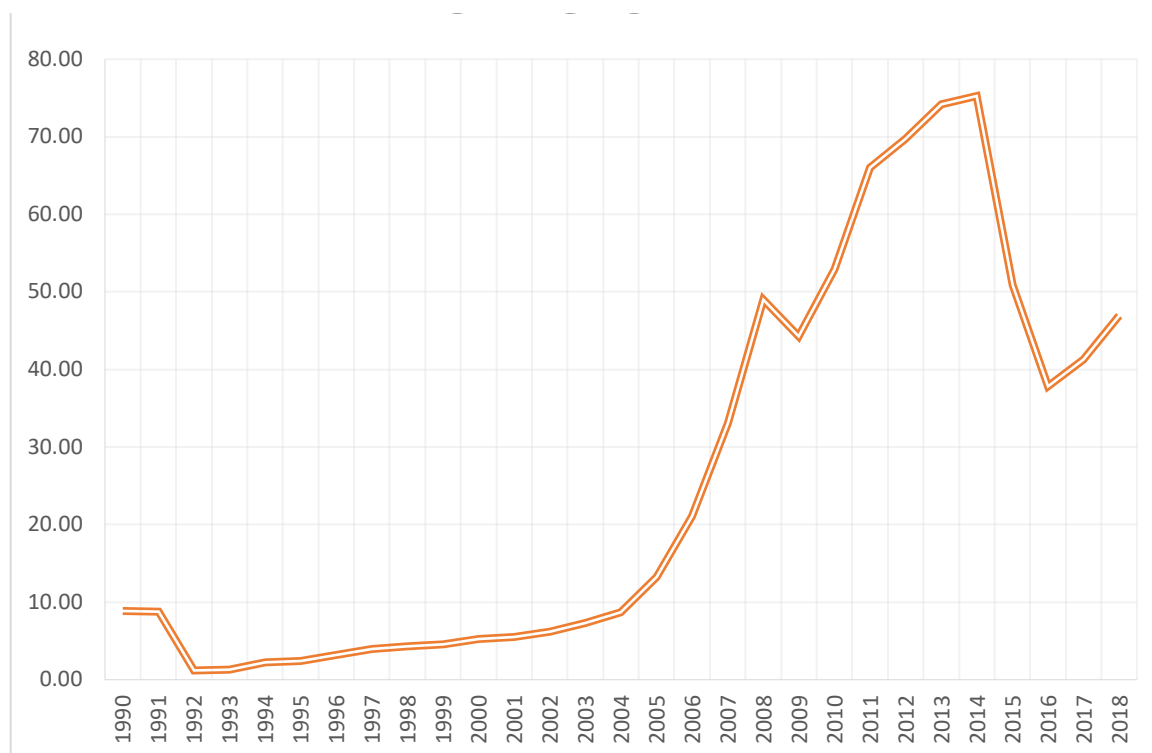
Figure 3.5 Crude Oil Prices (1946-2019)



Source: inflationdata.com, 2019

Azerbaijan faced quite high changes in GDP at that period of time: 2005- 26.4%, 2006- 34.5%, 2007- 25%, and, despite Financial Crisis in 2008, a relatively high percentage of 10.8% in 2008.

Figure 3.6 GDP Growth in Azerbaijan (1990-2018)



Source: countryeconomy.com, 2019

As it can be seen from the figure No.3.6, GDP was moderately low until 2006. Then, there can be observed a considerable increase in the time period of 2005-2008, which was followed by a slight decrease in 2009. Then, after 2009, GDP continued to increase, peaking in 2014. After 2014, GDP plummeted up to 2016. And then, levelled off by having a slight increase in 2017.

In accordance with official data, in 2005-2008, 55%-66% of GDP consisted of the oil sector. In 2009-2010, there was an insignificant decrease in the share of the oil sector in GDP, while there was a slight increase in other sectors.

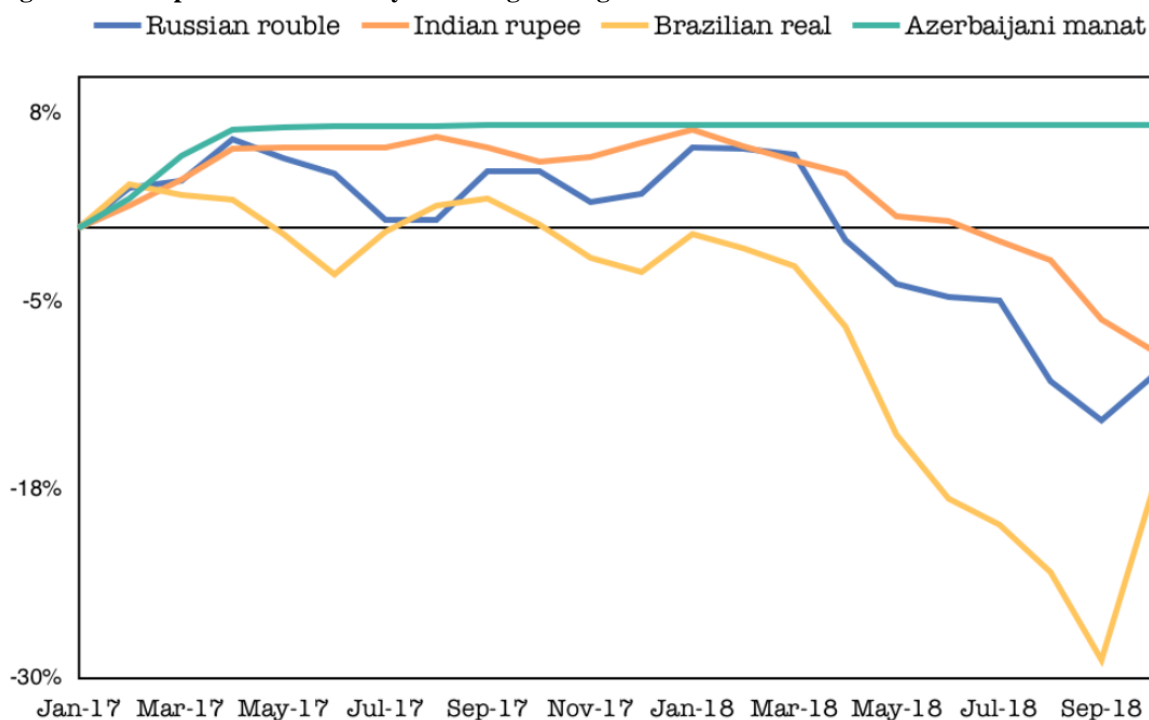
The other, most influential, event for Azerbaijani economy was the devaluation of its currency. As it was mentioned before, Azerbaijan, being hydrocarbon exporter, strongly depends on global prices of oil. As we have observed from the line chart, reflecting prices of crude oil by year, prices slumped in 2014-2015. Thus, the Azerbaijani government was forced to implement devaluation of its currency in 2015, declaring free float of AZN. According to Nailia Bagirova, "Since 2014, when the oil prices collapse began, the manat lost 56 per cent of

its value after being pegged to around 0.78 versus the greenback for several years.” (N. Bagirova, 2017)

Besides having a dramatic devaluation in 2015, which caused Azerbaijani Manat to get up from 0.7844 to 1.05 to USD, Central Bank allowed free float of the AZN, which brought to 1.55 for 1 USD. Made decision was intended to stimulate the competitiveness of the currency in terms of low oil prices. As a result, AZN depreciated again by 47.6%. All in all, total devaluation accounted for 97.6%. Then, AZN was fluctuating between 1.7 and 1.9 to 1 USD.

However, in spite of having “shock therapy” in terms of economics for currency, Azeri manat stays relatively stable. From the line chart below, we can imply the most dramatic changes of currencies against the U.S. dollar at the time period of 01.2017-09.2018. As we can see, India, Brazil and Russia experienced an impressive decrease in their currencies against the U.S. dollar. At the same time, Azerbaijani Manat remained stable and even managed to increase its value. Interestingly, although Russia, one of the main economic partners of Azerbaijan, faced a sharp decrease in ruble’s value, Azerbaijani manat remained unchanged.

Figure 3.7 Comparison of Currency with Neighboring Countries

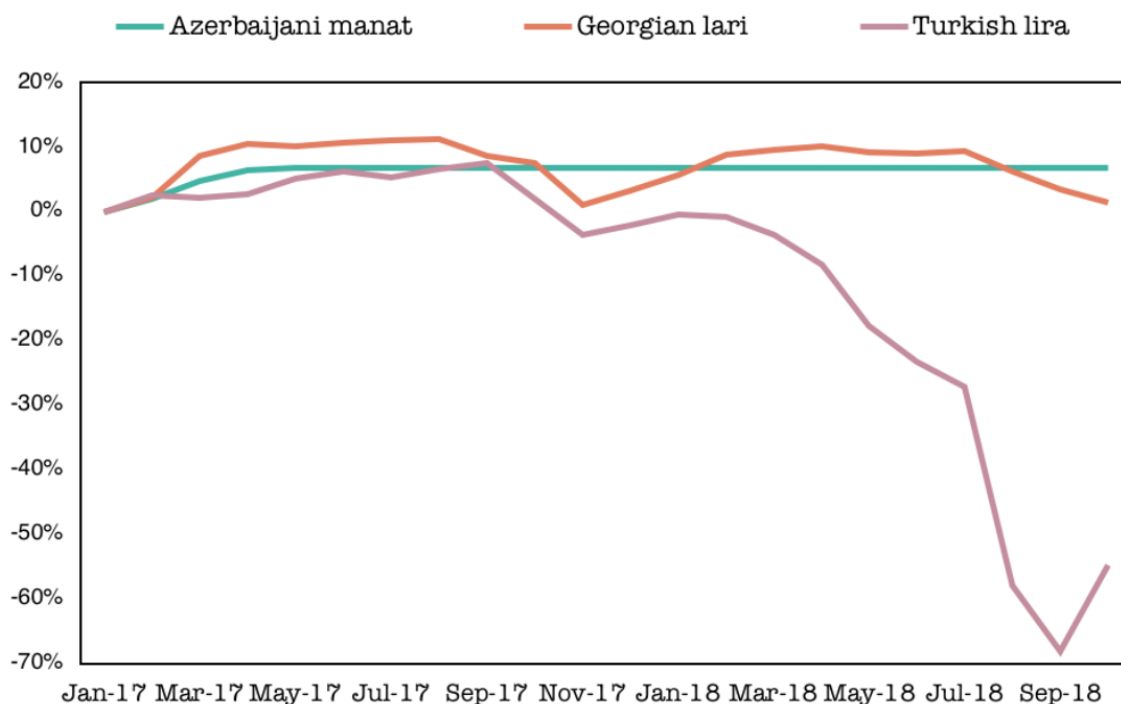


Source: Samten Bhutia, 2018

The other chart represents the situation of neighbours of Azerbaijan in terms of their currency against the U.S dollar. Besides from Russia, Georgia and Turkey are the most crucial economic partners of Azerbaijan. The time interval is the same as for the previous chart. As we

can see, Turkish lira experienced a sharp decline in the percentage of roughly 68%, whereas Georgian lari, even though it did not fall below 0%, it experienced a gradual decrease. Nevertheless, Azerbaijani manat remains constant.

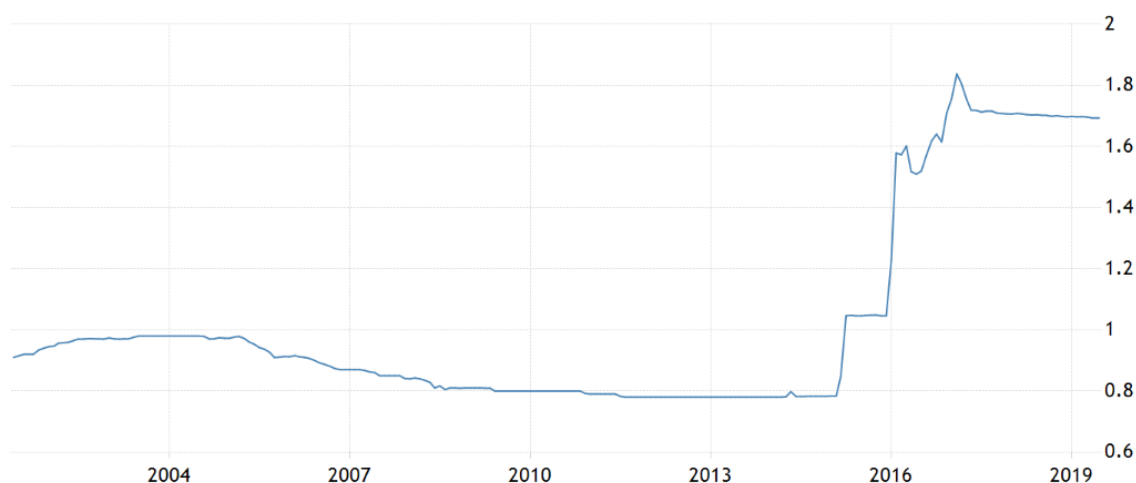
Figure 3.8 Comparison of Currency with Main Economic Partners



Source: Samten Bhutia, 2018

According to Samten Bhutia, an analyst covering Central Asia and South Caucasus at The Economist Intelligence Unit, the only reason why Azerbaijani manat, unlike other currencies following free float, remains the same only because Central Bank still intervenes. (S. Bhutia, 2018).

Figure 3.9 AZN against USD



Source: tradingeconomics.com

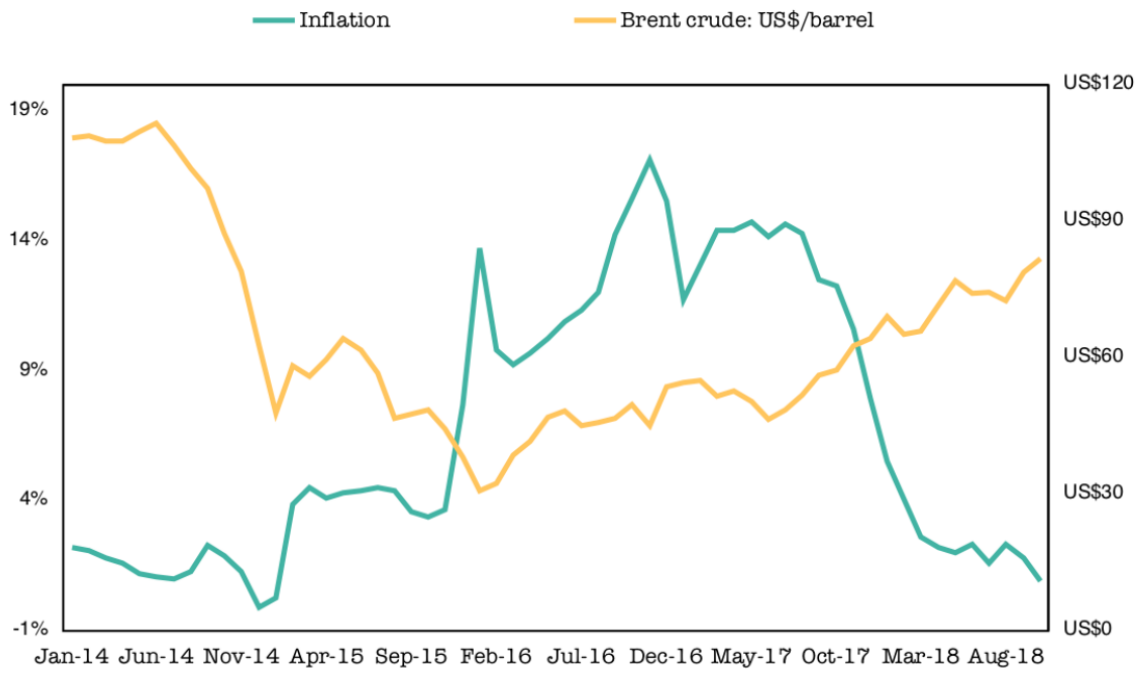
The Figure No.3.9 indicates Azerbaijani manat against the U.S. dollar. As it can be seen, right now, 1 USD is circa 1.7 manats. The chart precisely represents devaluation, associated with a decrease in oil prices.

It is important to highlight that, as it was mentioned before, almost any fiscal action to be taken in Azerbaijan firmly depends on global prices of oil. Even the inflation rate.

The chart No.3.10, represents the dependency of the inflation rate with oil prices. The chart covers a 4-year-period. Therefore, the Azerbaijani Economy could be assessed as very fragile.

In the figure No.3.10, it can be seen that when the prices of oil are high, such as at the end of the period, on 08.2018, the inflation rate is low. On the contrary, when oil prices are low, such as on 02.2016, the inflation rate is also high.

Figure 3.10 Inflation Rate and Crude Oil Prices



Source: Samten Bhutia, 2018

As it implies from the information in the Figure No.3.10, it reveals that the Azerbaijani Economy is strongly sensitive to global changes in the prices of hydrocarbon products.

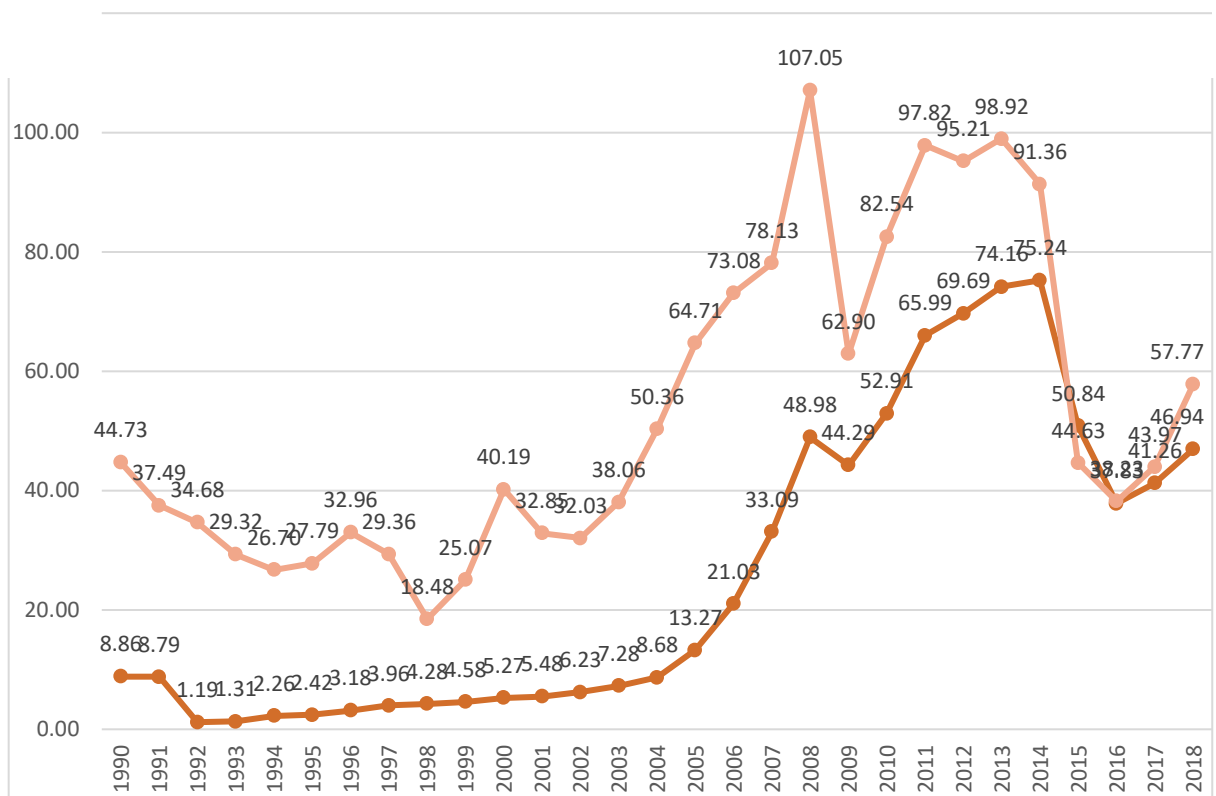
4 Practical Part

This chapter of the practical part consists of the analysis made to reveal the relationship between Global Oil Prices and GDP.

4.1 Impact of Oil Prices on GDP

First of all, it needs to be tested whether there is a relationship between the GDP and crude oil prices. The testing is done it via linear regression in the time period of 1990-2018. The data is given below:

Figure 4.1 GDP and Oil Prices (1990-2018)



Source: countryeconomy.com and inflationdata.com, 2019

The figure No.4.1 represents the data that was used for analysis. The GDP is reflected in USD (millions) and Price of crude oil is represented in USD per barrel.

Table 4.1 Impact of Oil Prices on GDP

Linear Regression Results					
The REG Procedure					
Model:		Linear_Regression_Model			
Dependent Variable:		GDP			
Number of observations Read		29			
Number of observations Used		29			
Analysis of Variances					
Source	DF	Sum of Squares	Mean Square	F Value	PR>F
Model	1	12903	12903	65.02	<0.0001
Error	27	5357.96585	198.44318		
Corrected Total	28	18261			
Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	PR> t
Intercept	1	-17.21697	5.9464	-2.9	0.0074
Crude Oil Price	1	0.81279	0.1008	8.06	<0.0001

Source: Own calculation

$$Y = -17.21697 + 0.81279x$$

$$H_0: B = 0$$

$$H_1: B \neq 0$$

In the null hypothesis, it is tested whether there is a significant relationship between GDP and price of crude oil. H_0 stands for the fact that there is no significant statistical relationship between the variables, whereas H_1 signifies the fact that there is a relationship between them.

$$F = 65.02$$

$$p\text{-value} = 0.0001$$

As a confidence level, α , or, in other words, the probability of rejecting H_0 , when it is true. In this case, 5% is selected.

$$\alpha = 0.05$$

$$0.05 > 0.0001$$

$\alpha > p \rightarrow$ the hypothesis is rejected (There is a significant relationship between variances)

$R^2 = 0.7066$ (the change in crude oil by one digit causes 71% change in GDP)

Thus, the data is positively strong.

$R = 0.84059$ (there is a positive trend between variables)

$$H_0: B=0$$

$$H_1: B \neq 0$$

$$t\text{-value} = 8.06$$

$$p\text{-value} = 0.0001$$

$$\alpha = 0.05$$

$$0.05 > 0.0001$$

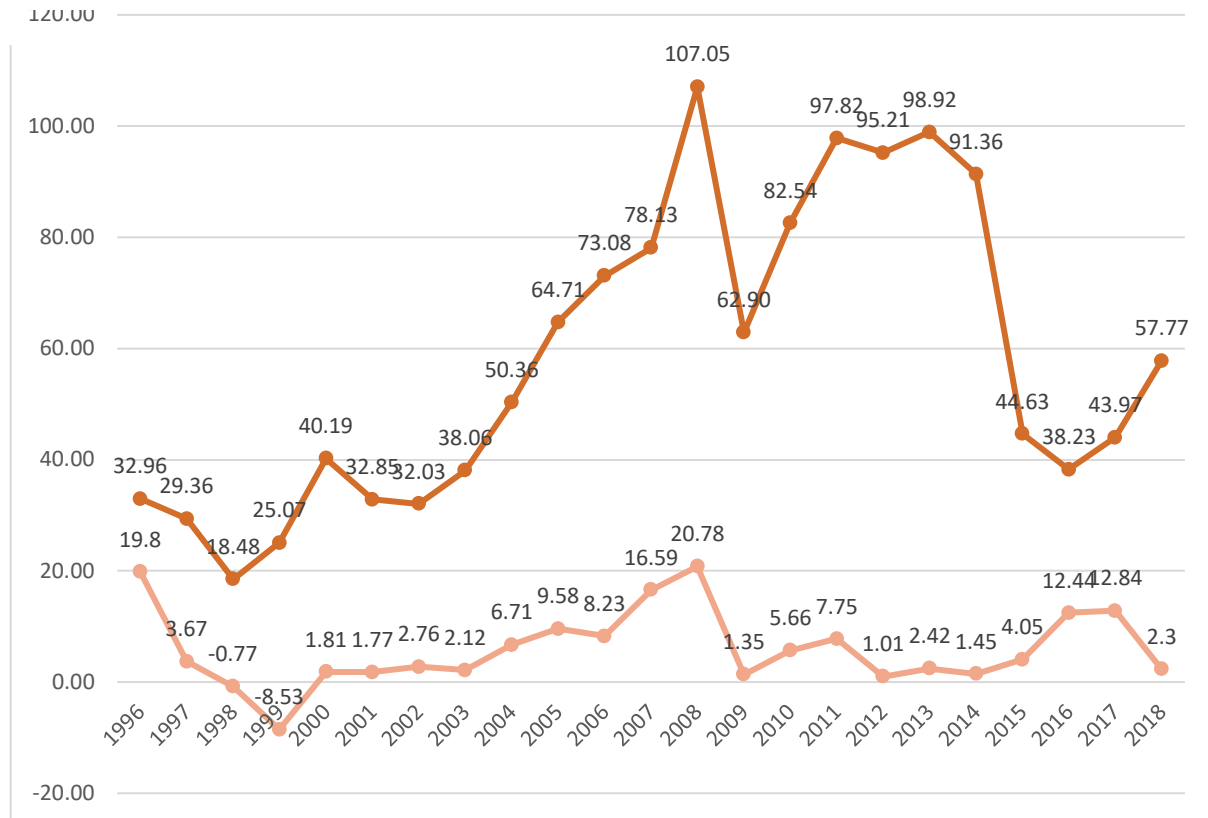
$\alpha > p \rightarrow$ the hypothesis is rejected (There is a significant relationship between variables)

This chapter of the practical part comprises testing of relationship between global oil prices and inflation rate.

4.2 Impact of Oil Prices on Inflation Rate

Once done with the testing of the relationship between GDP and oil prices, the relationship between inflation rate and crude oil prices needs to be found. Using the same process, the analysis is proceeded for the time period of 1996-2018.

Figure 4.2 Inflation rate and Oil Prices (1996-2018)



Source: inflationdata.com and statista.com, 2019

The data used for analysis has been done in accordance with the data from the Figure No.4.2. The inflation rate is reflected in percentage terms, whereas Crude Oil is represented in USD per barell.

Table 4.2 Impact of Oil Prices on Inflation Rate

Linear Regression Results					
The REG Procedure					
Model:	Linear_Regression_Model				
Dependent Variable:	Inflation				
Number of observations Read	23				
Number of observations Used	23				
Analysis of Variances					
Source	DF	Sum of Squares	Mean Square	F Value	PR>F
Model	1	81.79736	81.79736	1.77	0.1975
Error	21	969.67519	46.17501		
Corrected Total	22	1051.47255			
Root MSE		6.79522	R-Square	0.0778	
Dependent Mean		5.90391	Adj R-Sq	0.0339	
Coeff Var		115.09688			
Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	PR> t
Intercept	1	1.80352	3.39098	0.53	0.6004
Crude Oil Price	1	0.07061	0.05305	1.33	0.1975

Source: Own calculation

$$Y = 1.80352 + 0.07061x$$

$$H_0: B = 0$$

$$H_1: B \neq 0$$

$$F = 1.77$$

$$p\text{-value} = 0.1975$$

$$\alpha = 0.05$$

0.05 < 0.1975 (the H₀ hypothesis is not rejected)

It is confirmed that there is no statistically significant relationship between variances, when confidence level is 95%.

There is no need to proceed with reaching our R₂ and R values since the hypothesis is not rejected.

The data reflecting variables is reflected below:

$$H_0: B=0$$

$$H_1: B \neq 0$$

$$t\text{-value} = 1.33$$

$$p\text{-value} = 0.1975$$

$$\alpha = 0.05$$

$0.05 < 0.1975$ (the H_0 hypothesis is not rejected)

All in all, it is revealed that there is no significant impact of changes in crude oil prices on the inflation rate. Even though in the theoretical part it was mentioned that these indicators are intertwined, most likely, there are other more significant factors influencing inflation rate.

This chapter of the practical part consists of the testing of the dependency between Georgian GDP and Azerbaijani oil exports.

4.3 Impact of Oil exports from Azerbaijan on Georgian GDP

Now, after finding out internal results, the focus is made on the main partner and importer of Azerbaijani Oil – Georgia. Using the same method, it will be tested whether there is a significant relationship between GDP growth of the state of Georgia and Oil Exports of Azerbaijan. The data is given below:

Table 4.3 Oil exports and Georgian GDP (2000-2018)

Year	Oil Exports (per day)	GDP of Georgia (in billions)
2000	156164.3836	3.057
2001	211970.0548	3.219
2002	241384.274	3.396
2003	215565.3096	3.991
2004	232970.8219	5.125
2005	353184	6.411
2006	550600	7.745
2007	742360	10.173
2008	769940	12,795
2009	901838.3562	10.767
2010	954256.3918	11.639
2011	838765.9452	14.435
2012	873794.2902	15.846
2013	796142.9535	16.14
2014	773771.8805	16.509
2015	780501.8805	13.994
2016	765548.9049	14.378
2017	762810.661	15.081
2018	749234.4478	16.21

Source: imf.org and worldbank.org

In the table No.4.5 the data used for the analysis is shown. The exports are reflected in the number of barrels per day, while GDP of Georgia is reflected in (billions) USD.

Table 4.4 Impact of Oil Exports from Azerbaijan on Georgian GDP

Linear Regression Results					
The REG Procedure					
Model:		Linear_Regression_Model			
Dependent Variable:		Georgian GDP			
Number of observations Read		24			
Number of observations Used		19			
Analysis of Variances					
Source	DF	Sum of Squares	Mean Square	F Value	PR>F
Model	1	364.2616	364.2616	69.08	<0.0001
Error	17	89.64006	5.27294		
Corrected Total	18	453.90166			
Parameter Estimates					
Root MSE		2.29629	R-Square	0.8025	
Dependent Mean		10.57426	Adj R-Sq	0.7909	
Coeff Var		21.71583			
Variable	DF	Parameter Estimate	Standard Error	t Value	PR> t
Intercept	1	0.64245	1.30592	0.49	0.629
Exports of Oil	1	0.00001617	0.00000195	8.31	<0.0001

Source: Own calculation

$$Y = 0.64245 + 0.00001617x$$

$$H_0: B=0$$

$$H_1: B \neq 0$$

$$F = 69.08$$

$$p\text{-value} = 0.0001$$

$$\alpha = 0.05$$

$$0.05 > 0.0001$$

$\alpha > p \rightarrow$ the hypothesis is rejected (There is significant relationship between variables)

$R^2 = 0.8025$ (the change in in crude oil by 1 digit causes 80% change in GDP)

Thus, the data is positively strong.

$R = 0.8958$ (there is a positive trend between variables)

$$H_0: B=0$$

$$H_1: B \neq 0$$

$$t\text{-value} = 8.31$$

$$p\text{-value} = 0.0001$$

$$\alpha = 0.05$$

$$0.05 > 0.0001$$

$\alpha > p \rightarrow$ the hypothesis is rejected (There is significant relationship between variables)

All in all, it is concluded that there is a significant share of exports of Azerbaijani oil in Georgian GDP.

5 Results and Discussion

As it was found out from the practical part, the GDP of both Azerbaijan and Georgia is strongly influenced by the changes in the Crude Oil market, while Inflation of Azerbaijan is not. If the dependency between GDP and oil prices was undoubtful from the beginning, inflation does not. In the theoretical part, it was told that the dramatic decrease in oil prices caused a huge change in the inflation rate. However, it is important to mention that it was an indirect impact on inflation. Since it was a devaluation, a measure taken by the Central Bank, in order to attract foreign investors, it cannot be considered a direct impact on the Inflation rate.

Even though the Economy of Georgia was not deeply discussed in the theoretical part, it was mentioned that the economy of the country strongly depends on tariffs on gas and oil exports from Azerbaijan. And it was confirmed in the practical analysis.

To sum up, the results of the testing in practical part mainly signifies following points:

- 1) The main share of the GDP consists of the commodity market – mainly crude oil and natural gas.
- 2) Although the oil market does not necessarily influence the inflation rate directly, as it was examined in the practical part, it forces the government to take actions connected to the process of devaluation of the currency.
- 3) Besides having an impact on the exporter country itself, the raw materials hugely influence the neighbouring importer country – Georgia – as well.

In order to get rid of the burden of the dependency on exports of raw products, it is vital for Azerbaijan and its government to diversify the economy by attracting new investors, contributing more money to different fields of the economy, to stimulate presence of the small and medium-sized businesses in the market, to decrease the governmental intervention to the market, and to deal with monopolies inside of the country, which hugely deteriorate market conditions.

6 Conclusion

To conclude, the main aim of this thesis was to identify the relationship between oil market and most essential fields of economy – GDP and inflation rate of Azerbaijan. In order to examine the extent of dependency and magnitude of its implication, the dependency between GDP of Georgia and oil exports of Azerbaijan was also revealed. In the literature review, the key points of the history of Azerbaijani economy were touched upon and the most recent and significant factors influencing the situation in the country were highlighted. It was mostly confirmed with several arguments in the theoretical part that there is a strong dependency between the economy of Azerbaijan and oil/gas market.

Meanwhile, the practical part consisted of 3 different stages:

- 1) The testing of the relationship between GDP and global oil prices.
- 2) The testing of the relationship between Inflation rate and global oil prices.
- 3) The testing of the relationship between Georgian GDP and exports of oil from Azerbaijan

All in all, the results of the practical part conform to the fact that the government strongly depends on changes in the global oil market.

The disregard of the authorities towards diversification at the beginning of the 2000s, caused by high oil prices, starts to appear now.

The attempts to get rid of slain of the dependency of economy on Oil industry have been taken recently. The authorities take various actions to attract foreign tourists by simplifying the Visa system, enforce touristic destinations, develop agricultural sector, especially cotton, building some local plants that do not necessarily influence the Economy as such (the production mainly covers local demand).

Recent deterioration of the economy also caused a huge discontent among citizens, followed by protests, rallies, increase of opposition movements, which has been paralyzed for a long period of time due to the long-term good wellbeing of the population, harsh repressions, and so on.

Destabilized country also faces a danger of the war. In order to gain back support from population, the government might start a splendid little war with Nagorno-Karabakh Republic, similar to 2016.

A new outbreak of the virus in China also affected significantly the prices of oil: they plunged again.

On the other hand, there are other, quite major projects, that could prosper Azerbaijani Economy, such as South Gas Corridor (already operates), Trans-Anatolian Pipeline (already operates), Trans-Adriatic Pipeline (is planned to be completed this year), Middle Corridor Project of the New Silk Road (partially completed). Even though most of the mentioned projects are related to gas sector, they can ensure the government in a temporary inflow of money, during which, the authorities which have learnt on their own former mistakes, will take corrective actions to diversify the economy.

7 References

- 1) BURNHAM, K. P. and ANDERSON, D. R. (2002), *Model Selection and Multimodel Inference: A Practical Information-Theoretic Approach*, Springer-Verlag, ISBN 978-0-387-95364-9
- 2) MATVEYCHUK, A. (2006). *Kratkaya Istoriua Bratyev Nobel*. Available from <http://www.oilru.com/nr/53/116/> (accessed 2 october 2019).
- 3) HUSEYNLI, A. (2018). *Azərbaycan Xalq Cümhuriyyəti Dövrünün İqtisadiyyatı*. Baku: Olaylar. Available from: www.elibrary.az/docs/qazet/qzt2018_2497.htm (accessed 25 September 2019).
- 4) ISMAYILOVA, G. (2018). Azərbaycan Xalq Cümhuriyyəti İqtisadi Siyasətinin Esas İstiqamətləri, *ADAU-nun esas elmi əsərləri*, vol.94, no.3, pp. 168-169.
- 5) ZEYNALOVA, G. (2014). *Azərbaydzhanskaya Demokraticheskaya Respublika. Ekonomika*. Available from: ru.oxu.az/economy/26751 (accessed 12 october 2019).
- 6) PASHAYEV, A. and RASULOV, A. (2018). *Politika Prosvesheniya*. Milli Arxid İdaresi, Baku. ISBN 978-9952-8142-7-9.
- 7) MAHMUDOV, Y. (2016). *Azərbaycan Xalq Cümhuriyyəti Türk – İslam dünyasında ilk demokratik, hüquqi və dünyəvi dövlət idi*, Baku: Xalq qəzeti. Available from: elibrary.az/docs/qazet/qzt2016_1414.htm (accessed 2 October 2019).
- 8) QULIEV, C. (2008). *Azərbaycan Tarixi*, Baku, Elm, ISBN 978-9952-448-44-03.
- 9) YAQUBOV, S. (2012). *1990-2000 illərdə Azərbaycan iqtisadiyyatı: inkişaf meyli, strategiyası və problemləri*, Baku, Grifli, Y 0601000000-17, M652-2001
- 10) MIR-BABAYEV, M. (2009). *Kratkaya Istoriya Azerbaydjanskoy Nefti*, Baku, Azerneshr, ISBN 4502020000, M-651(07)-2009
- 11) Tradingeconomics.com, Azerbaijan Crude Oil Production, accessed 1 November 2019, available from: tradingeconomics.com/azerbaijan/crude-oil-production.
- 12) Ceicdata.com (2018). Azerbaijan Natural gas Production: OPEC: Marketed Production, 1 November 2019, available from: eicdata.com/en/indicator/azerbaijan/natural-gas-production-opecc-marketed-production.
- 13) Inflationdata.com, Historical Crude Oil Prices (Table), accessed 3 November 2019, available from: inflationdata.com/articles/inflation-adjusted-prices/historical-crude-oil-prices-table/.

- 14) Countryeconomy.com, Azerbaijan GDP - Gross Domestic Product, accessed 9 November 2019, available from: countryeconomy.com/gdp/azerbaijan .
- 15) BAGIROVA, N. (12.01.2017). *Azerbaijan drops FX rate corridor to float manat currency*, Reuters, accessed 20 November 2019. Available from: www.reuters.com/article/azerbaijan-forex/update-1-azerbaijan-drops-fx-rate-corridor-to-float-manat-currency-c-bank-idUSL5N1F23R1.
- 16) Samten, B. (15.11.2018), accessed 20 November 2019. Available from: eurasianet.org/why-has-the-azerbaijani-manat-flatlined.
- 17) Tradingeconomics.com, USDAZN, accessed 20 November 2019. Available from: tradingeconomics.com/azerbaijan/currency.

8 Appendix