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THE EFFECT OF OIL PRICES ON AZERBAIJAN'S ECONOMY (2009–2018)[1]

Abstract. Since oil plays an important role in the economy of Azerbaijan, the events in the global oil market deeply affect the national economy. Moreover, the COVID-19 pandemic influenced the economy of Azerbaijan, in which oil and gas have a significant place. In April 2020, the price of one barrel of oil on the world market fell to $1. One reason for this was the decrease in oil demand due to the lockdown regime implemented by many countries due to the rapid outbreak of the COVID-19 pandemic, and another reason was that the OPEC (Organization of the Petroleum Exporting Countries) countries could not agree on reducing oil production. The aim of this research is to show the impacts of oil prices on gross domestic product (GDP) of Azerbaijan, the growth rate of GDP, and the amount of oil production in Azerbaijan in 2009-2018. The hypothesis of the research is that oil prices seriously influence the economy of Azerbaijan and there is a correlation between the growth rate of Azerbaijan's gross domestic product and the oil prices. The study starts with a brief description of the history of Azerbaijan's oil industry, followed by oil industry's importance in the economy of Azerbaijan, the role in foreign economic relations, and the effects on the economy of country. The quantitative method was used as a key research method. The data used in the analysis of this study were collected according to the literature scanning method, which is one of the data collection techniques. Further, descriptive statistics technique, which is a quantitative data analysis technique, was used to analyse the data. The findings show that the changes in oil prices in 2009-2018 directly affect the Azerbaijan's gross domestic product, the growth rate of GDP, and the amount of oil production in Azerbaijan. Thus, as oil prices increase, the growth rate of the country's gross domestic product and GDP increase and decrease as oil prices decrease.

Keywords: oil, oil price, gas, economy of Azerbaijan, gross domestic product of Azerbaijan, gross domestic product growth rate, oil production, oil industry, Azerbaijani manat, OPEC+

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ИССЛЕДОВАТЕЛЬСКАЯ СТАТЬЯ

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Влияние цен на нефть на экономику Азербайджана (2009–2018 гг.)

Аннотация. Нефть играет важную роль в экономике Азербайджана, и значительное влияние на нее оказывают события на мировом рынке нефти, а также разразившаяся пандемия COVID-19. В апреле 2020 г. цена барреля нефти на мировом рынке упала до 1 доллара. Одной из причин было снижение спроса на нефть из-за введенного многими странами карантина для замедления распространения коронавируса; другой причиной стало отсутствии договоренностей между странами ОПЕК (Организация стран — экспортеров нефти) по сокращению добычи нефти. Цель исследования — продемонстрировать влияние цен на нефть на валовой внутренний продукт (ВВП) Азербайджана, темпы роста ВВП и объем добычи нефти в стране в период с 2009 г. по 2018 г. Согласно предложенной гипотезе, цены на нефть серьезно влияют на экономику Азербайджана. Также предполагается, что существует корреляция между темпами роста валового внутреннего продукта Азербайджана и ценами на нефть. Исследование начинается с краткой истории нефтяной промышленности Азербайджана, а также описания её значения в экономике Азербайджана, роли во внешнеэкономических связях и влияния на экономику страны. В качестве основного был выбран количественный метод исследования. Данные для анализа были собраны путем сканирования литературы — одного из методов сбора данных. Затем был применен метод описательной статистики, который представляет собой метод количественного анализа данных. Полученные данные показали, что изменения цен на нефть в 2009-2018 гг. напрямую повлияли на валовой внутренний продукт Азербайджана, темпы роста ВВП и объем добычи нефти в стране. Таким образом, темпы роста валового внутреннего продукта и сам ВВП увеличиваются и уменьшаются по мере роста и снижения цен на нефть.

Ключевые слова: нефть, цена на нефть, газ, экономика Азербайджана, валовой внутренний продукт Азербайджана, темп роста валового внутреннего продукта, добыча нефти, нефтяная промышленность, азербайджанский манат, ОПЕК+

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1. Introduction

The income in the Azerbaijani economy mainly comes from natural gas and oil reserves. Natural gas and oil account for more than 90 percent of Azerbaijan's exports. The Oil & Gas Journal calculated that the proven crude oil reserve of Azerbaijan amounted to 7 billion barrels as of 2013 and reported that a total of 2 billion tonnes of production was made from 1846 to 2017. The Azerbaijan's state oil company SOCAR produces approximately 20 % of the total oil production in the country. The remainder of the oil produced is extracted by international energy companies. The oil production amount of Azerbaijan increased steadily from 315 thousand barrels to 1 million barrels per day in 2002–2010 (Atasağun, 2018).

Although it has been several years since the last economic crisis, the world economy is still very sensitive to temporary and non-economic situations. The problem is how the spread of coronavirus (COVID-19) will affect the global energy markets. In addition, the fact that a virus can destabilise the global economy in a short time and the lack of agreement among the major players in the world oil market led to a sharp decline in world oil prices. To assess the situation, it is necessary to pay attention to the chronology of events. Negotiations at the official meeting of the Organization of the Petroleum Exporting Countries (OPEC) and non-OPEC countries on March 6 in Vienna failed. Russia and a number of non-OPEC countries have rejected a proposal to reduce daily oil production by 1.5 million barrels in response to the coronavirus-related situation. The current agreement could be extended only until the end of the second quarter of 2020. As a result, none of the members of the alliance before April 1 were obliged to limit production, and Saudi Arabia, according to media reports, has announced its intention to increase production and lower oil prices.

It should be noted that the 6th meeting of OPEC and non-OPEC ministers in Vienna on December 6, 2019 decided to reduce oil production by

500,000 barrels per day in the first quarter of 2020. At the same time, OPEC+'s commitment to reduce daily oil production amounted to 1.7 million barrels. The distribution of additional volumes to reduce production was carried out proportionally among the OPEC+ countries. As a result, on March 9, oil prices fell sharply on world markets, leading to a sharp rise in the US dollar in many countries. This situation has also raised questions among citizens, as Azerbaijan is an oil producer (participant in the OPEC+ initiative). It should be noted that the existing concerns and attempts at agitation (the desire of citizens to buy dollars en masse and the intention of those who want to use it) are justified. On February 21, 2015, devaluation took place in Azerbaijan. The Azerbaijan National Bank set the value of the AZN at $1.05 per dollar. The devaluation was 33.8 %. On December 21, 2015, the second devaluation took place and the official exchange rate of 1 US dollar was set at 1.55 AZN.

In early March of 2020, oil prices were around $50, and then prices fell to $20 as a result of the low demand brought by the outbreak of COVID-19. Low oil prices have made the economies of oil-exporting countries such as Russia, Qatar, Azerbaijan, and Saudi Arabia fragile, especially where the economy is predominantly oil-dependent (Ajayi, Aliyev, Sarkhanov, 2020).

The importance of energy, which is one of the basic factors of industrialisation and even an indispensable source of human life, is indisputable in today's world. The unbalanced distribution of energy resources due to geographical conditions increases the dependence on imported energy in some countries and causes the country's economies to be negatively affected by the increases in energy prices. Dependence on oil is becoming more important every day among primary energy sources (Mir-Babayev, 2002). Since oil is the most important energy source, especially in modern economies, fluctuations in oil prices all over the world, especially in Western countries, cause recession or expansion in the economy (İsrafiloğlu, 2009). Although petroleum is an input frequently used in the production of goods and services for many developed and developing countries, it is also critical for service-oriented industries such as transportation and heating, as well as it is important for real industry branches such as the chemical-heavy industry. Sudden and unpredictable fluctuations in oil prices due to the macro-based effects affect the supply of the relevant factor and this situation creates wide-ranging effects for the world economy (Quliyev, 2008).

In order to be able to produce in an economy, to maintain the continuity of economic growth, and to provide employment and prosperity accordingly, it is necessary to calculate the reflections of the price changes in these energy resources. It can be said that the energy source required by the technology, which is widely used in the world today, is predominantly based on oil (Altay, 2009). For this reason, the countries whose exports depend on oil are deeply affected by the price changes in oil in the Republic of Azerbaijan or other oil-dependent countries.

Aim: The aim of this research is to examine the impact of oil prices on gross domestic product (GDP) of Azerbaijan, the growth rate of gross domestic product, and the amount of oil production in Azerbaijan in 2009–2018. For this purpose, the literature part of the research begins with a brief description of the history of Azerbaijan's oil industry, followed by the importance of the oil industry in the economy of Azerbaijan, its role in foreign economic relations, and its effects on the country's economy. Then, the findings are interpreted, and various suggestions are made together with theoretical and practical inferences in the conclusion of the research.

Method: The quantitative method was used as a key research method. The data used in the analysis of this study were collected according to the literature scanning method, which is one of the data collection techniques. In the research, descriptive statistics technique, which is a quantitative data analysis technique, was used to analyse the data.

Hypothesis: The hypotheses of our research are based on the relationship between oil prices (2009–2018) and the Azerbaijani GDP, the growth rate of the Azerbaijani GDP, and oil production in Azerbaijan. There are three hypotheses in the research:

H1: Oil prices directly affect Azerbaijan's GDP.

H2: Oil prices are directly proportional to the growth rate of Azerbaijan's GDP.

H3: Oil prices directly affect oil production in Azerbaijan.

2. Background and Related Research

2.1. Relationship between economic Growth and Change in Oil Prices

Hamilton (1983) examined the recession process in the USA during the Second World War and the oil shock that occurred in 1973, determined that the changes in oil prices had a causal effect on the total output level and stated that they generally exerted an external pressure on the macroeconomic structure.

Hamilton (1996) emphasised that for the US economy, economic stagnation and fluctuation in

oil prices are closely related. He concluded that the relationship between the «net price increase» variable, which he defines as the positive difference between the current oil price and the highest price increases in the last four quarters, and the US real GDP is significant. At the same time, in the light of his findings, the effects of price changes on the economy are asymmetrical, and the recovery caused by price decreases is relatively weaker in the face of stagnation caused by price increases (Seferov, 2005; Əliyeva, 2019).

Some of the studies on the relationship between change in oil prices and economic growth can be summarised as follows.

Hamilton (2003) mentioned the nonlinear relationship between oil price fluctuations and GDP growth. Increases in oil prices are of greater significance for the projected GDP, although the decreases occur.

Boyer and Filion (2007) tested the efficiency of oil and gas companies in Canada. The result of the study revealed that a positive development in energy stocks in Canada affects the stock market in the same way. Market efficiency and price changes in oil and gas stocks are significant between 1995–1998 and 2000–2002 when significant declines were observed in exchange rates (Mehdiyev, 2001).

Miller and Ratti (2009) examined the long-term relationship between world crude oil prices and international stock markets for OECD countries between 1971 and 2008. They found that there was a positive relationship in 6 OECD countries for 1971–1980 and 1988–1998. In addition, an increase in the stock market causes a decrease in oil prices (Aras, 2008).

In the study by Oberndorfer (2008) for the EURO region, the profits and stock changes of energy companies in this region were analysed. Changes in oil prices have effects on energy stock changes as well as other macroeconomic variables. Fluctuations in the oil markets negatively affect the oil and gasoline stocks (Gelb, 2007).

El Sharif et al. (2005) examined the effects of changes in oil and gas prices for the UK, the largest oil producer in the EU. It has been determined that England's oil and gas stock changes are affected by some risk factors (changes in crude oil prices, stock market, and exchange rate) (Aras, Suleymanov, Zeynalov, 2013).

In the study of Huang, Hwang and Peng (2005), the effects of oil price changes and fluctuations on economic factors were examined by using monthly data for the years 1970–2002 for the USA, Canada, and Japan. According to the study, changes in oil prices are more effective in economic activities than fluctuations in oil prices (Əhməədov, 2004).

In the study of Farzanegan and Markwardt (2009), the shocks in oil prices, which have important effects on the Iranian economy, have been examined. In this study, the dynamic relationship between asymmetric oil price shocks and important macroeconomic variables in the Iranian economy for the period 1988–2004 was analysed using the Vector Autoregression (VAR) model. 6 variables were used to reveal the relationship: real oil prices, real effective exchange rate, inflation rate, real GDP, real public consumption expenditures, and real imports. As a result of the analysis, increases in oil prices cause significant decreases in GDP. For Iran, an emerging economy and a net exporter, both positive and negative changes in oil prices affect the overall output in the economy. The reason why this study is different from other studies is that the positive price shocks in oil prices had a greater effect on GDP than negative shocks (Gouliyev, 1997).

In the work of Gronwald, Mayr and Orazbayev (2009) for Kazakhstan, the VAR model was used to observe the effects of oil price changes on the economy, and the effect of oil price increases on important macroeconomic variables was discussed. As a result, all macroeconomic variables are negatively affected by the increase in oil prices (Oruclu, 2016).

Akıncı, Aktürk and Yılmaz (2012) investigated oil prices and economic growth using panel data analysis for the period 1980–2011 for OPEC and oil-importing countries. Analysis results show that there is both causality and cointegration relationship between economic growth and oil prices. It was observed that an increase in oil prices triggered the economic growth in OPEC countries and an increase in prices in importing countries negatively affected the growth process (Moroz, 2006).

In the study of Fukunaga, Hırakata and Sudo (2009), the reflection of the changes in oil prices on prices and the effect on the level of industrial production for the USA and Japan were examined. With the help of the VAR model, it has been determined that the effect of oil price changes on the industrial production level is weaker in Japan compared to the USA (Aras, 2010).

Blanchard and Gali (2007) examined the macroeconomic effects of oil price shocks in terms of USA, Germany, France, England, Italy, and Japan between the 2000s and 1970s using the Vector Autoregression model. 6 variables (nominal oil prices, manufacturing price index, GDP deflator, wages, GDP, and unemployment rate) are used in the model. According to the results of the study, oil price shocks reduce real wages, and, at the same time, according to the GDP and unemploy-

ment rate of these shock, it has a lower impact on prices and wages (Bağırov, 2003).

Huang and Gou (2007) examined the effect of oil prices on the real exchange rate of China. They predicted that the long-term real exchange rate would only increase slightly, as the Chinese government has strict regime policies and is less dependent on imported oil than trading partners (Boz, 2019). Tang, Wu and Zhang (2010), using VAR analysis for China, showed that income and investments are negative, while inflation and interest rate are positively affected by an increase in oil prices (Karasar, 2009).

The study of Jones and Kaul (1996) stated that the current and future real cash flows and changes in oil prices would attract the reaction of international stock markets for the United States, Canada, Japan, and England. While the US and Canadian stock markets react to the changes in oil prices with the use of quarterly data, it has been observed that the stock markets of Japan and the UK react more against the oil prices.

Sadorsky (1999) examined the relationship between oil price changes and real stock returns for America. According to the findings of the study, it is seen that both changes in oil prices and volatility affect real stock returns.

Since our study aims to examine the effects of oil prices on Azerbaijan's GDP, the growth rate of Azerbaijan's GDP, and oil production in Azerbaijan, it is useful to review a brief history of the oil industry of Azerbaijan, the place of the oil industry in the economy of Azerbaijan, the role of the oil industry in foreign economic relations of Azerbaijan and the effects of the oil industry on the economy of Azerbaijan.

2.2. A Brief History of Azerbaijan's Oil Industry

Information about oil production in Azerbaijan has been repeatedly mentioned in the works of early medieval scientists and travellers, and it has been said that this unusual product brings great benefits. However, in those days, oil was used only as a domestic fuel, for medical and military purposes[1]. With the arrival of major investors such as the Rothschilds and the Nobel brothers, capital inflows in the early 20th century led to a significant increase in oil production in Azerbaijan and a rapid increase in services. This period of growth left a strong mark on the architecture of Baku city, thanks to which administrative, social and municipal enterprises were created, and luxurious palaces were built by oil barons (Mirbabayev, 2002). The beginning of the use of oil for economic and consumption purposes in the territory of Azerbaijan is dated to the 7th and 8th centuries, based on direct sources (İsrafiloğlu, 2009). Azerbaijan's oil-rich resources have made it one of the World's most important and strategic energy producers. The famous traveller Marco Polo once said about Azerbaijani oil: "... it is a spring that can fill a hundred ships with a lot of oil. This fat is not edible, but it is good for burning. People come from far away to carry this oil, and there is no other oil burned like this in all the surrounding areas"[2]. In 1901, Azerbaijan ranked first in the world, producing 11.5 million tonnes of oil. The oil industry was nationalised on the basis of a decree issued on May 27, 1920. Management of nationalised enterprises of the oil industry, which is the main branch of the national economy of the republic, and determination of the order of nationalisation, was carried out by the Azerbaijan Oil Committee (Quliyev, 2008). Oil was used in construction, elimination of pests damaging the trees, treatment of various diseases. The information that it is used in many fields has reached today (Salayev, 1956).

In addition to the information provided by French travellers that the oil produced in Baku in the 17th century was sold to Western Europe, the interest of the Russians in Baku oil, the techniques of oil extraction in Baku, its sale, research on how the unsold quantity was stored is obvious (Əhmədov, Salayev Bağırzadə, 1973).

The biggest underground wealth of Azerbaijan, which is very rich in terms of underground resources, is oil, and 70 % of the country's land has high potential in terms of oil. Thus, Azerbaijan, which started oil production with technical methods in the 1870s, has had an important place in world oil production for many years. Especially in 1901, oil production in Azerbaijan reached 10 million tonnes, which constituted 51 % of world oil production. As a matter of fact, the highest oil production in the country was recorded in 1941 (23.5 million tonnes). Starting to produce oil from the offshore since 1949, the amount of oil produced from the sea has started to increase since 1965. Finally, in 2003, the total oil production in the country was 15.8 million (14.2 by sea and 1.6 by land). It is thought that the production of petroleum will increase rapidly after the Baku-Tbilisi-Ceyhan crude oil pipeline, which aims to transport

[1] SOCAR. (2020). Azərbaycanda neft qazçıxarmanın tarixi [Oil history in Azerbaijan]. Retrieved from: http://www.socar.az/socar/az/company/about-socar/oil-history-in-azerbaijan (Date of access: 01.07.2020). (In Azerb.)

[2] İki Sahil. (2010). Azərbaycan nefti: dünən və bu gün [Azerbaijan oil: yesterday and today]. Retrieved from: http://www.anl.az/down/meqale/iki_sahil/2010/dekabr/148290.htm (Date of access: 10.07.2020). (In Azerb.)

the country's oil to European markets, will be put to use. Thus, in the first half of the 21st century, it is aimed to produce 80–100 million tonnes of oil per year in the country. This is a situation that will be considered important and rejoiced for the development of Azerbaijan (Seferov, 2005).

Technical developments in the oil industry have not missed important areas such as oil transportation and refining. In 1878, the first steam pump pipeline, connecting oil fields to an oil refinery, became operational. Previously, crude oil was transported to plants in cars. Oil storage was also improved in these years. Instead of primitive pits, more efficient warehouses were built with cemented stone and brick and wood cladding. Then metal tanks were formed. Such abundant oil resources have always attracted the attention of others, most of which are treasure hunters. Until 1901, thanks to the efforts of the Alfred, Robert and Ludwig Nobel, Azerbaijan produced 11.4 million tonnes of oil, which made up more than half of the world's oil at that time (Quliyev, 2008). During the World War II, Azerbaijan supplied 97 percent of the oil used by Allied tanks, aircraft, and other vehicles. History has shown that this was a vital contribution to the war.

2.2.1. "Contract of the Century"

On September 20, 1994, the Government of Azerbaijan signed an agreement with 10 oil companies from six countries on the development of offshore Azeri-Chirag-Gunashli oil fields — a production sharing agreement. Under an agreement signed 25 years ago, $7.4 billion has been invested in the development of three offshore oil fields, initially estimated at 30 billion and estimated at 4 billion barrels. The Azerbaijani government was to receive 80 % of the profits, including SOCAR's share and royalties (Əliyeva, 2009).

The distribution of shares was as follows (Əliyeva, 2009): SOCAR (Azerbaijan) — 20 %, BP (UK) — 17.127 %, AMOCO (USA) — 17.01 %, LUKOIL (Russia) — 10 %, Pennzoil (USA) — 9.82 %, UNOCAL (USA) — 9.52 %, STATOIL (Norway) — 8.563 %, McDermott (USA) — 2.45 %, RAMCO (Scotland) — 2.08 %, Turkish State Oil Company (Turkey) — 1.75 %, and Delta-Nimir (Saudi Arabia) — 1.68 %.

Following this agreement, 31 international agreements on other fields in the Caspian Sea were signed with the world's leading oil companies. The choice of the route of oil transportation was an important international strategic decision, because this decision provided diversification of the supply route for the West and could lead to antagonism among the strongest players in the region. However, thanks to strong regional cooperation supported by foreign players and the ability of the political leaders of Azerbaijan and Georgia, the Baku-Tbilisi-Ceyhan route was inaugurated in 2006. On September 14, 2017, a new stage in the development of the "Azəri-Çıraq-Günəşli" (Azeri-Chirag-Gunashli) oil field was marked by the signing of an improved production sharing agreement with BP, the operator of SOCAR, until 2050. According to the agreement, SOCAR's share in the project was increased from 11 % to 25 % (Əliyeva, 2009). Azerbaijan began to make its first profit in December 1999. So far, it has earned more than $140 billion. This number only represents revenues of the State Oil Fund of the Republic of Azerbaijan, but in addition, international companies have also paid more than 10 billion taxes to the state budget of country. The profit of the Azerbaijani side is not limited to this. Within the framework of these large projects, state companies, joint ventures, and private companies participating as contractors and subcontractors received income from those projects and paid taxes. They made a profit, which in total, was about $5 billion. That is, in combination, the total income of the Azerbaijani state from these projects is more than $155 billion (Şaban, 2018).

According to all facts described above, we see that oil is very important for the economy of Azerbaijan. Considering what has been said in our article, it is useful to examine the place of the oil industry in Azerbaijan's economy, the role of the oil industry in foreign economic relations, and the effects of the oil industry on Azerbaijan`s economy.

2.3. The Place of The Oil Industry in Azerbaijan`s Economy

When macroeconomic indicators are taken into consideration, it is seen that Caspian energy resources are the most important potential opportunities in Azerbaijan's restructuring and integration into the world economy. Agreements and following activities regarding the production and export of energy resources have opened important opportunities to the national economy. Since 1994, Azerbaijan has made petroleum and natural gas agreements with international companies, and carried out joint activities in this framework, allowing the introduction of advanced modern technologies and re-establishment of the energy sector infrastructure (Mehdiyev, 2001). On the one hand, the rapid increase in oil consumption with industrialisation, and on the other hand, the lack of an alternative energy source to oil has increased the importance of oil. Thus, oil, which

is the most powerful energy source in the 20th century, seems to maintain its importance in the 21st century as well. Compared to other energy sources, it is seen that oil and then natural gas have a wider usage area. The share of oil in world energy consumption was 20.7 % in 1938, 27.7 % in 1950, 34.7 % in 1960, 44.1 % in 1970, 44.9 % in 1980 and 40.5 % in 1990 (Aras, 2008). According to some calculations, the dependence on world oil imports will increase to 80 % by 2020 (Gelb, 2007). Central and Eastern European countries (except Russia) meet 80 % of their oil needs through imports, while Western European countries account for 55 %. Azerbaijan, which signed the first agreements with international consortiums on the extraction of oil from the Caspian Sea coast, had an annual oil production of 15 million tonnes in the former Soviet Union. According to the calculation made by the «Oil and Gas Journal», Azerbaijan, which has 7 billion barrels of oil reserves and 30 trillion cubic feet (Tcf) natural gas reserves, has an important place in this market (Aras, Suleymanov, Zeynalov, 2013).

Baku-Tbilisi-Ceyhan was decided as the main export pipeline for the export of Azerbaijani oil to the world markets, and Baku-Tbilisi-Erzurum for natural gas. Thus, Azerbaijan, as one of the most important pillars of economic restructuring, development, and integration with the globalising world, has reached the transmission lines that enable the export of energy resources to the world markets. From the beginning of production until 2005, the highest amount of oil was produced in 1941 with 23.4 million tonnes in Azerbaijan. After the independence followed by the restructuring and changes, in Azerbaijan, where oil production fell, the steps were taken after the "Contract of the Century" and oil production started to increase again. With the start of oil production from the first well of the «Çıraq» (Chirag) field in November 1997, oil production, which decreased until 1997, started to increase since 1998. This process continued until 2010. Oil production was 15.3 in 2003, 15.5 in 2004, 22.2 in 2005 and 32.3 million tonnes in 2006. With the production amount in 2006, the record of 23.4 million tonnes in 1941, the highest oil production amount in Azerbaijan in history, has also been left behind. The oil production amount was 41.7 million tonnes in 2007 (Aras, 2008). The amount of oil production was 50.4 million tonnes in 2009, 41.6 million tonnes in 2015 and 38.8 million tonnes in 2018[1].

[1] SOCAR. (2009-2018). Annual report. Retrieved from: http://www.socar.az/socar/en/economics-and-statistics/economics-and-statistics/socar-reports (Date of access: 17.06.2020)

According to the data of the Ministry of Energy of Azerbaijan, there are 6–8 billion barrels of oil reserves in the regions covering the agreements made in Azerbaijan. Oil reserves of only "Azeri-Chirag-Guneshli" deposits are 730 million tonnes. In line with the above data, Azerbaijan has approximately 0.7 % of the world's oil reserves. According to some calculations, it is possible that the Azerbaijani oil reserves will be exhausted in 60–67 years. With the start of the third phase of "Azeri-Chirag-Guneshli" in 2011, the daily production of these oilfields increased from 140 thousand barrels to 1 million barrels. Besides the rich oil reserves, there are natural gas reserves in the Eurasia region. The natural gas reserves of the Caspian Sea within the Eurasia region are 459 Tcf (trillion cubic feet) in total, 166 Tcf of this being discovered (Aras, Suleymanov, Zeynalov, 2013). Along with oil, natural gas also has serious effects on the economy of Azerbaijan. After the TANAP project is finished, Azerbaijan will be transformed into a natural gas exporter to Europe.

2.3.1. The Role of the Oil Industry in Foreign Economic Relations

After the dissolution of the USSR, the activities related to the production and export of Caspian energy resources, which started with the "Contract of the Century", played an important role in the integration of Azerbaijan into the world economy as a political and economically independent state. These activities have been an important tool in international economic and political relations as well as a significant factor in the restructuring and development of the country's economy in a stable environment. Thus, Azerbaijan has made great progress in integrating into the world economy.

Azerbaijan established commercial relations with 137 countries in 2007, indicating that the country has made significant progress in the process of integration to the world economy. However, the enterprises' inability to produce in a competitive position in the world markets restricts the opportunities of Azerbaijan to integrate into the world economy with production and export in sectors other than energy. One of the new issues in Azerbaijan's foreign economic relations system is a membership to some international economic organisations and the loans received from them. The country's membership in international economic organisations has a positive effect on economic and commercial cooperation with world countries (Aras, Suleymanov, Zeynalov, 2013). Having relations with many international economic organisations, Azerbaijan is also a member of associations that are important in terms of regional economic

and commercial relations. On the other hand, it has a close relationship with the European Union.

It is wrong for Azerbaijan to rely on the energy sector consisting only of oil and natural gas in realising its economic development, integration with the world economy, and attracting foreign capital to the country. Oil and oil products constitute approximately 90 % of the country's annual exports; if the production-technological products brought to the country within the framework of oil agreements are not considered, almost half of the imports are agricultural products. In fact, the natural-climate and soil condition of Azerbaijan allows the production of agricultural products for export, apart from meeting domestic demand. Accordingly, it is necessary to create the necessary conditions for attracting foreign capital to non-oil sectors.

2.3.2. Effects of Oil Industry on Azerbaijan Economy

The increase in revenues from natural resource exports caused the social transfers and salaries allocated from the budget to be paid on time and the social peace to be improved. As a result, the country has entered a successful period to overcome the difficult transition period, to make economic reforms and necessary legislative arrangements (Əhmədov, 2004).

The increase in revenues increased the credit rating of the financial institutions of Azerbaijan. This gave the country a risk-free zone appearance on behalf of foreign investors, resulting in a favourable environment for funding and attracting investment for the necessary projects (Gouliyev, 1997). Especially after 2000, Azerbaijan has been successful in attracting foreign capital. At the UN Trade Conference in 2004, Azerbaijan ranked first among 140 countries in the foreign direct investment index. This is 35 % more than in 2003, mainly because of the "Azeri-Chirag-Gunashli" fields and the successful BTC project (Oruclu, 2016).

The country's earnings from oil contracts are spread over the years and this constitutes an important part of the country's budget. From the "Contract of the Century", one of the two biggest agreements for the country, USD 140 million will be generated in 20 years. On the other hand, when there are new wells in any of the 3 field (Azeri, Chirag, Gunashli) that fall under the scope of this agreement, the reserves increase and this changes in favour of Azerbaijan. It evaluates the total reserves of wells as 910 million tonnes and reports that Azerbaijan can receive 80 % of these reserve revenues. This means that if the oil prices are 40 US dollars, the income will be at least 160 billion US dollars (Moroz, 2006). Oil prices were more than 40 US dollars in 2009–2018, which brought more income to the country.

The fact that 65 % of foreign investments and 85 % of export revenues were dependent on the oil industry sector in 1999–2004 indicates an imbalance for the economy. In this way, focusing on one sector has shed light on problems such as "Dutch Disease" in the country's economy and the effects of this syndrome, such as unemployment and dependence on oil prices (Oruclu, 2016).

Dutch Disease is the result of not developing other sectors or regions in the face of the rapid development of one region or sector. According to this mentioned economic phenomenon, the intensive use of natural resources in the economy will negatively affect other sectors that are subject to foreign trade. The fact that the export figures of the country's economy have been represented by 85 % oil and oil products for many years is a sign of this danger (Aras, 2010).

Thousands of new businesses have been opened in the country, with oil and gas production and export projects being the mobilising factor. Most workers in the oil sector are citizens of Azerbaijan. New infrastructure investments are also made because of increasing oil and natural gas production encouraging employment. Oil and gas agreements have been signed in a way to increase the employment of the local workforce. This situation further increases the quality and level of employment by opening new jobs for the local population. The intensive use of modern technology in the production and export of energy resources made it necessary to increase the knowledge and experience of the labour factor in the energy sector in the country. In this context, State Petroleum Company SOCAR conducts domestic and international medium-term programmes.

Dependence on oil prices poses several threats to the Azerbaijani economy resulting from uncertainties, because oil prices are greatly affected by global economic developments. It will be risky to make a long-term plan, as fluctuations will significantly affect country income. At the same time, rising prices increase the value of the national currency, creating disadvantages for the non-oil sector. The opposite, on the other hand, leads to increased foreign deficits, local currency depreciation, and a crisis in the economy (Bağırov, 2003). As mentioned, the conjuncture movements forced the Central Bank of Azerbaijan to re-evaluate the national currency, the Azerbaijani manat, in February and December 2015. Devaluation, which was implemented in 97 % in total, was the only option of the Azerbaijani economy due to declining oil and natural gas revenues.

Based on all the foregoing, we will try to explain how oil prices have an impact on the Azerbaijani economy in our study.

3. Methods

Research Model: The quantitative research method is preferred in the study aiming to reveal the effects of oil prices on GDP, GDP growth rate, and oil production in Azerbaijan (2009–2018). In the research, descriptive statistics are preferred among the quantitative research approaches that help in transforming numbers and quantitative data obtained as a result of data collection into descriptive indices (Padem, Göksu, Konaklı, 2012). Descriptive statistics are used to describe the basic features of the data in a study. They provide simple summaries about the sample and measures. Together with simple graphics analysis, they form the basis of virtually every quantitative analysis of data. Descriptive statistics are typically distinguished from inferential statistics. With descriptive statistics, a researcher is simply describing what is or what the data show. With inferential statistics, one is trying to reach conclusions that extend beyond the immediate data alone (Trochim, 2020). Descriptive statistics are statistics related to compiling, collecting, summarising, and analysing numerical data (Spiegel, Stephens, 2013). Descriptive statistics are used simply to describe what is going on in data.

Data Collection Tool and Process: The quantitative data used in the analysis of this study are collected according to the literature review technique, one of the quantitative data collection techniques. The literature review is mostly used in examination studies, estimations, obtaining a statistical result, and directing the work of businesses. The scanning method can also be classified within itself: documents can be classified as historical data browsing, archive review, and electronic data browsing over the web (Padem, Göksu, Konaklı, 2012). The present research has been carried out by electronic data scanning through books, journals, and the web. In the study, data on GDP of Azerbaijan, the growth rate of GDP and oil production in Azerbaijan in 2009–2018 was gathered first by scanning the literature. Then, using the same technique, data on average annual oil prices in 2009–2018 was collected.

Data analysis: In order to reach the conclusion of the research, the data should be analysed. There are data various analysis techniques used for this (Padem, Göksu, Konaklı, 2012). For the analysis of quantitative research data, statistics and its subtypes, descriptive statistics, and predictive statistics techniques are used. The descriptive statistical technique is a discipline used to analyse and organise numerical data. The descriptive statistical technique helps the researcher to organise and interpret the numbers that occur in the measurement of variables in the data collected by data collection techniques. This technique is a method of classifying, analysing, and interpreting in a systematic way according to research purposes. Descriptive statistics transform the numbers and the quantitative data obtained as a result of observation into descriptive indices. In the data analysed with the descriptive statistical technique, the question is focused on «what?» (Spiegel, Stephens, 2013). In this study, the descriptive statistics technique, which is a quantitative data analysis technique, was used for data analysis.

4. Results

This section discusses the results of the study. Since the article aims to reveal the effects of oil in the economy of Azerbaijan, how oil production and oil prices affect the growth rate of Azerbaijan's GDP, and Azerbaijan's GDP, we compare the data related to this. Based on the information provided below, Azerbaijan's GDP, which was 44.29 billion dollars in 2009, is 46.94 billion USD in 2018. The highest figures in 2009–2018 are recorded in 2013 and 2014 — 74.16 and 75.24 billion USD, respectively. The lowest figure in GDP in 2009–2018 is experienced in 2016 — only 37.87 billion USD (see Table 1 and Figure 1). When we look at the oil prices for comparison, the average annual oil price is 105.87 USD in 2013 and 96.29 USD in 2014. While GDP is at its least in 2016 in 2009–2018, it is the lowest in oil prices in 2009–2018 — 40.76 USD (Table 4). All this shows that the price of oil directly affects Azerbaijan's GDP and that our H1 hypothesis (Oil prices directly affect Azerbaijan's GDP) is accepted.

GDP growth rate in Azerbaijan in 2009–2018 (%) is given in Table 2 and Figure 2. When we look at the growth rate of Azerbaijan's GDP, it was 9.3 % in 2009, 5 % in 2010. In 2016, however, there is a decline, and the growth rate of GDP is –3.1 %. As seen from the figures mentioned about GDP, in 2009–2018, GDP had seen the lowest figure in 2016 — 37.87 billion USD. Another important point is that the average annual oil price ($40.76) in 2016 is the lowest for the period of 2009–2018 (see Table 4). It can be understood from the data that there is a correct relationship between the Azerbaijani GDP and the oil prices. All these show that the H2 hypothesis (Oil prices are directly proportional to the growth rate of Azerbaijan's GDP) is accepted.

Table 1

GDP of Azerbaijan in 2009–2018 (billion USD)

Years	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
GDP (billion USD)	44.3	52.9	66	69.7	74.2	75.2	53.1	37.9	40.9	46.9

Source: Knoema. (2020). Azerbaijan Historical GDP. Retrieved from: https://knoema.com/mhrzolg/historical-gdp-by-country-statistics-from- the-world-bank-1960–2018?country=Azerbaijan (Date of access: 15.06.2020).

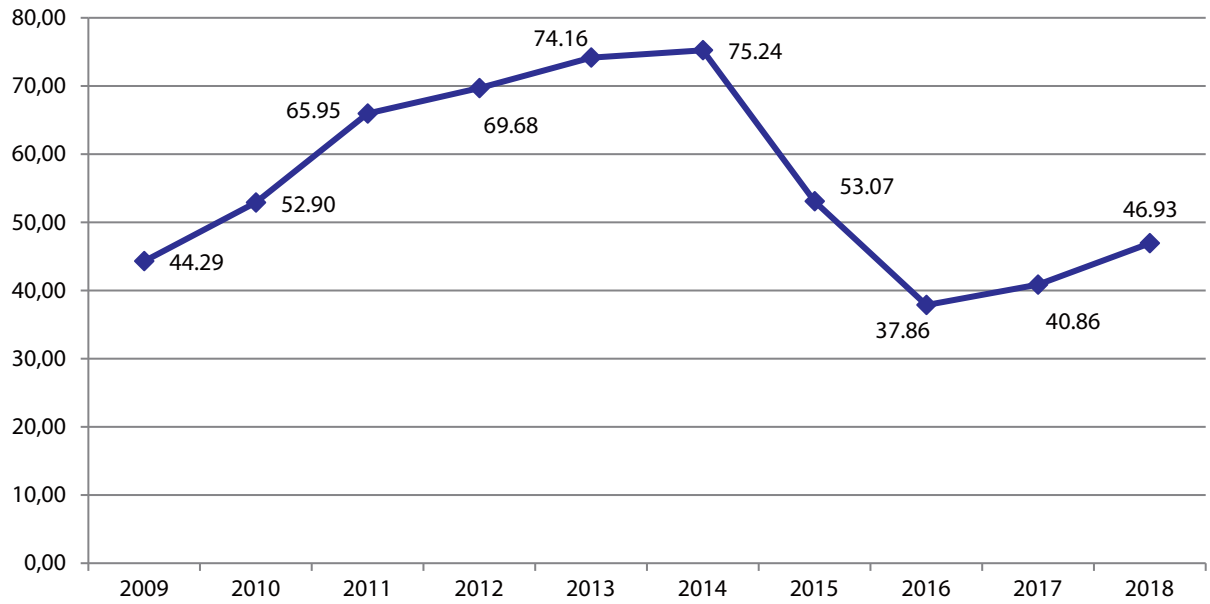

Fig. 1. *GDP of Azerbaijan in 2009–2018 (billion USD)*

Table 2

Azerbaijan's GDP growth rate in 2009–2018 (%)

Years	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
GDP growth rate (%)	9.3	5	0.1	2.2	5.8	2.8	1.1	-3.1	0.1	1.4

Source: AHK. (2019, 05 29). İqtisadiyyatın neft və qeyri-neft bölmələrində ümumi daxili məhsul [Gross domestic product in the oil and non-oil sectors of the economy]. Retrieved from: https://www.aserbaidschan.ahk.de/fileadmin/AHK_Aserbaidschan/Wirtschaft_in_Zahlen/Statistiken_zur_aserbaidschanischen_Wirtschaft/Azerbaycanin_UDM_Istehsali.pdf (Date of access: 25.06.2020). (In Azerb.).

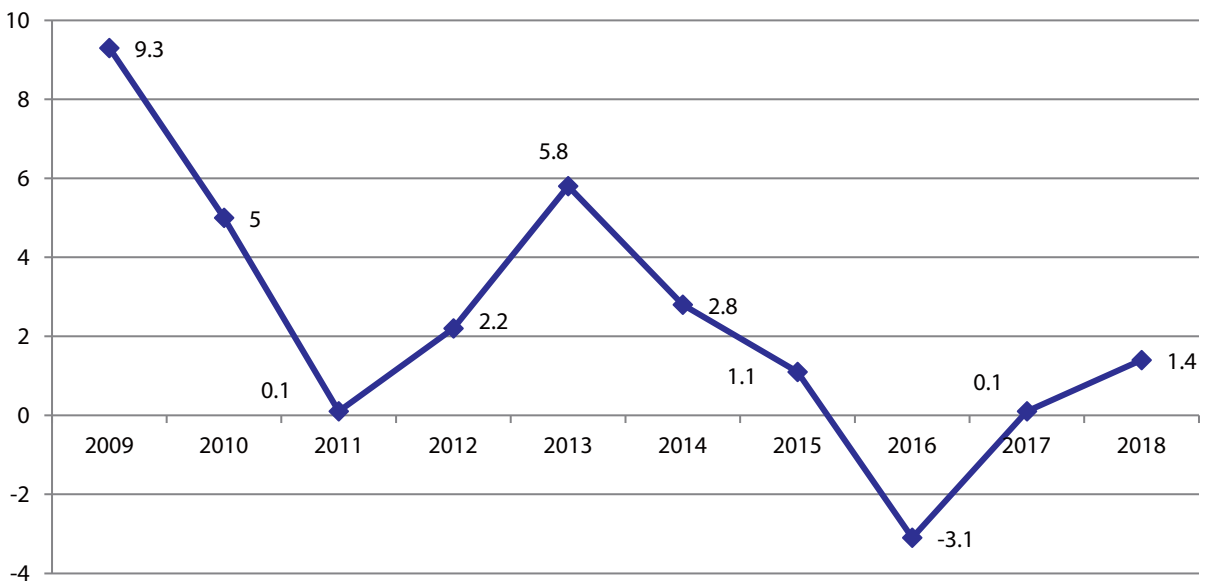

Fig. 2. *Azerbaijan's GDP growth rate in 2009–2018 (%)*

Table 3

Oil production in Azerbaijan in 2009–2018

Years	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Tonnes (Million)	50.4	50.8	46.5	43.4	43.5	42	41.6	41	38.7	38.8
Barrels (Million)	360.2	363.1	332.4	310	310.9	300.2	297.3	293	277	277.3

Source: SOCAR. (2009–2018). Annual report. Retrieved from: http://www.socar.az/socar/en/economics-and-statistics/economics-and-statistics/socar-reports (Date of access: 17.06.2020).

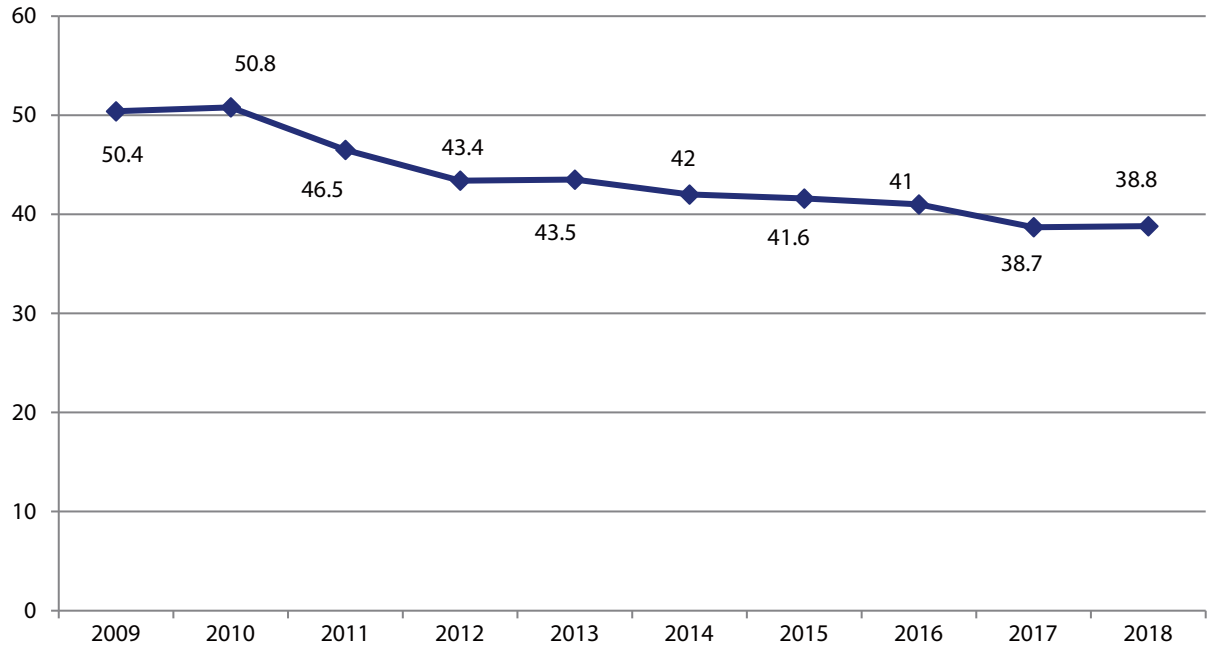

Fig. 3. *Oil production in Azerbaijan in 2009–2018 (Million tonnes)*

In the next table and figure, the amount of oil produced (both tonnes and barrels) in Azerbaijan in 2009–2018 is given (Table 3 and Figure 3). When we look at the oil production figures in 2009–2018, oil production is 50.4 million tonnes (360.23 mln. barrel) in 2009 and 38.8 million tonnes in 2018 (277.32 mln. barrel). The lowest figure in 2009–2016 was in 2016 — 41 million tonnes (293.04 mln. barrel). It should be noted that, in the years 2009–2018, after 2016, the year with the lowest oil price (see Table 4), production did not reach the level achieved before 2016. This information shows that oil prices affect not only GDP and growth rate of GDP, but also have a direct effect on oil production. All this shows that the H3 hypothesis (Oil prices directly affect oil production in Azerbaijan) is accepted.

The other table presents the average annual price of oil in 2009–2018. The average annual oil price is 60.86 USD in 2009, 107.46 USD in 2011, 109.45 USD in 2012 and 105.87 USD in 2013 (see Table 4). The minimum average annual oil price between periods of 2009–2018 is recorded in 2016 — 40.76 USD. According to the data, it is obvious that GDP of Azerbaijan, the growth rate of Azerbaijan's GDP, and the quantity of oil production in Azerbaijan are affected by the oil prices. Figure 1 shows that GDP increased in 2011–2014, and oil prices were higher in these years compared to other years. When comparing the oil prices and the growth rate of GDP, the same view appears (see Figure 2). As seen in Figure 4, in the years when the price of oil increases, GDP growth rate also increases, and when the price of oil decreases, the growth rate also slows down. In 2016, the lowest oil price of 2009–2018 (40.76 USD) also affected the growth rate of GDP and, in 2009–2018, the first-time rate of GDP growth rate is minus 3.1 % (–3.1 %).

Based on all the information provided above, there is a direct relationship between oil prices and Azerbaijan's GDP growth rate and GDP of Azerbaijan. Oil prices also affect the oil production of Azerbaijan.

5. Conclusion

In order to have a sustainable economy, a continuous energy source is needed. Many countries in the world economy, both in terms of economic dimensions and political situations, make oil politically indispensable with the idea of owning oil, which is an uninterrupted energy source. The price of oil can greatly affect countries with oil-dependent economic activities at the slightest

Table 4

Annual average crude oil price in 2009–2018 (USD)

Years	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Price (USD)	60.86	77.38	107.46	109.45	105.87	96.29	49.49	40.76	52.51	69.78

Source: Macrotrends. (2020). Crude Oil Prices — 70 Year Historical Chart. Retrieved from https://www.macrotrends.net/1369/crude-oil-price-history-chart (Date of access: 27.06.2020).

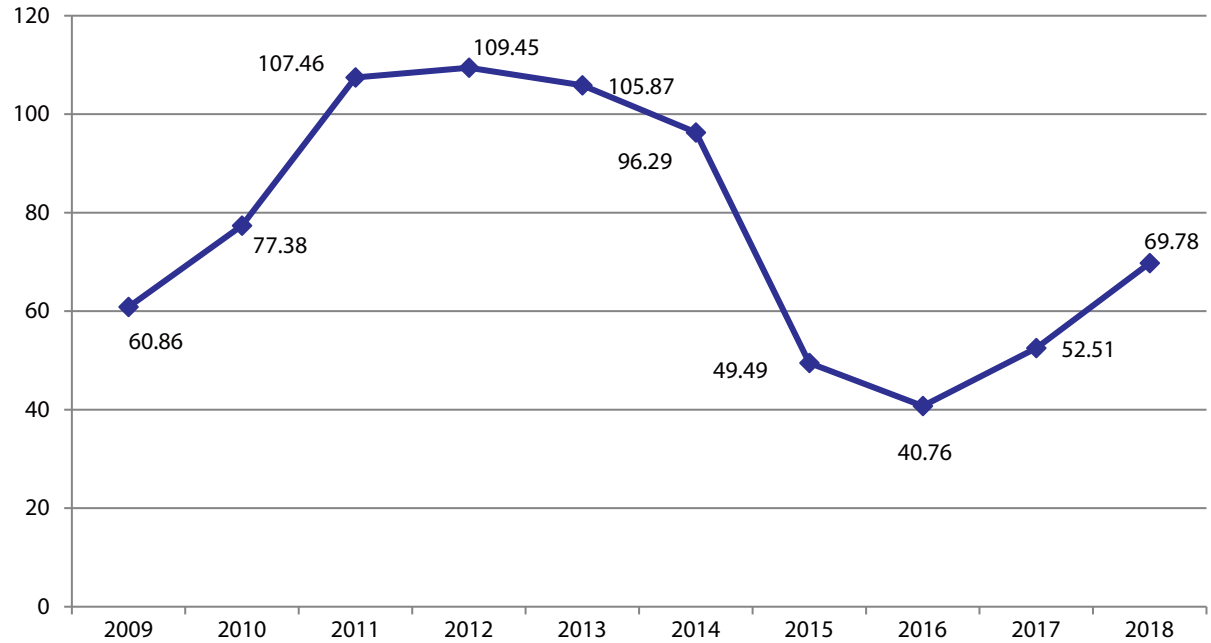

Fig. 4. *Annual average crude oil price in 2009–2018 (USD)*

change. Therefore, oil prices are among the main factors influencing the economic performance of the world and the country. Both the inflationary effects of the increases in crude oil prices in the oil-importing countries and the crises caused by other macroeconomic activities have been one of the topics discussed since 1970 and afterward.

As a result, we know that Azerbaijan's oil and gas industry has a very rich history. The country continues to contribute to the international development of this field today.

Although the country does not have such a large production capacity compared to OPEC countries, it is an active participant in the stabilisation of oil prices. The OPEC event held in Baku in March 2019 is an indication that Azerbaijan's historical and modern role is appreciated as an oil country. It should not be forgotten that Azerbaijan is one of the participants in the OPEC attempting to maintain oil production at a stable level.

The aim of the article is to reveal whether GDP of Azerbaijan, the growth rate of Azerbaijan's GDP, and the oil production in Azerbaijan are affected by oil prices (2009–2018). Three hypotheses were tested in the research: H1: Oil prices directly affect Azerbaijan's GDP; H2: Oil prices are directly proportional to the growth rate of Azerbaijan's GDP; H3: Oil prices directly affect oil production in Azerbaijan. Based on the findings of the study, all three hypotheses are confirmed. The information presented in the results has shown that GDP, GDP growth rate, and oil production are affected by oil prices. According to all this information, the weight of oil in the Azerbaijan economy will last for a few years and that oil prices will affect the economy of Azerbaijan.

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